

Introduction

After its establishment in 1983 and until the present day, Holtek Semiconductor has released an unceasing stream of competitive semiconductor devices onto the global market. While continuing to concentrate its design efforts in the 8-bit and 32-bit microcontroller development area, the extensive and increasing range of peripheral semiconductor products should also not be ignored. At the foundation of these successful product developments exists many years of semiconductor design experience accumulated by the company's professional engineering design teams. The results of these extensive efforts have led to Holtek customers being provided with a huge range of high quality industrial grade semiconductor devices. Among Holtek's many customers are included a wide array of popular global brand consumer appliances and industrial products, which shows the global confidence in the company's devices. With this background, Holtek remains fully committed to a continuous expansion of its high quality and superior price-performance semiconductor devices well into the future.

Product Device Range

Holtek's product development focus will remain firmly in the microcontroller area for both 8-bit and Arm® core based 32-bit microcontrollers. These highly functionally integrated microcontrollers includes digital and analog features such as A/D converters, comparators, LCD drivers, PWM generators, high current LED drivers, touch switches, SPI, I²C, UART and USB interfaces, voice functions, RF functions etc. All of the company's 32-bit and 8-bit microcontroller devices meet with full industry specifications in having a wide voltage and temperature operating range. In addition to its microcontrollers there exists a wide range of peripheral devices such as stand-alone touch switch ICs, LCD drivers, power management devices, video processors, sensors etc. The company will also be expanding its range of functional modules such as PIR modules, infrared modules, temperature/humidity modules etc, further increasing the Holtek product diversity and opening up applications into a wider market area.

Product Development Strategy

In following market trends and customer requirements, Holtek's commitment to new product development and innovation can be seen through its continuously expanding device functionality. As the world of IOT continues to extend its reach into demands for an increasingly connected lifestyle, Holtek's multi-function product range stands in a strong position to have a strong presence in this rapidly expanding market area. The integration of features such as RF functions, voice, touch key and power management functions into its microcontroller range demonstrates this commitment to IOT product trends. Holtek's range of standard microcontroller products will continue to expand but alongside it will be the design of application specific products such as those for motor control, personal health care, home appliances and many others. With its long history of working alongside its customers to assist in the design their custom microcontrollers, Holtek welcomes product manufacturers to contact them to discuss new custom microcontroller design possibilities. Additionally, and as no functionally rich microcontroller is useful without an appropriate development platform, all of Holtek's products are fully supported by a comprehensive range of hardware and software development tools to simplify the designer product development process. Holtek's obligation to ISO compliance and its string of innovation awards and intellectual properties provide further evidence of the company's commitment to product development excellence.

Marketing Service Network

Holtek's range of semiconductor products is fully complemented by its extensive global marketing network with a sales presence in most parts of the world. Having established a large number of worldwide sales offices and agents, Holtek's global marketing structure is well placed to take advantage of any new market opportunities and trends as they arise.

Selecting Your Holtek Device

As the range of 8-bit and 32-bit microcontroller devices covers such a vast range of types and functions, Holtek recommends that customers consult its on-line "Product Selector" to assist them in their selection of the most suitable microcontroller for their specific application. With Holtek continually releasing new products onto the market, it should be noted that the website version, rather than the printed version of the selection guide, will contain the most up to date product information.

To use our MCU Product Selector, please visit: www.holtek.com.

| | | |
|--|--|--|
| General Purpose MCU 32-Bit Flash MCU 3 8-Bit Flash MCU 6 High Supply Voltage Flash MCU 7 | Display MCU 8-Bit LCD Display Flash MCU 8 8-Bit LCD / LED Flash MCU 9 | 1.8V~5.5V MCU 1.8V~5.5V Flash MCU 10 |
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32-Bit Flash MCU

Cortex-M0+ 32-Bit MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | Timers ¹ | Cap. ² or PWM | Cpm. PWM ³ | RTC | Interface | Others | I/O | Package |
|------------|------------|-------------|-------|------|------|-------------------|--------------------------------------|--------------------------|-----------------------|-----|--|------------|----------------------|-------------------------------------|
| HT32F52220 | 40MHz | 2.0V ~ 3.6V | 16KB | 4KB | — | 1 Msps 12-bit ×8 | BFTM×1 SCTM×2 GPTM×1 | 6 | — | — | USART×1 UART×1 SPI×1 I ² C×1 | — | 19 23 23 | 24SSOP 28SSOP 33QFN |
| HT32F52230 | | | 32KB | 4KB | | | | | | | | | | |
| HT32F52231 | 40MHz | 2.0V ~ 3.6V | 32KB | 4KB | — | 1 Msps 12-bit ×12 | BFTM×2 SCTM×4 GPTM×1 MCTM×1 | 12 | 3 | √ | USART×1 UART×2 SPI×2 I ² C×2 | CRC | 19 23 26 40 | 24SSOP 28SSOP 33QFN 48LQFP |
| HT32F52241 | | | 64KB | 8KB | | | | | | | | | | |
| HT32F52243 | 40MHz | 2.0V ~ 3.6V | 64KB | 8KB | 6CH | 1 Msps 12-bit ×12 | BFTM×2 SCTM×4 GPTM×1 MCTM×1 | 12 | 3 | √ | USART×2 UART×4 SPI×2 I ² C×3 | CRC DIV | 26 38 40 52 | 33QFN 46QFN 48LQFP 64LQFP |
| HT32F52253 | | | 128KB | 16KB | | | | | | | | | | |

Cortex-M0+ 32-Bit USB MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | CMP | DAC | Timers ¹ | Cap. ² or PWM | Cpm. PWM ³ | RTC | SCI ⁴ | USB ⁵ | EBI ⁶ | I ² S | Interface | Others | I/O | Package |
|------------|------------|--------------|-------|------|------|-------------------|-----|------------------|---|--------------------------|-----------------------|-----|------------------|------------------|------------------|------------------|--|-------------------|----------------|-------------------------------------|
| HT32F52331 | 48MHz | 2.0V ~ 3.6V | 32KB | 4KB | — | 1 Msps 12-bit ×12 | — | — | BFTM×2 SCTM×4 GPTM×1 MCTM×1 | 12 | 3 | √ | 1 | √ | — | — | USART×1 UART×2 SPI×2 I ² C×2 | CRC | 24 38 | 33QFN 48LQFP |
| HT32F52341 | | | 64KB | 8KB | | | | | | | | | | | | | | | | |
| HT32F52342 | 48MHz | 2.0V ~ 3.6V | 64KB | 8KB | 6CH | 1 Msps 12-bit ×12 | 2 | — | BFTM×2 SCTM×2 GPTM×2 MCTM×1 | 14 | 3 | √ | 2 | √ | √ | √ | USART×2 UART×2 SPI×2 I ² C×2 | CRC | 26 39 51 | 33QFN 48LQFP 64LQFP |
| HT32F52352 | | | 128KB | 16KB | | | | | | | | | | | | | | | | |
| HT32F52344 | 60MHz | 1.65V ~ 3.6V | 64KB | 8KB | 6CH | 1 Msps 12-bit ×12 | 2 | — | BFTM×2 SCTM×2 GPTM×1 MCTM×1 | 10 | 3 | √ | — | √ | √ | — | UART×2 SPI×2 I ² C×1 | CRC DIV | 26 38 54 | 33QFN 46QFN 48LQFP 64LQFP |
| HT32F52354 | | | 128KB | 8KB | | | | | | | | | | | | | | | | |
| HT32F52357 | 60MHz | 1.65V ~ 3.6V | 128KB | 16KB | 6CH | 1 Msps 12-bit ×12 | 2 | 500Ksps 12-bit×2 | BFTM×2 SCTM×2 PWM×2 GPTM×1 MCTM×1 | 18 | 3 | √ | 2 | √ | √ | √ | USART×2 UART×4 SPI×2 QSPI×1 I ² C×2 | AES CRC DIV | 37 39 67 | 46QFN 48LQFP 64LQFP 80LQFP |
| HT32F52367 | | | 256KB | 32KB | | | | | | | | | | | | | | | | |

Cortex-M0+ 32-Bit LCD MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | CMP | DAC | Timers ¹ | Cap. ² or PWM | RTC | SCI ⁴ | USB ⁵ | I ² S | LCD | Interface | Others | I/O | Package |
|------------|------------|--------------|-------|------|------|-------------------|-----|------------------|-------------------------------------|--------------------------|-----|------------------|------------------|------------------|-------------|--|-------------------|----------------|-------------------------------------|
| HT32F57331 | 60MHz | 1.65V ~ 3.6V | 32KB | 4KB | — | 1 Msps 12-bit ×10 | — | — | BFTM×2 PWM×2 GPTM×1 | 12 | √ | 1 | √ | — | 29x4 ~ 25x8 | USART×1 UART×2 SPI×2 I ² C×2 | CRC DIV | 37 39 53 | 46QFN 48LQFP 64LQFP |
| HT32F57341 | | | 64KB | 8KB | | | | | | | | | | | | | | | |
| HT32F57342 | 60MHz | 1.65V ~ 3.6V | 64KB | 8KB | 6CH | 1 Msps 12-bit ×10 | 2 | 500Ksps 12-bit×2 | BFTM×2 SCTM×2 PWM×2 GPTM×1 | 14 | √ | 2 | √ | √ | 37x4 ~ 33x8 | USART×1 UART×2 SPI×2 I ² C×2 | AES CRC DIV | 37 53 67 | 46QFN 48LQFP 64LQFP 80LQFP |
| HT32F57352 | | | 128KB | 16KB | | | | | | | | | | | | | | | |

Cortex-M0+ 32-Bit 5V MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | ADC | Timers ^{*1} | Cap. ^{*2} or PWM | Cpm. PWM ^{*3} | RTC | Interface | Others | I/O | Package |
|------------|------------|-------------|-------|------|-------------------------------------|---------------------------|---------------------------|-------------------------------------|-----|--------------------------|----------------------|------------------------------------|------------------------------------|
| HT32F50220 | 20MHz | 2.5V ~ 5.5V | 16KB | 4KB | 1 Msps 12-bit×12 | BFTM×1 PWM×2 GPTM×1 | 12 | — | √ | UART×2 SPI×2 I²C×1 | DIV | 18 19 23 22 | 24QFN 24SSOP 28SSOP 28SOP |
| HT32F50230 | | | 32KB | 4KB | | | | | | | | | |
| HT32F50231 | | | 32KB | 4KB | BFTM×2 PWM×2 GPTM×1 MCTM×1 | 16 | 3 | USART×1 UART×2 SPI×2 I²C×2 | | CRC DIV | 26 38 36 40 | 33QFN 46QFN 44LQFP 48LQFP | |
| HT32F50241 | | | 64KB | 8KB | | | | | | | | | |

Cortex-M0+ 32-Bit 5V USB MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | Timers ¹ | Cap. ² or PWM ³ | RTC | USB ⁵ | Interface | Others | I/O | Package |
|------------|------------|-------------|-------|------|------|------------------|---------------------------------------|---------------------------------------|-----|------------------|--|------------|----------------------|------------------------------------|
| HT32F50343 | 60MHz | 2.5V ~ 5.5V | 64KB | 12KB | 6CH | 1 Msps 12-bit×12 | BFTM×2 SCTM×2 8-PWM×3 GPTM×1 | 30 | √ | √ | UART×2 SPI×2 I ² C×2 SLED×8 ⁷ | CRC DIV | 23 35 37 51 | 32QFN 46QFN 48LQFP 64LQFP |

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timers, 8-PWM: 8 Output channel PWM Timer, GPTM: General-Purpose Timers, MCTM: Motor Control Timer.
2. Cap.: Input Capture.
3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.
4. SCI: ISO7816-3 Smart Card Interface.
5. USB 2.0 Full Speed device.
6. EBI: External Bus Interface for NOR Flash / SRAM / LCD.
7. SLED: Strip LED Controller.

32-Bit Flash MCU

Cortex-M0+ 32-Bit Music Synthesizer MCU

| Part No. | Max. Freq. | VDD | Flash | Ext. Flash | SRAM | PDMA | Audio DAC | ADC | Timers ¹ | I ² S | RTC | USB ² | MIDI Engine ³ | SB Coding | Echo | Interface | I/O | Package |
|-----------|------------|-----------|-------|------------|------|------|-----------|-----------------|----------------------------|------------------|-----|------------------|--------------------------|-----------|------|--|-----|-----------|
| HT32F0006 | 48MHz | 2.0V~3.6V | 128KB | SPI | 16KB | 6CH | 16-bit x2 | 1MSPS 12-bitx16 | BFTMx2 SCTMx4 GPTMx1 | √ | √ | √ | √ | √ | √ | USARTx1 UARTx1 SPIx1 QSPIx1 I ² Cx1 | 52 | 48/64LQFP |

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timers, GPTM: General-Purpose Timers.
2. USB 2.0 Full Speed device.
3. 32-CH Music Synthesis Engine.

Cortex-M0+ 32-Bit Music Synthesizer MCU with Data Flash ROM

| Part No. | Max. Freq. | VDD | Flash | Data Flash ⁷ | SRAM | PDMA | Audio DAC | ADC | Timers ¹ | I ² S | RTC | USB ⁵ | MIDI Engine ⁶ | SB Coding | Echo | Interface | I/O | Package |
|------------|------------|-----------|-------|-------------------------|------|------|-----------|-----------------|----------------------------|------------------|-----|------------------|--------------------------|-----------|------|--|-----|------------------|
| HT32F61355 | 48MHz | 2.3V~3.6V | 128KB | 32Mbits | 16KB | 6CH | 16-bit x2 | 1MSPS 12-bitx16 | BFTMx2 SCTMx4 GPTMx1 | √ | √ | √ | √ | √ | √ | USARTx1 UARTx1 SPIx1 QSPIx1 I ² Cx1 | 43 | 48LQFP 64LQFP |
| HT32F61356 | | | | 64Mbits | | | | | | | | | | | | | | |
| HT32F61357 | | | | 128Mbits | | | | | | | | | | | | | | |

Cortex-M0+ 32-Bit Data Bridge MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | Timers ¹ | Cap. ² or PWM | RTC | USB ⁵ | Interface | Others | I/O | Package |
|-----------|------------|------------|-------|------|------|---------------------------|--------------------------|-----|------------------|--|-------------------|----------------------|-----------------------------------|
| HT32F0008 | 60MHz | 1.65V~3.6V | 64KB | 16KB | 6CH | BFTMx2 PWMx2 GPTMx1 | 12 | √ | √ | USARTx1 UARTx1 SPIx1 I ² Cx1 | AES CRC DIV | 19 28 40 42 | 24QFN 33QFN 46QFN 48LQFP |

Cortex-M0+ 32-Bit BLDC MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | CMP | OPA | Timer ¹ | Cap. ² or PWM | Cpm. PWM ³ | RTC | Interface | Others | I/O | Package |
|------------|------------|-----------|-------|------|------|-----------------------|-----|-----|--------------------------------------|--------------------------|-----------------------|-----|--|------------|-----|---------|
| HT32F65230 | 60MHz | 2.5V~5.5V | 32KB | 4KB | 6CH | 1 Mspsx2 12-bitx10 | 3 | 2 | BFTMx2 SCTMx4 GPTMx1 MCTMx1 | 12 | 3 | √ | USARTx1 UARTx1 SPIx1 I ² Cx1 | CRC DIV | 40 | 48LQFP |
| HT32F65240 | | | 64KB | 8KB | | | | | | | | | | | | |

Cortex-M0+ 32-Bit USB Data Logger LCD MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDF Create LIB | PDMA | ADC | CMP | DAC | Timers ¹ | Cap. ² or PWM | RTC | SCI ⁴ | USB ⁵ | I ² S | LCD | Inter-face | Others | I/O | Package |
|-----------|------------|-------------|-------|------|----------------|------|------------------|-----|------------------|-------------------------------------|--------------------------|-----|------------------|------------------|------------------|-----------|--|-------------------|----------|------------------|
| HT32F5828 | 60MHz | 1.65V~3.60V | 128KB | 16KB | √ | 6CH | 1 Msps 12-bitx10 | 2 | 500KSPS 12-bitx2 | BFTMx2 SCTMx2 PWMx2 GPTMx1 | 14 | √ | 2 | √ | √ | 37x4~33x8 | USARTx1 UARTx2 SPIx2 I ² Cx2 | AES CRC DIV | 39 67 | 48LQFP 80LQFP |

Enhanced 24-Bit A/D Cortex-M0+ 32-Bit MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | ADC | Timers ¹ | Cap. ² or PWM | Cpm. PWM ³ | RTC | Interface | Others | I/O | Package |
|------------|------------|-----------|-------|------|---|-------------------------------------|--------------------------|-----------------------|-----|--|------------|-----|---------|
| HT32F59041 | 20MHz | 2.5V~5.5V | 64KB | 8KB | SAR ADC 1MSPS 12-bitx12 Delta Sigma ADC 24-bitx4 | BFTMx2 PWMx2 GPTMx1 MCTMx1 | 16 | 3 | √ | USARTx1 UARTx2 SPIx1 I ² Cx1 | CRC DIV | 30 | 48LQFP |

Enhanced 24-Bit A/D Cortex-M0+ 32-Bit LCD MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | ADC | Timers ¹ | Cap. ² or PWM | RTC | SCI ⁴ | USB ⁵ | LCD | Inter-face | Others | I/O | Package |
|------------|------------|------------|-------|------|---|---------------------------|--------------------------|-----|------------------|------------------|-----------|--|------------|-----|---------|
| HT32F59741 | 60MHz | 1.65V~3.6V | 64KB | 8KB | SAR ADC 1MSPS 12-bitx10 Delta Sigma ADC 24-bitx4 | BFTMx2 PWMx2 GPTMx1 | 12 | √ | 1 | √ | 19x4~15x8 | USARTx1 UARTx2 SPIx1 I ² Cx1 | CRC DIV | 43 | 64LQFP |

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timers, 8-PWM: 8 Output channel PWM Timer, GPTM: General-Purpose Timers, MCTM: Motor Control Timer.
2. Cap.: Input Capture.
3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.
4. SCI: ISO7816-3 Smart Card Interface.
5. USB 2.0 Full Speed device.
6. 32-CH Music Synthesis Engine.
7. QSPI Flash ROM.

| 32-Bit Flash MCU | | | | | | | | | | | | | | | | | | | |
|---|------------|--------------|-------|-------|------|-------------------|-----|-------------------------------------|--------------------------|-----------------------|-----|------------------|------------------|------------------|-------------------|--|------------|----------------------|--------------------------------------|
| Cortex-M3 32-Bit MCU | | | | | | | | | | | | | | | | | | | |
| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | CMP | Timers ¹ | Cap. ² or PWM | Cpm. PWM ³ | RTC | SCI ⁴ | USB ⁵ | EBI ⁶ | I ² S | Inter-face | Others | I/O | Package |
| HT32F12345 | 96MHz | 2.0V ~ 3.6V | 64KB | 16KB | 12CH | 1 Msps 12-bit ×12 | 2 | BFTM×2 GPTM×2 MCTM×2 | 16 | 6 | √ | — | √ | √ | √ | SDIO×1 USART×2 UART×2 SPI×2 I ² C×2 | CRC | 37 37 51 | 46QFN 48LQFP 64LQFP |
| HT32F12365 | 96MHz | 2.0V ~ 3.6V | 256KB | 64KB | 12CH | 1 Msps 12-bit ×16 | 2 | BFTM×2 GPTM×2 MCTM×2 | 16 | 6 | √ | 2 | √ | √ | √ | SDIO×1 USART×2 UART×2 SPI×2 I ² C×2 | AES CRC | 37 37 51 80 | 46QFN 48LQFP 64LQFP 100LQFP |
| HT32F12366 | | | 256KB | 128KB | | | | | | | | | | | | | | | |
| HT32F12364 | 72MHz | 1.65V ~ 3.6V | 256KB | 128KB | 6CH | 1 Msps 12-bit ×8 | — | BFTM×2 SCTM×2 PWM×1 GPTM×1 | 10 | — | √ | 1 | √ | √ | — | USART×1 UART×2 SPI×2 I ² C×2 | AES CRC | 32 38 52 | 40QFN 48LQFP 64LQFP |
| Cortex-M3 32-Bit Fingerprint MCU | | | | | | | | | | | | | | | | | | | |
| Part No. | Max. Freq. | VDD | Flash | SRAM | PDMA | ADC | CMP | Timers ¹ | Cap. ² or PWM | Cpm. PWM ³ | RTC | SCI ⁴ | USB ⁵ | EBI ⁶ | CSIF ⁷ | Inter-face | Others | I/O | Package |
| HT32F22366 | 96MHz | 2.0V ~ 3.6V | 256KB | 128KB | 12CH | 1 Msps 12-bit ×16 | 2 | BFTM×2 GPTM×2 MCTM×2 | 16 | 6 | √ | 2 | √ | √ | √ | SDIO×1 USART×2 UART×2 SPI×2 I ² C×2 I ² S×1 | AES CRC | 37 37 51 80 | 46QFN 48LQFP 64LQFP 100LQFP |
| Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timers, GPTM: General-Purpose Timers, MCTM: Motor Control Timer. 2. Cap.: Input Capture. 3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application. 4. SCI: ISO7816-3 Smart Card Interface. 5. USB 2.0 Full Speed device. 6. EBI: External Bus Interface for NOR Flash / SRAM / LCD. 7. CSIF: CMOS Sensor Interface. | | | | | | | | | | | | | | | | | | | |

8-Bit Flash MCU

Small Package Flash MCU with EEPROM

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | PWM | Comparator | Interface | Package | | |
|------------|-----------------------|-----------|------------------------|----------------|-------------|--------------------|-------|-----|-----|--|----------|---------|------------|---------------------------------------|--------------------------------------|--|--|
| HT68F0017 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 0.5K×12 | 16×8 | — | 2 | — | 8 | 8-bit×1 | — | — | — | — | 8/10SOP | | |
| HT66F302 | 4MHz 8MHz | 1.8V~5.5V | 4MHz, 8MHz or 32kHz | 1K×14 | 64×8 | 32×8 | 2 | — | 8 | 10-bit STM×1 10-bit PTM×1 | 12-bit×4 | — | — | — | 8/10SOP | | |
| HT68F002 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×8 | 2 | — | 8 | 10-bit STM×1 | — | — | — | — | 8SOP, 10MSOP | | |
| HT66F0021 | | 1.8V~5.5V | | | | 32×14 [#] | | | 6 | 8-bit×1 | 10-bit×4 | 8-bit×1 | | | 8SOP | | |
| HT66F002 | | 2.2V~5.5V | | | | 32×8 | | | 8 | 10-bit STM×1 | 12-bit×4 | — | | | 8SOP, 10MSOP | | |
| HT68F0025 | | 2K×14 | | | | 4 | | | | | — | | | 8/10SOP | | | |
| HT66F0025 | | | | | | | | | | | 12-bit×4 | | | | | | |
| HT66F007 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 2K×16 | 160×8 | 512×8 | 8 | — | 8 | 10-bit CTM×2 16-bit STM×1 | 12-bit×5 | — | 1 | — | 8DIP/SOP 10MSOP | | |
| HT66F008 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 4K×16 | 256×8 | 1024×8 | 8 | — | 8 | 10-bit CTM×2 16-bit STM×1 | 12-bit×5 | — | 1 | — | 8DIP/SOP 10MSOP | | |
| HT66F2030 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 2K×15 | 128×8 | 32×8 | 4 | — | 14 | 10-bit CTM×1 10-bit PTM×1 | 12-bit×5 | — | — | SPI/I ² C×1 UART×1 | 8SOP, 10MSOP 16NSOP/QFN | | |
| HT66F2040* | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 4K×16 | 512×8 | 512×8 | 8 | √ | 18 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit×8 | — | 2 | SPI/I ² C/UART×1 UART×1 | 8SOP, 10MSOP 16NSOP/QFN 20SSOP | | |
| HT66F2050* | | | | 8K×16 | | | | | | | | | | | | | |

* Under development, available in 4Q, 2020.

Note: # Emulated EEPROM.

Flash MCU with EEPROM

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | PWM | SCOM | Package |
|-----------|----------------|-----------|---------------|----------------|-------------|--------------------|-------|-----|------------------------------|----------|---------|------|-------------------------------|
| HT68F003 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×8 | 2 | 14 | 10-bit STM×1 10-bit PTM×1 | — | — | — | 16NSOP |
| HT66F0031 | | 1.8V~5.5V | | | | 32×14 [#] | | 14 | 8-bit×1 | 10-bit×4 | 8-bit×1 | | |
| HT66F003 | | 2.2V~5.5V | | | | 32×8 | | 14 | 10-bit STM×1 10-bit PTM×1 | 12-bit×4 | — | | |
| HT66F004 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 2K×15 | 96×8 | 32×8 | 4 | 18 | 10-bit PTM×2 | 12-bit×8 | — | 4 | 16NSOP 20DIP/SOP/SSOP/NSOP |
| HT66F0041 | | 1.8V~5.5V | | 2K×14 | 64×8 | 32×14 [#] | | | 8-bit×1 | 10-bit×4 | 8-bit×1 | — | 16/20NSOP, 20SSOP |

Note: # Emulated EEPROM.

Flash MCU with High Current Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | High Current I/O | PWM | Package |
|-----------|----------------|-----------|---------------|----------------|-------------|--------------------|-------|-----|---------|------------------|---------|---------|
| HT68F0036 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 2 | 13 | 8-bit×1 | 7 | 8-bit×1 | 16NSOP |

Note: # Emulated EEPROM.

8-Bit Flash MCU

A/D Flash MCU with EEPROM

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | RTC | Comparator | SCOM/SSEG | High Current LED Driver | Interface | Package |
|-----------|------------------------|-----------|-----------------------|----------------|-------------|--------------------|-------|-----|-----|--|------------|-----|------------|--------------------------|-------------------------|----------------------------------|--|
| HT66F017 | 8MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 2K×16 | 128×8 | 64×8 | 8 | — | 14 | 16-bit CTM×1 16-bit STM×1 | 12-bit ×4 | — | 1 | — | — | — | 16NSOP |
| HT66F0172 | 8MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 2K×16 | 128×8 | 64×8 | 8 | — | 18 | 10-bit PTM×2 10-bit CTM×1 16-bit STM×1 | 12-bit ×8 | √ | — | SCOM×6 SSEG×14 | 22 | SPI/I ² C×1 UART×1 | 20SOP/SSOP |
| HT66F0174 | | | | | | | | | 22 | | | | | | | | 24SOP/SSOP |
| HT66F0175 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 2K×16 | 128×8 | 64×8 | 8 | — | 18 | 10-bit PTM×2 10-bit CTM×1 16-bit STM×1 | 12-bit ×8 | √ | — | SCOM×6 SSEG×14 | 22 | SPI/I ² C×1 UART×1 | 16/20NSOP 24SOP/SSOP |
| HT66F0176 | | | | | | | | | 22 | | | | | | | | 24SOP/SSOP |
| HT66F0181 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 4K×15 | 128×8 | 32×15 [#] | 6 | — | 18 | 10-bit PTM×1 10-bit CTM×1 16-bit STM×1 | 10-bit ×8 | — | — | — | 18 | — | 16/20NSOP 20SOP/SSOP |
| HT66F0186 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 4K×16 | 1024×8 | 4096×8 | 8 | — | 26 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×8 | √ | 1 | SCOM×6 SSEG×18 | 26 | SPI/I ² C×1 UART×1 | 20NSOP 24/28SOP 24/28SSOP |
| HT66F019 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 256×8 | 64×8 | 8 | — | 18 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×8 | √ | 1 | — | 18 | SPI/I ² C×1 UART×1 | 20NSOP |
| HT66F3185 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | 128×8 | 8 | √ | 26 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×12 | √ | 1 | (SCOM/SSEG)×22 SSEG×4 | 26 | SPI/I ² C×1 UART×1 | 16/20NSOP 20/24/28SOP 20/24/28SSOP 24/28QFN |
| HT66F3195 | | | | 8K×16 | 512×8 | | | | | | | | | | | | 20NSOP 24/28SOP 24/28QFN |

Note: # Emulated EEPROM.

SCOM/SSEG: Software Control LCD Common/Segment.

A/D Flash MCU with High Accuracy / Low Current LIRC

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Package |
|-----------|----------------|-----------|----------------------|----------------|-------------|-------------|-------|-----|--------------|-----------|-----------------------------------|
| HT66F2630 | 2/4/8MHz | 1.8V~5.5V | 400kHz~8MHz or 32kHz | 2K×16 | 128×8 | 64×8 | 8 | 18 | 16-bit PTM×1 | 12-bit ×4 | 8SOP, 10MSOP 16SSOP, 16/20NSOP |

Advanced A/D Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | SCOM | RTC | Comparator | CRC | Interface | Package |
|-----------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|------------|------|-----|------------|-----|--|---------------------------|
| HT66F2350 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 768×8 | 256×8 | 16 | √ | 44 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×12 | 4 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 48LQFP |
| HT66F2362 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 1024×8 | 16 | √ | 44 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 4 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 28SOP, 32QFN 44/48LQFP |
| HT66F2370 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 3072×8 | 512×8 | 16 | √ | 58 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 4 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×3 | 48/64LQFP |
| HT66F2372 | | | | | | 2048×8 | | | 44 | | | | | | | | 28SOP 44/48LQFP |
| HT66F2390 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 64K×16 | 4096×8 | 1024×8 | 16 | √ | 58 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 4 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×3 | 48/64LQFP |

Note: These devices are European standard IEC 60730 and U.S. standard UL 60730 certified.

High Supply Voltage Flash MCU

12V High Current Driver A/D Flash MCU

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | HVIO | Timer | ADC | LDO Output Voltage | OVP | Interface | Package |
|-----------|----------------|----------|-----------|--------------|----------------|-------------|-------------|-------|-----|------|--|-----------|--------------------|-----|---------------------------------|--------------------------------------|
| HT66F2730 | 8/12/16MHz | 7.5V~12V | 4.5V~5.5V | 32kHz~16MHz | 2K×16 | 128×8 | 64×8 | 4 | 10 | 10 | 10-bit STM×1 10-bit PTM×1 | 12-bit ×4 | 5.0V | — | SPI/I ² C/ UART×1 | 16NSOP-EP 20NSOP 24SOP/SSOP-EP |
| HT66F2740 | | | | | 4K×16 | 256×8 | 128×8 | 8 | 14 | | 10-bit STM×1 10-bit PTM×1 10-bit CTM×1 | 12-bit ×8 | | | | 16NSOP-EP 24/28SOP 24SSOP-EP |

8-Bit LCD Display Flash MCU
A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | LCD | RTC | ADC | Comparator | Interface | Package |
|----------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|--------------|-----|------------|------------|----------------------------------|---------------|
| HT67F40 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 4K×15 | 256×8 | 128×8 | 8 | — | 44 | 10-bit CTM×1 10-bit ETM×1 16-bit STM×1 | 32×4 33×3 | √ | 12-bit ×8 | 2 | SPI/I ² C×1 SPIA×1 | 48/64LQFP |
| HT67F50 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 384×8 | 256×8 | 8 | — | 52 | 10-bit CTM×2 10-bit ETM×1 16-bit STM×1 | 40×4 41×3 | √ | 12-bit ×8 | 2 | SPI/I ² C×1 SPIA×1 | 48/64/80 LQFP |
| HT67F60A | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | 128×8 | 16 | √ | 47 | 10-bit CTM×2 10-bit ETM×1 16-bit STM×3 | 56×4 | √ | 12-bit ×12 | 2 | SPI/I ² C×1 SPIA×1 | 48/64/80 LQFP |

A/D Flash MCU with LCD Driver & High Accuracy HIRC

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | LCD | RTC | ADC | IR LED Driver | Interface | Package |
|------------|----------------|-----------|---------------|----------------|-------------|--------------------|-------|-----|-----|--|----------------------|-----|-----------|---------------|-----------|----------------|
| HT67F2432 | 4MHz | 1.8V~5.5V | 4MHz or 32kHz | 2K×16 | 128×8 | 32×16 [#] | 6 | — | 26 | 9-bit Timer×1 10-bit CTM×1 | 20×4 | √ | 10-bit ×5 | — | UART×1 | 24/28 SOP/SSOP |
| HT67F2352* | 4MHz | 1.8V~5.5V | 4MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | √ | 44 | 10-bit CTM×1 10-bit PTM×1 16-bit STM×1 | 30×4 29×5 28×6 | √ | 10-bit ×8 | √ | UART×1 | 32/44/48 LQFP |

* Under development, available in 4Q, 2020.

Note: # Emulated EEPROM.

Advanced A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LCD | RTC | Comparator | CRC | Interface | Package |
|------------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|------------|----------------------|-----|------------|-----|--|-----------|
| HT67F2350 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 768×8 | 256×8 | 16 | √ | 57 | 10-bit PTM×6 16-bit PTM×2 16-bit STM×3 | 12-bit ×12 | 46×4 44×6 42×8 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 48/64LQFP |
| HT67F2360 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1536×8 | 256×8 | 16 | √ | 71 | 10-bit PTM×6 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 56×4 54×6 52×8 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 64/80LQFP |
| HT67F2362 | | 1.8V~5.5V | | | 2048×8 | 1024×8 | | | 57 | | | 46×4 44×6 42×8 | | | | | 48/64LQFP |
| HT67F2370 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 3072×8 | 512×8 | 16 | √ | 71 | 10-bit PTM×6 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 56×4 54×6 52×8 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×3 | 64/80LQFP |
| HT67F2372* | | 1.8V~5.5V | | | | 2048×8 | | | 57 | | | 46×4 44×6 42×8 | | | | | 48/64LQFP |
| HT67F2390 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 64K×16 | 4096×8 | 1024×8 | 16 | √ | 71 | 10-bit PTM×6 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 56×4 54×6 52×8 | √ | 2 | √ | SPI/I ² C×1 SPIA×1 UART×3 | 64/80LQFP |

* Under development, available in 1Q, 2021.

Note: These devices are European standard IEC 60730 and U.S. standard UL 60730 certified.

8-Bit LCD / LED Flash MCU
A/D Flash MCU with six Timer & High Current LED Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | SCOM | High Current LED Driver | RTC | Interface | Package |
|-----------|----------------|-----------|--------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|------|-------------------------|-----|------------------------|---------------|
| HT66F0042 | 8MHz | 2.2V~5.5V | 32kHz~16MHz | 2K×15 | 96×8 | 32×8 | 6 | 22 | 10-bit PTM×4 10-bit CTM×2 | 12-bit ×8 | 4 | 22 | √ | SPI/I ² C×1 | 20/24SOP/SSOP |
| HT66F0082 | 12MHz 16MHz | | | 4K×16 | 128×8 | 64×8 | | 26 | | | | 26 | | | 24/28SOP/SSOP |

Note: The HT66F0042/0082 devices include 6 Timer Modules and are suitable for use in products requiring multiple PWM functions such as RGB lighting.

RGB LED Controller Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | Multiple RGB LED | Constant Current | Interface | Package |
|-----------|----------------|-----------|--------------|----------------|-------------|-------|-----|--------------|------------------|------------------|---|-----------------|
| HT45F0060 | 8MHz | 2.2V~5.5V | 8MHz | 1K×14 | 64×8 | 2 | 8 | 10-bit CTM×3 | — | 3 | Cascading Transceiver | 8SOP/DFN 10SOP |
| HT45F0062 | 8MHz | 2.2V~5.5V | 8MHz | 2K×16 | 128×8 | 4 | 14 | 10-bit CTM×1 | √ | 12 | I ² C×1, Cascading Transceiver | 16NSOP-EP 16QFN |
| HT45F0063 | 8MHz | 2.2V~5.5V | 8MHz | 4K×16 | 256×8 | 4 | 20 | 10-bit CTM×1 | √ | 15 | I ² C×1, Cascading Transceiver | 24SSOP-EP 24QFN |

A/D Flash MCU with LCD & High Current LED Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LCD | High Current LED Driver | RTC | Interface | Package |
|------------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|------------|------------------------|-------------------------|-----|----------------------------------|-----------|
| HT67F489 | 8MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 256×8 | 64×8 | 8 | — | 42 | 10-bit CTM×3 10-bit PTM×1 | 12-bit ×10 | 20×8 20×4 | 8 | √ | UART×1 | 44LQFP |
| HT67F4892 | | | | | 384×8 | | | | 50 | | | 32×4/32×8 28×4/28×8 | | | SPI/I ² C×1 UART×1 | 48/52LQFP |
| HT67F2355* | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 8K×16 | 512×8 | 512×8 | 8 | √ | 46 | 10-bit CTM×3 10-bit PTM×1 | 12-bit ×10 | 32×4/31×5 30×6/28×8 | 46 | √ | SPI/I ² C×1 UART×1 | 44/48LQFP |

* Under development, available in 4Q, 2020.

1.8V~5.5V Flash MCU

1.8V~5.5V I/O Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | Package |
|-----------|----------------|-----------|---------------|----------------|-------------|-------|-----|---------|---------|
| HT68F0017 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 0.5K×12 | 16×8 | 2 | 8 | 8-bit×1 | 8/10SOP |

1.8V~5.5V I/O Flash MCU with High Accuracy HIRC

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | IR Carrier | Package |
|-----------|----------------|-----------|---------------|----------------|-------------|-------|-----|------------|-------------------------|
| HT68F2420 | 4MHz±0.4% | 1.8V~5.5V | 4MHz or 32kHz | 1K×13 | 32×8 | 2 | 16 | √ | 8SOP, 16/20NSOP, 20SSOP |

1.8V~5.5V Advanced A/D Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | RTC | SCOM/SSEG | Comparator | High Current LED Driver | Interface | Package |
|-----------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|------------|-----|--------------------------|------------|-------------------------|----------------------------------|---|
| HT66F317 | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 2K×16 | 128×8 | 64×8 | 8 | — | 22 | 10-bit PTM×2 | 12-bit ×8 | √ | SCOM×4 | — | 22 | — | 16NSOP 20/24SOP 20/24SSOP |
| HT66F318 | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 192×8 | 64×8 | 8 | — | 26 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×8 | √ | SCOM×4 | 1 | 26 | I ² C×1 UART×1 | 20/24/28SOP 20/24/28SSOP |
| HT66F319 | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 256×8 | 64×8 | 8 | — | 26 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×8 | √ | SCOM×4 | 1 | 26 | I ² C×1 UART×1 | 16NSOP 20/24/28SOP 20/24/28SSOP |
| HT66F3185 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | 128×8 | 8 | √ | 26 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×12 | √ | (SCOM/SSEG)×22 SSEG×4 | 1 | 26 | SPI/I ² C×1 UART×1 | 16/20NSO 20/24/28SOP 20/24/28SSOP |
| HT66F3195 | | | | 8K×16 | 512×8 | | | | | | | | | | | | 20NSOP 24/28SSOP 24/28QFN |

Note: SCOM/SSEG: Software Control LCD Common/Segment.

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | SCOM | Comparator | RTC | CRC | Interface | Package |
|-----------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|------------|------|------------|-----|-----|--|-----------------------------|
| HT66F2362 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 1024×8 | 16 | √ | 44 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 4 | 2 | √ | √ | SPI/I ² C×1 SPIA×1 UART×2 | 28SOP 32QFN 44/48LQFP |
| HT66F2372 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 3072×8 | 2048×8 | 16 | √ | 44 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 4 | 2 | √ | √ | SPI/I ² C×1 SPIA×1 UART×3 | 28SOP 44/48LQFP |

Note: These devices are European standard IEC 60730 and U.S. standard UL 60730 certified.

1.8V~5.5V A/D Flash MCU with EEPROM

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | PWM | High Current LED Driver | Interface | Package |
|------------|----------------|-----------|---------------------|----------------|-------------|--------------------|-------|-----|-----|--|-----------|----------|-------------------------|---------------------------------------|--------------------------------------|
| HT66F302 | 4/8MHz | 1.8V~5.5V | 4MHz, 8MHz or 32kHz | 1K×14 | 64×8 | 32×8 | 2 | — | 8 | 10-bit STM×1 | 12-bit ×4 | — | — | — | 8/10SOP |
| HT66F303 | | | | | | | | | 14 | 10-bit PTM×1 | 12-bit ×4 | — | — | — | 16NSOP |
| HT66F0181 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 4K×15 | 128×8 | 32×15 [#] | 6 | — | 18 | 10-bit PTM×1 10-bit STM×1 | 10-bit ×8 | — | 18 | — | 16/20NSOP 20SSOP/SOP |
| HT66F0021 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 2 | — | 6 | 8-bit×1 | 10-bit ×4 | 8-bit ×1 | — | — | 8SOP |
| HT66F0031 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 2 | — | 14 | 8-bit×1 | 10-bit ×4 | 8-bit ×1 | — | — | 16NSOP |
| HT66F0041 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×14 [#] | 4 | — | 18 | 8-bit×1 | 10-bit ×4 | 8-bit ×1 | — | — | 16/20NSOP 20SSOP |
| HT66F2030 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 2K×15 | 128×8 | 32×8 | 4 | — | 14 | 10-bit CTM×1 10-bit PTM×1 | 12-bit ×5 | — | 14 | SPI/I ² C×1 UART×1 | 8SOP, 10MSOP 16NSOP/QFN |
| HT66F2040* | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 4K×16 | 512×8 | 512×8 | 8 | √ | 18 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×8 | — | 18 | SPI/I ² C/UART×1 UART×1 | 8SOP, 10MSOP 16NSOP/QFN 20SSOP |
| HT66F2050* | | | | 8K×16 | | | | | | | | | | | |

* Under development, available in 4Q, 2020.

Note: # Emulated EEPROM.

1.8V~5.5V Flash MCU

1.8V~5.5V Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | LCD | RTC | Power Switch | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|--------------|-----|--------------|----------------------------------|---------------|
| HT69F340 | 4/8/12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | √ | 39 | 10-bit PTM×1 10-bit CTM×1 | 24×4 25×3 | √ | — | SPI/I ² C×1 | 48LQFP |
| HT69F3742 | 2/4/8MHz | 1.8V~5.5V | 400kHz~8MHz or 32kHz | 4K×16 | 128×8 | 128×8 | 4 | — | 9 | 10-bit STM×1 | 23×4 24×3 | — | √ | — | Dice 46QFN |
| HT69F350 | 4/8/12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 64×8 | 8 | √ | 55 | 10-bit PTM×1 10-bit CTM×1 16-bit STM×1 | 36×4 37×3 | √ | — | SPI/I ² C×1 | 48/64LQFP |
| HT69F360 | 4/8/12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | 128×8 | 8 | √ | 63 | 10-bit PTM×2 10-bit CTM×1 16-bit STM×1 | 48×4 49×3 | √ | — | SPI/I ² C×1 UART×1 | 64/80LQFP |
| HT67F370 | 4/8/12MHz | 1.8V~5.5V | 400kHz~20MHz or 32kHz | 32K×16 | 2048×8 | 256×8 | 8 | √ | 63 | 10-bit PTM×2 10-bit CTM×1 16-bit STM×1 | 48×4 49×3 | √ | — | SPI/I ² C×1 UART×1 | 64/80LQFP |

1.8V~5.5V Advanced A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LCD | RTC | CRC | Comparator | Interface | Package |
|------------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|---------------|----------------------|-----|-----|------------|--|-----------|
| HT67F2362 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 1024×8 | 16 | √ | 57 | 10-bit PTM×6 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 46×4 44×6 42×8 | √ | √ | 2 | SPI/I ² C×1 SPIA×1 UART×2 | 48/64LQFP |
| HT67F2372* | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 3072×8 | 2048×8 | 16 | √ | 57 | 10-bit PTM×6 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 46×4 44×6 42×8 | √ | √ | 2 | SPI/I ² C×1 SPIA×1 UART×3 | 48/64LQFP |
| HT67F370 | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~20MHz or 32kHz | 32K×16 | 2048×8 | 256×8 | 8 | √ | 63 | 10-bit PTM×2 10-bit CTM×1 16-bit STM×1 | 12-bit ×12 | 48×4 49×3 | √ | — | — | SPI/I ² C×1 UART×1 | 64/80LQFP |

* Under development, available in 1Q, 2021.

Note: These devices are European standard IEC 60730 and U.S. standard UL 60730 certified.

1.8V~5.5V A/D Flash MCU with LCD Driver & High Accuracy HIRC

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LCD | RTC | IR LED Driver | Interface | Package |
|------------|----------------|-----------|---------------|----------------|-------------|-------------|-------|-----|-----|--|--------------|----------------------|-----|---------------|-----------|-------------------|
| HT67F2432 | 4MHz | 1.8V~5.5V | 4MHz or 32kHz | 2K×16 | 128×8 | 32×16# | 6 | — | 26 | 9-bit Timer×1 10-bit CTM×1 | 10-bit ×5 | 20×4 | √ | — | UART×1 | 24/28 SOP/SSOP |
| HT67F2352* | 4MHz | 1.8V~5.5V | 4MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | √ | 44 | 10-bit CTM×1 10-bit PTM×1 16-bit STM×1 | 10-bit ×8 | 30×4 29×5 28×6 | √ | √ | UART×1 | 32/44/48 LQFP |

* Under development, available in 4Q, 2020.

Note: # Emulated EEPROM.

1.8V~5.5V A/D Flash MCU with LCD & High Current LED Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | ADC | Timer | LCD | High Current LED Driver | RTC | Interface | Package |
|------------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|---------------|------------------------------|------------------------|-------------------------|-----|----------------------------------|---------------|
| HT67F2355* | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 8K×16 | 512×8 | 512×8 | 8 | √ | 46 | 12-bit ×10 | 10-bit CTM×3 10-bit PTM×1 | 32×4/31×5 30×6/28×8 | 46 | √ | SPI/I ² C×1 UART×1 | 44/48 LQFP |

* Under development, available in 4Q, 2020.

1.8V~5.5V Ultra-Low Power Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU# | Stack | IAP | I/O | Timer | ADC | LCD | RTC | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|--------|-------|-----|-----|------------------------------|--------------|------------|-----|--|---------|
| HT66F2560 | 1/2/4/8/12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 256×8 | 16-bit | 16 | √ | 42 | 16-bit PTM×2 16-bit STM×3 | 12-bit ×8 | SCOM ×4 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 48LQFP |
| HT69F2562 | 4/8/12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 16K×16 | 2304×8 | 128×8 | — | 16 | √ | 19 | 10-bit CTM×2 16-bit STM×1 | — | 32×4 | √ | SPI×1 SPI/I ² C/UART×1 | 64LQFP |

Note: # MDU: Multiplier Divider Unit.

The power consumption of the RTC on standby current is less than 200nA at 3V.

1.8V~5.5V Ultra-Low Power Flash MCU with EPD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | EPD# | RTC | Interface | Package |
|------------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|--------------|-------------------------|-----|--------------------------------------|-----------|
| HT67F2567 | 4/8/12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 16K×16 | 2304×8 | 128×8 | 16 | √ | 19 | 10-bit CTM×2 16-bit STM×1 | 12-bit ×7 | SEG×64 COM×1 BG×1 | √ | SPI×1 SPI/I ² C/UART×1 | 100LQFP |
| HT67F2567G | | | | | | | | | | | | | | | Gold Bump |

Note: # EPD: Electronic Paper Displays.

The power consumption of the RTC on standby current is less than 200nA at 3V.

USB Interface Flash MCU
I/O Flash USB MCU (USB 2.0 Low Speed)

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | IAP/ISP | I/O | Timer | End-points | LDO Driving Current | PWM | Interface | Package |
|-----------|----------------|-----------|--------------|----------------|-------------|-------|---------|-----|--------------|------------|---------------------|-----|------------------------|---------|
| HT68FB240 | 12MHz | 2.2V~5.5V | 32kHz~16MHz | 4K×16 | 160×8 | 8 | √ | 34 | 10-bit CTM×2 | 3 | 20mA | 3 | SPI/I ² C×1 | 48LQFP |

I/O Flash USB MCU (USB 2.0 Full Speed)

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | IAP/ISP | I/O | Timer | End-points | LDO Driving Current | VDDIO | Interface | Package |
|-----------|----------------|-----------|--------------|----------------|-------------|-------|---------|-----|--|------------|---------------------|-------|----------------------------------|---------------------|
| HT68FB550 | 12MHz | 2.2V~5.5V | 32kHz~16MHz | 8K×16 | 512×8 | 8 | √ | 25 | 10-bit CTM×2 10-bit STM×1 16-bit STM×1 | 6 | 70mA | √ | SPI/I ² C×1 SPIA×1 | 24/28SSOP 48LQFP |
| HT68FB560 | 12MHz | 2.2V~5.5V | 32kHz~16MHz | 16K×16 | 768×8 | 12 | √ | 37 | 10-bit CTM×2 10-bit STM×1 16-bit STM×1 | 8 | 70mA | √ | SPI/I ² C×1 SPIA×1 | 24/28SSOP 48LQFP |

A/D Flash USB MCU (USB 2.0 Full Speed)

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP/ISP | I/O | Timer | ADC | RTC | MDU ² | End-points | LDO Driving Current | VDDIO | Comparator | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|---------|-----|--|------------|-----|------------------|------------|---------------------|-------|------------|--|------------------|
| HT66FB540 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 512×8 | — | 8 | √ | 25 | 10-bit CTM×2 10-bit STM×1 16-bit STM×1 | 12-bit ×8 | √ | — | 4 | 70mA | √ | 2 | SPI/I ² C×1 SPIA×1 | 28SSOP 48LQFP |
| HT66FB542 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | — | 8 | √ | 17 | 10-bit CTM×2 10-bit STM×1 16-bit STM×1 | 12-bit ×4 | — | — | 4 | 70mA | √ | 1 | SPI/I ² C×1 SPIA×1 | 24SSOP |
| HT66FB550 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 768×8 | — | 8 | √ | 37 | 10-bit CTM×2 10-bit STM×1 16-bit STM×1 | 12-bit ×16 | √ | — | 6 | 70mA | √ | 2 | SPI/I ² C×1 SPIA×1 | 28SSOP 48LQFP |
| HT66FB560 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | — | 12 | √ | 45 | 10-bit CTM×2 10-bit STM×1 16-bit STM×1 | 12-bit ×16 | √ | — | 8 | 70mA | √ | 2 | SPI/I ² C×1 SPIA×1 | 48/64 LQFP |
| HT66FB570 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 1024×8 | 256×8 | 12 | √ | 55 | 10-bit PTM×5 16-bit STM×1 | 12-bit ×24 | √ | — | 8 | 70mA | √ | 2 | SPI/I ² C×1 SPIA×1 UART×1 | 48/64 LQFP |
| HT66FB582 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 48K×16 | 1024×8 | 16K×8 | 12 | √ | 41 | 10-bit PTM×5 16-bit STM×1 | 12-bit ×16 | √ | 16-bit | 8 | 70mA | √ | 2 | SPI/I ² C×1 SPIA×1 UART×1 | 46QFN 48LQFP |

Note: # MDU: Multiplier Divider Unit.

USB Flash RGB LED MCU (USB 2.0 Full Speed)

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP/ISP | I/O | Timer | ADC | End-points | LDO Driving Current | VDDIO | Interface | RGB LED Driver | LED PWM | Const. Current | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|---------|-----|------------------------------|------------|------------|---------------------|-------|--|----------------|---------|----------------|----------------------|
| HT68FB541 | 12MHz | 3.0V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | √ | 18 | 16-bit×2 | — | 4 | 70mA | √ | SPI×1 | 8 | 3×8 | — | 24SSOP |
| HT68FB571 | 12MHz | 3.0V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 64×8 | 8 | √ | 41 | 16-bit×2 | — | 4 | 70mA | √ | SPI×1 | 42 | 16×8 | — | 28SSOP 48LQFP |
| HT66FB572 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 1024×8 | 256×8 | 12 | √ | 34 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×8 | 8 | 70mA | √ | SPI/I ² C×1 SPIA×1 UART×1 | 40 | 15×8 | 15 | 48/64 LQFP |
| HT66FB574 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | 256×8 | 12 | √ | 38 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×12 | 8 | 70mA | √ | SPI/I ² C×1 SPIA×1 UART×1 | 64 | 24×8 | 24 | 48/64/80 LQFP |
| HT66FB576 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 1024×8 | 256×8 | 12 | √ | 52 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×16 | 8 | 70mA | √ | SPI/I ² C×1 SPIA×1 UART×1 | 128 | 48×8 | 48 | 80LQFP 128LQFP-EP |

DC Motor Flash MCU

Power Tool Controller Flash MCU

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | OCF | HVO | Interface | Package |
|-----------|----------------|----------|---------------|-----------------------------|----------------|-------------|-------------|-------|-----|--------------|--------------|-----|-----|--------------------|---------|
| HT45F3630 | 8MHz 32kHz | 12V | 2.2V~ 5.5V | 400kHz~ 8MHz or 32kHz | 2K×16 | 64×8 | 32×8 | 6 | 12 | 10-bit PTM×2 | 12-bit ×8 | 1 | 1 | I ² C×1 | 16SSOP |

Servo Motor Flash MCU with H-Bridge Driver

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | H-Bridge Driver | LDO | Interface | Package |
|-----------|----------------|--------------|--------------------|-----------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|--------------|-----------------|--------------------|-----------|---------------------|
| HT45F4830 | 8MHz | 3.5V~ 10V | 3.0V | 32kHz~ 8MHz | 2K×16 | 128×8 | 32×8 | 4 | — | 4 | 10-bit PTM×1 16-bit PTM×1 | 12-bit ×4 | 600mA Min. | 3.0V | — | 8SOP-EP |
| HT45F4840 | 16MHz | 6.0V~ 12V | 3.3V or 5.0V | 32kHz~ 16MHz | 4K×16 | 256×8 | — | 6 | √ | 8 | 10-bit PTM×1 16-bit STM×1 | 12-bit ×4 | — | 3.3V or 5.0V | UART×1 | 10SOP 16NSOP/QFN |
| HT45F4842 | | | | | | | | | | 6 | 16-bit CTM×1 | √ | √ | 10SOP-EP 24QFN | | |

BLDC Motor Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | OCF | PWM | Comp- arator | OPA | Inter- face | Package |
|------------|----------------|---------------|-----------------|----------------|-------------|-------------|-------|-----|--|---------------|-----|--------------|-----------------|-----|------------------------------|--------------------|
| HT66FM5230 | 20MHz | 4.5V~ 5.5V | 32kHz~ 20MHz | 2K×16 | 256×8 | 32×8 | 6 | 18 | 10-bit CTM×1 10-bit STM×1 16-bit CAPTM×1 16-bit CTM×1 | 10-bit ×6 | 1 | 10-bit ×3 | 3 | — | I ² C×1 | 16NSOP 20SSOP |
| HT66FM5240 | 20MHz | 4.5V~ 5.5V | 32kHz~ 20MHz | 4K×16 | 256×8 | 64×8 | 8 | 26 | 10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1 | 12-bit ×8 | 1 | 10-bit ×3 | 3 | — | I ² C×1 UART×1 | 20/28SSOP 24QFN |
| HT66FM5242 | 20MHz | 4.5V~ 5.5V | 32kHz~ 20MHz | 4K×16 | 256×8 | — | 8 | 18 | 10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1 | 12-bit ×7 | 1 | 10-bit ×3 | — | — | — | 16NSOP 20SSOP |
| HT66FM5440 | 16MHz | 4.5V~ 5.5V | 32kHz~ 16MHz | 4K×16 | 384×8 | — | 8 | 26 | 10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1 | 12-bit ×9 | 1 | 10-bit ×3 | 3 | 2 | I ² C×1 UART×1 | 28SSOP |
| BD66FM5243 | 20MHz | 4.5V~ 5.5V | 32kHz~ 20MHz | 4K×16 | 256×8 | — | 8 | 18 | 10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1 | 12-bit ×10 | 1 | 10-bit ×3 | 3 | — | — | 16NSOP 20SSOP |

Note: HT66FM5440 is a new HT8-1T architecture MCU which takes one clock cycle to execute one instruction. It improves 4 times the CPU performance of the original HT8-4T architecture MCU which takes four clock cycles to execute one instruction.

BLDC Motor Flash MCU with Gate-Driver

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | ADC | OCF | PWM | Comp- arator | Gate- Driver | LDO | Package |
|------------|----------------|------------|---------------|-----------------|----------------|-------------|-------|-----|--|--------------|-----|--------------|-----------------|-----------------|-----|---------|
| HT66FM5340 | 20MHz | 6V~ 15V | 4.5V~ 5.5V | 32kHz~ 20MHz | 4K×16 | 256×8 | 8 | 19 | 10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1 | 12-bit ×8 | 1 | 10-bit ×3 | 3 | √ | 5V | 24SSOP |

BLDC Motor Flash MCU with Driver

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | ADC | OCF | PWM | Comp- arator | Driver | LDO | Package |
|-------------|----------------|------------|---------------|-----------------|----------------|-------------|-------|-----|--|--------------|-----|--------------|-----------------|--------|-----|---------------------------------|
| BD66FM8143* | 20MHz | 6V~ 15V | 4.5V~ 5.5V | 32kHz~ 20MHz | 4K×16 | 256×8 | 8 | 9 | 10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1 | 12-bit ×8 | 1 | 10-bit ×3 | 3 | 2.5A | 5V | 16SSOP-EP 24SSOP-EP 32QFN |

* Under development, available in 1Q, 2021.

Motor Driver Peripheral

H-Bridge Driver

| Part No. | Supply Voltage | Max. Motor Voltage | Typ. Motor Peak Current (A) | Typ. Motor RMS Current (A) | Max. Sleep Current (μA) | Max. PWM Frequency (Hz) | # of H-Bridge | Protections | Package |
|----------|----------------|--------------------|-----------------------------|----------------------------|-------------------------|-------------------------|---------------|-----------------------|---------|
| HT7K1201 | 1.8V~6.0V | 6V | 1.3 | 0.8 | 0.1 | 200K | 1 | UVLO, OCP OTP, OSP | SOT23-6 |
| HT7K1211 | | 7.5V | 2.1 | 1.5 | | | | | |
| HT7K1311 | 2.5V~5.5V | 15V | 3.0 | 2.4 | 1.0 | 200K | 1 | UVLO, OCP OTP, OSP | 8SOP-EP |
| HT7K1312 | | | | | | | | | 8DFN |
| HT7K1401 | 2.5V~5.5V | 24V | 2.0 | 1.8 | 1.0 | 200K | 1 | UVLO, OCP OTP, OSP | 8SOP-EP |
| HT7K1411 | | | 3.2 | 2.5 | | | | | |

OPA Flash MCU
Flash MCU with OPA

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | DAC | RTC | PWM | PFD | OPA | Comparator | Interface | Package |
|----------|--------------------------------|---------------|-----------------------------|----------------|-------------|-------------|-------|-----|---------------------|----------|----------|-----|---------|-----|-----|------------|------------------------|---------------------|
| HT45F23A | 910kHz 2MHz 4MHz 8MHz | 2.2V~ 5.5V | 400kHz~ 8MHz or 32kHz | 2K×15 | 128×8 | 64×8 | 6 | 22 | 8-bit×1 16-bit×1 | 12-bit×6 | 12-bit×1 | √ | 8-bit×2 | √ | 2 | 2 | SPI/I ² C×1 | 16NSOP 20/24SSOP |
| HT45F24A | 910kHz 2MHz 4MHz 8MHz | 2.2V~ 5.5V | 400kHz~ 8MHz or 32kHz | 4K×16 | 192×8 | 64×8 | 6 | 26 | 8-bit×1 16-bit×1 | 12-bit×8 | 12-bit×1 | √ | 8-bit×2 | √ | 2 | 2 | SPI/I ² C×1 | 20/24/28SSOP |

Advanced Flash MCU with OPA

| Part No. | Internal Clock | Input Voltage | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | DAC | RTC | Voice DAC | Comparator | OPA | Interface | Package |
|-----------|----------------------|---------------|-----------------|----------------|-------------|-------------|-------|-----|------------------------------|----------|---------|-----|-----------|------------|-----|----------------------------------|------------------|
| HT66F4530 | 2MHz 4MHz 8MHz | 2.2V~ 5.5V | 32kHz~ 12MHz | 2K×16 | 128×8 | 32×8 | 6 | 18 | 10-bit STM×1 10-bit PTM×1 | 12-bit×5 | 8-bit×3 | √ | — | 2 | 2 | SPI/I ² C×1 | 16NSOP 20SSOP |
| HT66F4540 | 2MHz 4MHz 8MHz | 2.2V~ 5.5V | 32kHz~ 12MHz | 4K×16 | 256×8 | 64×8 | 8 | 26 | 10-bit STM×1 10-bit PTM×2 | 12-bit×8 | 8-bit×3 | √ | — | 2 | 2 | SPI/I ² C×1 UART×1 | 24/28SSOP |
| HT66F4550 | 2MHz 4MHz 8MHz | 2.2V~ 5.5V | 32kHz~ 12MHz | 8K×16 | 384×8 | 64×8 | 8 | 26 | 10-bit STM×2 10-bit PTM×2 | 12-bit×8 | 8-bit×3 | √ | 16-bit×1 | 2 | 2 | SPI/I ² C×1 UART×1 | 24/28SSOP |
| HT66F4560 | 2MHz 4MHz 8MHz | 2.2V~ 5.5V | 32kHz~ 12MHz | 16K×16 | 512×8 | 128×8 | 16 | 46 | 10-bit STM×2 10-bit PTM×2 | 12-bit×8 | 8-bit×3 | √ | 16-bit×1 | 2 | 2 | SPI/I ² C×1 UART×1 | 28SSOP 48LQFP |

Note: The MCUs internal OPA gain bandwidth are software programmable.

24-Bit A/D Flash MCU

24-Bit A/D Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU# | Stack | IAP | I/O | Timer | ADC | RTC | OPA | Interface | Package |
|-----------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|--------|-------|-----|-----|------------------------------|------------|-----|-----|--------------------------------------|---------------------------|
| BH66F5232 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4/8/12MHz or 32kHz | 2K×16 | 128×8 | 32×8 | — | 4 | — | 4 | 10-bit CTM×1 | 24-bit ×2 | — | — | SPI/I ² C×1 UART×1 | 10SOP |
| BH66F5233 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4/8/12MHz or 32kHz | 2K×16 | 96×8 | 32×8 | — | 4 | — | 14 | 10-bit CTM×1 | 24-bit ×2 | — | — | SPI/I ² C×1 | 10SOP 16/20NSOP |
| BH66F5242 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4/8/12MHz or 32kHz | 4K×16 | 256×8 | 64×8 | — | 6 | — | 14 | 10-bit CTM×1 16-bit PTM×1 | 24-bit ×12 | — | 1 | SPI/I ² C/UART×1 | 16NSOP/SSOP 20NSOP/QFN |
| BH66F5250 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 16-bit | 8 | √ | 37 | 16-bit STM×1 10-bit PTM×3 | 24-bit ×16 | √ | 1 | SPI/I ² C/UART×1 SPI×1 | 48LQFP |
| BH66F5252 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 8K×16 | 256×8 | 32×8 | — | 8 | — | 23 | 10-bit CTM×1 16-bit PTM×1 | 24-bit ×4 | — | — | SPI/I ² C/UART×1 | 24/28SSOP |

Note: # MDU: Multiplier Divider Unit.

Enhanced 24-Bit A/D Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | ENOB | SCOM | Comparators | CRC | Interface | Package |
|-----------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|----------------------|----------|------|-------------|-----|----------------------------------|---------|
| BH66F5362 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 1024×8 | 16 | √ | 32 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×1 | 12-bit×9 24-bit×4 | 19.4 @5V | 4 | 2 | √ | SPI/I ² C×1 UART×2 | 48LQFP |

BLE Beacon 24-Bit A/D Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Frequency | Data Rate | Output Power | Package |
|------------|----------------|-----------|---------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|--------------------|-----------|--------------|---------|
| BH66F71252 | 8MHz | 2.2V~3.6V | 8MHz or 32kHz | 8K×16 | 256×8 | 32×8 | 8 | 25 | 10-bit CTM×1 16-bit PTM×1 | 24-bit ×4 | 2402/2426/2480 MHz | 1Mbps | -10~+8 dBm | 46QFN |

24-Bit A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU## | Stack | IAP | I/O | Timer | ADC | LCD | RTC | Touch Key | Interface | Package |
|-----------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|--------|-------|-----|-----|------------------------------|------------|----------------------|-----|-----------|--------------------------------------|--------------------|
| BH67F5235 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 3K×16 | 192×8 | 32×16# | — | 4 | — | 5 | 10-bit CTM×1 | 24-bit ×2 | 16×4 | — | 2 | — | 24/28SSOP 32QFN |
| BH67F5245 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4/8/12MHz or 32kHz | 4K×16 | 256×8 | 32×8 | — | 6 | — | 21 | 10-bit CTM×1 | 24-bit ×4 | 17×4 | — | 4 | UART×1 | 24/28SSOP |
| BH67F5250 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 16-bit | 8 | √ | 46 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×16 | 28×4 26×6 24×8 | √ | — | SPI/I ² C/UART×1 SPI×1 | 64LQFP |
| BH67F5260 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | 256×8 | 16-bit | 8 | √ | 46 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×16 | 42×4 40×6 38×8 | √ | — | SPI/I ² C/UART×1 SPI×1 | 64/80LQFP |
| BH67F5270 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 2048×8 | 512×8 | 16-bit | 16 | √ | 46 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×16 | 42×4 40×6 38×8 | √ | — | SPI/I ² C/UART×1 SPI×1 | 64/80LQFP |

Note: # Emulated EEPROM.

MDU: Multiplier Divider Unit.

Enhanced 24-Bit A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LCD | ENOB | RTC | CRC | Comparators | Interface | Package |
|-----------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|-----------------------|----------------------|----------|-----|-----|-------------|---|---------|
| BH67F5362 | 8MHz 12MHz 16MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 1024×8 | 16 | √ | 45 | 10-bit PTM×5 16-bit PTM×2 16-bit STM×3 | 12-bit×14 24-bit×4 | 36×4 34×6 32×8 | 19.4 @5V | √ | √ | 2 | SPI/I ² C×1 SPI×1 UART×2 | 64LQFP |

24-Bit A/D Peripheral

Enhanced 24-Bit A/D Peripheral

| Part No. | Internal Clock | VDD | ADC | ENOB | Data Rate | PGA | Interface | Package |
|-----------|----------------|-----------|----------|---------|------------|-------|--------------------|--------------|
| BH45B1225 | 4.91MHz | 2.4V~5.5V | 24-bit×4 | 19.4@5V | 5Hz~1.6kHz | 1~128 | I ² C×1 | 8SOP, 16NSOP |

Health Care Flash MCU

Ear Thermometer Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LCD | OPA | Interface | Package |
|-----------|--------------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|-----------|--------------|-----|----------------------------------|-----------------|
| BH67F2742 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | 32×8 | 6 | — | 21 | 10-bit CTM×1 | 24-bit ×8 | 17×4 15×6 | 1 | SPI/I ² C/UART×1 | 28SSOP 32QFN |
| BH67F2752 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 8K×16 | 384×8 | 128×8 | 6 | — | 17 | 10-bit CTM×2 | 24-bit ×8 | 32×4 30×6 | 2 | SPI×1 UART×1 | 48/64LQFP |
| BH67F2762 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4/8/12MHz or 32kHz | 16K×16 | 1024×8 | 256×8 | 8 | √ | 38 | 10-bit CTM×2 16-bit PTM×1 | 24-bit ×8 | 39×4 37×6 | 2 | SPI/I ² C/UART×1 | 48/64LQFP |
| HT67F5652 | 4.91MHz 9.83MHz 14.74MHz | 2.2V~5.5V | 400kHz~20MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | √ | 32 | 10-bit CTM×1 16-bit STM×1 10-bit PTM×2 | 24-bit ×8 | 40×4 | 1 | SPI/I ² C×1 UART×1 | 64/80LQFP |

Glucose Meter Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU ^a | Stack | IAP | I/O | Timer | ADC | LCD | RTC | OPA | DAC | Audio DAC | Inter- face | Package |
|-----------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|------------------|-------|-----|-----|--|------------|----------------------|-----|-----|-----------|-----------|--|---------------|
| HT45F67 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 512×8 | — | — | 12 | √ | 59 | 10-bit CTM×2 16-bit STM×1 10-bit ETM×1 | 12-bit ×8 | 32×4 30×6 | √ | 2 | 10-bit ×1 | 16-bit ×1 | SPI/I ² C×1 SPIA×1 UART×1 | 64/80 LQFP |
| BH45F68 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 1024×8 | 64×8 | — | 12 | √ | 57 | 10-bit CTM×2 16-bit STM×1 | 12-bit ×10 | 32×4 30×6 28×8 | √ | 2 | 12-bit ×1 | — | SPI/I ² C/ UART×1 | 64/80 LQFP |
| BH66F2470 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 512×8 | 64×8 | 16-bit | 8 | √ | 39 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×4 | — | √ | 1 | 10-bit ×1 | — | SPI/I ² C×1 SPIA×1 UART×2 | 48LQFP |
| BH67F2470 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 768×8 | 64×8 | 16-bit | 8 | √ | 34 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×4 | 48×4 46×6 44×8 | √ | 1 | 10-bit ×1 | — | SPI/I ² C×1 SPIA×1 UART×2 | 64/80 LQFP |
| BH67F2472 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 2048×8 | 2048×8 | — | 16 | √ | 58 | 10-bit PTM×2 16-bit STM×1 10-bit ATM×1 | 12-bit ×10 | 36×4 34×6 32×8 | √ | 2 | 12-bit ×1 | — | SPI/I ² C/ UART×2 SPI×1 | 64/80 LQFP |
| BH67F2480 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 48K×16 | 1024×8 | 64×8 | 16-bit | 12 | √ | 46 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×6 | 48×4 46×6 44×8 | √ | 2 | 12-bit ×1 | — | SPI/I ² C×1 SPIA×1 UART×2 | 64/80 LQFP |

Note: # MDU: Multiplier Divider Unit.

AC Impedance and Electrochemical Measurement Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU ^a | Stack | IAP | I/O | Timer | ADC | LCD | RTC | OPA | DAC | Phase Detect | Inter- face | Package |
|-----------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|------------------|-------|-----|-----|------------------------------|-----------|----------------------|-----|-----|-----------|--------------|--|-----------|
| BH67F2485 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 48K×16 | 4096×8 | 128×8 | 16-bit | 12 | √ | 44 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×6 | 36×4 34×6 32×8 | √ | 4 | 12-bit ×2 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 64/80LQFP |
| BH66F2663 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | 256×8 | 16-bit | 8 | √ | 35 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×6 | — | √ | — | — | √ | SPI/I ² C×1 SPIA×1 UART×1 | 48/64LQFP |

Note: # MDU: Multiplier Divider Unit.

Body Fat Measurement Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU ^a | Stack | IAP | I/O | Timer | ADC | LCD | RTC | Electrode | Inter- face | Package |
|-------------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|------------------|-------|-----|-----|------------------------------|-----------|--------------|-----|-----------|----------------------------------|---------|
| BH66F2632 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 3K×16 | 256×8 | 32×8 | — | 6 | — | 9 | 10-bit CTM×1 | 24-bit ×2 | — | — | 4 | SPI/I ² C/ UART×1 | 24QFN |
| BH66F2650 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 256×8 | 64×8 | 16-bit | 8 | √ | 28 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×4 | — | √ | 8 | SPI/I ² C×1 UART×1 | 48LQFP |
| BH66F2652 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 8K×16 | 384×8 | 32×8 | — | 8 | — | 17 | 10-bit CTM×1 | 24-bit ×4 | — | — | 4 | SPI×1 UART×1 | 32QFN |
| BH66F2652-2 | | | | | | | | | | | | | | | | | 28SSOP |
| BH66F2660 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 1024×8 | 256×8 | 16-bit | 8 | √ | 28 | 10-bit PTM×3 16-bit STM×1 | 24-bit ×4 | — | √ | 8 | SPI/I ² C×1 UART×1 | 48LQFP |
| BH66F2662 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 16K×16 | 512×8 | 64×8 | — | 8 | — | 17 | 10-bit CTM×1 10-bit STM×1 | 24-bit ×4 | — | — | 4 | SPI×1 UART×1 | 32QFN |
| BH66F2662-2 | | | | | | | | | | | | | | | | | 28SSOP |
| BH67F2662 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 16K×16 | 512×8 | 64×8 | — | 8 | — | 12 | 10-bit CTM×1 10-bit STM×1 | 24-bit ×4 | 16×4 14×6 | — | 4 | SPI×1 UART×1 | 48LQFP |

Note: # MDU: Multiplier Divider Unit.

BLE Beacon Body Fat Measurement Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Frequency | Data Rate | Output Power | Package |
|------------|----------------|-----------|---------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|--------------------|-----------|--------------|---------|
| BH66F71652 | 8MHz | 2.2V~3.6V | 8MHz or 32kHz | 8K×16 | 384×8 | 32×8 | 8 | 17 | 10-bit CTM×1 | 24-bit ×4 | 2402/2426/2480 MHz | 1Mbps | -10~+8 dBm | 46QFN |
| BH66F71662 | | | | 16K×16 | 512×8 | 64×8 | | | 10-bit CTM×1 10-bit STM×1 | | | | | |

| Health Care Flash MCU | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|------------------------|-----------|-----------------------------------|----------------|-------------|-------------|--------|-------|-----|-----|------------------------------|-----------|----------------------|-----|-----|----------------|-----------|--|-----------------|
| R-Type Blood Pressure Meter Flash MCU | | | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU* | Stack | IAP | I/O | Timer | ADC | LCD | RTC | PGA | Const. Current | Audio PWM | Interface | Package |
| BH66F2232 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4MHz 8MHz 12MHz or 32kHz | 2K×16 | 128×8 | 32×8 | — | 4 | √ | 4 | 10-bit PTM×1 | 12-bit ×6 | — | — | 3 | 1 | — | SPI/I ² C×1 UART×1 | 16NSOP 16QFN |
| BH66F2260 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 512×8 | 64×8 | 16-bit | 8 | √ | 35 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×4 | — | √ | 3 | 1 | — | SPI/I ² C×1 SPIA×1 UART×1 | 48LQFP |
| BH67F2260 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 512×8 | 64×8 | 16-bit | 8 | √ | 32 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×4 | 32×4 30×6 28×8 | √ | 3 | 1 | — | SPI/I ² C×1 SPIA×1 UART×1 | 64LQFP |
| BH67F2261 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 12K×16 | 512×8 | 32×8 | — | 8 | √ | 32 | 10-bit PTM×1 16-bit STM×1 | 12-bit ×4 | 31×4 29×6 | √ | 3 | 1 | — | — | 64LQFP |
| BH67F2262 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 512×8 | 64×8 | 16-bit | 8 | √ | 52 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×4 | 45×4 43×6 41×8 | √ | 3 | 1 | √ | SPI/I ² C/ UART×1, SPIA×1 | 64/80LQFP |
| BH67F2265 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 16K×16 | 512×8 | 1024×8 | — | 12 | √ | 30 | 10-bit CTM×2 16-bit STM×1 | 12-bit ×4 | 32×4 30×6 | √ | 3 | 1 | — | SPI/I ² C×1 UART×1 | 64LQFP |
| BH67F2270 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 1024×8 | 64×8 | 16-bit | 8 | √ | 43 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×4 | 46×4 44×6 42×8 | √ | 3 | 1 | — | SPI/I ² C×1 SPIA×2 UART×2 | 64/80LQFP |

Note: # MDU: Multiplier Divider Unit.
The BH67F2262 device uses the PWM function together with the external SPI flash to implement the voice playing function.

| Measurement Flash MCU | | | | | | | | | | | | | | | | | | |
|---|----------------|----------|--------------|----------------|----------------|-------------|-------------|-------|--------------|------------------------------|-----------|-----------|----------------------|--------------------------|-----------------|-----------------------------|---------------------------|------------------|
| Ultrasonic Distance Measurement Flash MCU | | | | | | | | | | | | | | | | | | |
| Part No. | VDD | VIN | System Clock | Program Memory | Data Memory | Stack | IAP | I/O | Timer | ADC | OPA | SCF | AEP | Interface | Package | | | |
| HT45F39 | — | 8V~16V | 16MHz | 2K×16 | 160×8 | 4 | √ | 11 | 10-bit CTM×2 | 8-bit×8 | 2 | 1 | 1 | BCU | 16NSOP | | | |
| HT45F391 | 4.5V~5.5V | — | | | | | | | | | | | | | | | | |
| Note: 1. The HT45F39 device power, VDD, is internally regulated by an integrated shunt regulator. 2. An external resistor should be serially connected between the external power supply VIN and MCU VDD pins. | | | | | | | | | | | | | | | | | | |
| Proximity Sensing Flash MCU | | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | IR Driver & Receiver | Battery Voltage Detector | DC Motor Driver | Interface | Package | |
| BS45F3232 | 8MHz | — | 2.2V~5.5V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×8 | 4 | 11 | 10-bit STM×1 | 12-bit ×8 | — | √ | — | — | SPI/I ² C/UART×1 | 8SOP 16NSOP 16QFN | |
| BS45F3235 | | | | | | | | | | | | | | | | | 24SSOP | |
| HT45F3230 | 8MHz | 3V~12V | 2.2V~5.5V | 8MHz | 2K×16 | 128×8 | 64×8 | 8 | 16 | 10-bit PTM×1 10-bit CTM×1 | 12-bit ×8 | — | √ | √ | √ | — | 16NSOP 24SSOP | |
| BS45F3340 | 8MHz | — | 1.8V~5.5V | 8MHz or 32kHz | 4K×16 | 192×8 | 32×8 | 6 | 20 | 10-bit CTM×1 10-bit STM×1 | 12-bit ×8 | 4 | √ | — | — | UART×1 | 16NSOP 16QFN 24SSOP | |
| BS45F3345 | | | | | | | | | 17 | | | | | | | | V _W =7.5V | 16NSOP 24SSOP |
| BS45F3346 | | | | | | | | | 17 | | | | | | | | V _W =15V | 28SSOP |
| * Under development, available in 4Q, 2020. | | | | | | | | | | | | | | | | | | |

| R to F MCU | | | | | | | | | | | | |
|--|-----------|--------------|----------------|-------------|-------------|-------|----------|--------------|--------------|--------|-------|---------|
| Ultra-Low Voltage R to F Flash MCU | | | | | | | | | | | | |
| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | LCD | R to F | LVD | Package |
| BH67F2132 | 1.1V~2.2V | 32/64/128kHz | 2K×16 | 128×8 | 128×8 | 4 | 24 | 10-bit CTM×1 | 21×3 22×2 | 2CH | 1.15V | 48LQFP |
| R to F Mask MCU | | | | | | | | | | | | |
| Part No. | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | LCD | R to F | BZ/BZ | | Package |
| HT47C07L | 1.2V~2.2V | 32kHz~128kHz | 1K×16 | 48×8 | 4 | 18 | 16-bit×1 | 20×2, 19×3 | 1CH | 1 | | 48LQFP |
| HT47C08L | 1.2V~2.2V | 32kHz~128kHz | 2K×16 | 96×8 | 4 | 21 | 16-bit×1 | 21×3 | 2CH | 1 | | 48LQFP |
| Note: R to F: Resistance to Frequency. These devices are only available in mask versions. | | | | | | | | | | | | |

Security & Safety Flash MCU

Shock Detector Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | DAC | Comp- arator | PGA/Gain | Package |
|----------|----------------|-----------|---------------|----------------|-------------|-------------|-------|-----|--------------|---------|--------------|----------|---------|
| HT45F56 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 32×8 | 32×8 | 2 | 6 | 10-bit CTM×1 | 6-bit×1 | 1 | 1~1000 | 8SOP |

PIR & Microwave Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | OPA | Interface | Package |
|-----------|-----------|-------------------|----------------|-------------|--------------------|-------|-----|--------------|----------|-----|-----------------------------|------------|
| BA45F6622 | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 4 | 6 | 10-bit STM×1 | 10-bit×2 | 2 | — | 16NSOP/QFN |
| BA45F6630 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 2K×16 | 256×8 | 32×8 | 6 | 15 | 10-bit STM×2 | 12-bit×4 | 2 | SPI/I ² C/UART×1 | 24SSOP/QFN |

Note: # Emulated EEPROM.

Smoke Detector Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Audio DAC | AFE | IR Driver | Temp. Sensor | Inter- face | Package |
|-------------|-----------|-----------------------|----------------|-------------|--------------------|-------|-----|-----|--------------|------------|-----------|-----|-----------|--------------|-------------------------------|---------------------|
| BA45F5220 | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 4 | — | 4 | 10-bit PTM×1 | 10-bit ×3 | — | √ | 2 | — | — | 8/10SOP |
| BA45F5240 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 13 | 10-bit PTM×1 | 12-bit ×4 | — | √ | 2 | — | SPI/I ² C/UART×1 | 16NSOP, 20SSOP |
| BA45F5240-2 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 11 | 10-bit STM×1 | 12-bit ×4 | — | √ | 2 | — | SPI/I ² C/UART×1 | 16NSOP |
| BA45F5250 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 8K×16 | 1024×8 | 128×8 | 8 | √ | 22 | 10-bit PTM×1 | 12-bit ×8 | 16-bit ×1 | √ | 2 | — | SPI/I ² C×1 UART×1 | 16NSOP 20/24/28SSOP |
| BA45F5260 | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 256×8 | 8 | √ | 26 | 10-bit PTM×3 | 12-bit ×12 | 16-bit ×1 | √ | 2 | √ | SPI/I ² C×1 UART×2 | 24/28SSOP 48LQFP |

Note: # Emulated EEPROM.

9V Battery Smoke Detector Flash MCU

| Part No. | VCC (HV) | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | ADC | Timer | Audio DAC | AFE | IR Driver | LDO | Buzzer Driver | Inter- face | Package |
|-----------|----------|-------------------|----------------|-------------|--------------------|-------|-----|-----|-----------|--------------|-----------|-----|-----------|-----|---------------|-------------------------------|--------------|
| BA45F5420 | 4.3V~12V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 4 | — | 4 | 10-bit ×3 | 10-bit PTM×1 | — | √ | 2 | √ | √ | — | 16NSOP |
| BA45F5440 | 4.3V~12V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 9 | 12-bit ×4 | 10-bit PTM×1 | — | √ | 2 | √ | √ | SPI/I ² C/UART×1 | 20SOP 20SSOP |
| BA45F5450 | 4.3V~12V | 2/4/8MHz or 32kHz | 8K×16 | 1024×8 | 128×8 | 8 | √ | 17 | 12-bit ×8 | 10-bit PTM×1 | 16-bit ×1 | √ | 2 | √ | √ | SPI/I ² C×1 UART×1 | 20/24/28SOP |

Note: # Emulated EEPROM.

Smoke Detector Flash MCU with Power Line Transceiver

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | AFE | IR Driver | Power Line Transceiver | Temp. Sensor | Inter- face | Package |
|-------------|----------------|----------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--------------|------------|-----|-----------|------------------------|--------------|-------------------------------|------------------------|
| BA45F5542 | 2/4/8MHz | 5.3V~42V | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 9 | 10-bit PTM×1 | 12-bit ×4 | √ | 2 | √ | — | SPI/I ² C/UART×1 | 16NSOP 20SSOP |
| BA45F5542-2 | 2/4/8MHz | 5.3V~42V | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 7 | 10-bit STM×1 | 12-bit ×3 | √ | 2 | √ | — | SPI/I ² C/UART×1 | 16NSOP |
| BA45F5552 | 2/4/8MHz | 5.3V~42V | 2.2V~5.5V | 2/4/8MHz or 32kHz | 8K×16 | 1024×8 | 128×8 | 8 | √ | 13 | 10-bit PTM×1 | 12-bit ×8 | √ | 2 | √ | — | SPI/I ² C×1 UART×1 | 16NSOP 20/24SOP |
| BA45F5562 | 2/4/8MHz | 5.3V~42V | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 256×8 | 8 | √ | 23 | 10-bit PTM×3 | 12-bit ×12 | √ | 2 | √ | √ | SPI/I ² C×1 UART×2 | 24/28SOP 28SSOP 48LQFP |

Smoke Detector Flash MCU with Calendar

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Audio DAC | AFE | IR Driver | Temp. Sensor | Inter- face | Package |
|-------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--------------|------------|-----------|-----|-----------|--------------|-------------------------------|------------------------|
| BA45F5740 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 13 | 10-bit PTM×1 | 12-bit ×4 | — | √ | 2 | — | SPI/I ² C/UART×1 | 16NSOP 20/24SOP |
| BA45F5740-2 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 6 | 10-bit STM×1 | 12-bit ×2 | — | √ | 2 | — | SPI/I ² C/UART×1 | 16NSOP |
| BA45F5750 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 8K×16 | 1024×8 | 128×8 | 8 | √ | 22 | 10-bit PTM×1 | 12-bit ×8 | 16-bit ×1 | √ | 2 | — | SPI/I ² C×1 UART×1 | 16NSOP 20/24SOP 48LQFP |
| BA45F5760 | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 256×8 | 8 | √ | 26 | 10-bit PTM×3 | 12-bit ×12 | 16-bit ×1 | √ | 2 | √ | SPI/I ² C×1 UART×2 | 24/28SOP 48LQFP |

Security & Safety Flash MCU

Sub-1GHz RF Transceiver Smoke Detector Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | AFE | IR Driver | Band | Data Rate | Max. Output Power | Rx Current Consumption | Temp. Sensor | Package |
|-----------|-----------|-------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|-----------|-----|-----------|------------------------|------------|-------------------|------------------------------|--------------|-----------|
| BA45F5640 | 2.2V~3.6V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | — | 13 | 10-bit PTM×1 10-bit STM×1 | 12-bit ×4 | √ | 2 | 315/433/470/868/915MHz | 2~250 Kbps | 13dBm | 4.2mA@433MHz 5.5mA@868MHz | — | 46QFN |
| BA45F5650 | | | 8K×16 | 1024×8 | 128×8 | | √ | 17 | 10-bit PTM×1 10-bit STM×2 | 12-bit ×5 | | | | | | | — | 46QFN |
| BA45F5660 | | | 16K×16 | 2048×8 | 256×8 | | √ | 22 | 10-bit PTM×3 10-bit STM×2 | 12-bit ×8 | | | | | | | √ | 48LQFP-EP |

Fire Protection Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | LVR/LVD | Interface | Package |
|-----------|----------------|-----------|-------------------|----------------|-------------|-------------|-------|-----|------------------------------|----------|---------|-----------|------------------|
| BA45F5241 | 2/4/8MHz | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | 18 | 10-bit PTM×2 10-bit CTM×2 | 10-bit×4 | √ | UART×1 | 16NSOP 20SSOP |

Fire Protection Flash MCU with Power Line Transceiver

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Power Line Transceiver | LDO | Interface | Package |
|-----------|----------------|----------|-----------|-------------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|------------------------|-----|-----------|------------------|
| BA45F5541 | 2/4/8MHz | 5.3V~42V | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 8 | 13 | 10-bit PTM×2 10-bit CTM×2 | 10-bit ×4 | √ | √ | UART×1 | 16NSOP 20SSOP |

CO/GAS Detector Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | AFE | LCD Driver | Temp. Sensor | LVD | Interface | Package |
|-----------|-----------|-------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|-----------|-----|----------------|--------------|-----|-----------------------------|---------------------------|
| BA45F0096 | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×8 | 2 | — | 14 | 10-bit PTM×1 10-bit STM×1 | 12-bit ×4 | — | — | — | — | — | 16NSOP |
| BA45F6720 | 2.2V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×8 | 4 | — | 4 | 10-bit PTM×1 | 12-bit ×4 | √ | — | √ | — | — | 8/10SOP |
| BA45F6730 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 2K×16 | 128×8 | 32×8 | 6 | — | 14 | 10-bit PTM×1 | 12-bit ×5 | √ | — | — | √ | SPI/I ² C/UART×1 | 10SOP 16NSOP 20SSOP |
| BA45F6740 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 128×8 | 8 | √ | 22 | 10-bit PTM×1 10-bit STM×1 | 12-bit ×8 | √ | — | √ | √ | SPI/I ² C/UART×1 | 16NSOP 20/24/28SSOP |
| BA45F6746 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 128×8 | 8 | √ | 31 | 10-bit PTM×1 10-bit STM×1 | 12-bit ×8 | √ | 12SEG ×4COM | √ | √ | SPI/I ² C/UART×1 | 28SSOP 32QFN 48LQFP |

CO/GAS Detector Flash MCU with Calendar

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | AFE | LCD Driver | Temp. Sensor | LVD | Interface | Package |
|-----------|-----------|---------------------|----------------|-------------|-------------|-------|-----|-----|--|-----------|-----|----------------|--------------|-----|----------------------------------|------------------|
| BA45F6742 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 128×8 | 8 | √ | 22 | 10-bit PTM×1 10-bit STM×1 | 12-bit ×8 | √ | — | √ | √ | SPI/I ² C/UART×1 | 28SSOP 48LQFP |
| BA45F6748 | 2.2V~5.5V | 2/4/8MHz or 32kHz | 4K×16 | 256×8 | 128×8 | 8 | √ | 31 | 10-bit PTM×1 10-bit STM×1 | 12-bit ×8 | √ | 12SEG ×4COM | √ | √ | SPI/I ² C/UART×1 | 48LQFP |
| BA45F6753 | 2.2V~5.5V | 8/12/16MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | √ | 26 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×8 | — | — | — | √ | SPI/I ² C×1 UART×1 | 28SSOP 48LQFP |

Security & Safety IC

PIR Controller

| Part No. | VDD | Standby Current | ZC Off/On for Override | Flash on Mode Auto-change | Comparator Window | Effective Trigger Width | CDS Debounce Time | Triac Drive | Relay Drive | LED | Buzzer | LVD | Package |
|----------|-----------|-----------------|------------------------|---------------------------|--|-------------------------|-------------------|-------------|-------------|-----|--------|-----|---------|
| HT7610A | 5V~12V | 100μA | 2 Times | Flash | 1/16 (V _{DD} -V _{EE}) | >24ms | 5s | — | √ | — | — | — | 16DIP |
| HT7612B | 2.7V~5.5V | 19μA | 2 Times | Flash | Vref×(1/2±1/6) | >24ms | <3s | √ | √ | √ | √ | √ | 16NSOP |

Note: Operating and standby current values are typical values.

Touch Flash MCU

Touch I/O Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | Touch Key | High Current LED Driver | LVR | Interface | Package |
|------------|----------------|-----------|--------------|----------------|-------------|-------------|-------|-----|---------|-----------|-------------------------|-------|------------------------|--------------------|
| BS83A02A-4 | 8MHz | 2.2V~5.5V | 8MHz | 1K×16 | 96×8 | — | 4 | 4 | 8-bit×1 | 2 | — | 2.10V | — | 6DFN, SOT23-6 8SOP |
| BS83A04A-3 | 8MHz | 2.7V~5.5V | 8MHz | 1K×16 | 96×8 | — | 4 | 8 | 8-bit×1 | 4 | — | 2.55V | — | 8SOP, 10MSOP |
| BS83A04A-4 | | 2.2V~5.5V | | | | | | | | | | 2.10V | | |
| BS83B04A-4 | 8MHz | 2.2V~5.5V | 8MHz | 2K×16 | 128×8 | 32×8 | 4 | 8 | 8-bit×1 | 4 | — | 2.10V | I ² C×1 | 8SOP 10MSOP/DFN |
| BS83B08A-3 | 8MHz | 2.7V~5.5V | 8MHz~16MHz | 2K×16 | 160×8 | 64×8 | 4 | 14 | 8-bit×1 | 8 | — | 2.55V | SPI/I ² C×1 | 16NSOP/SSOP |
| BS83B08A-4 | 12MHz 16MHz | 2.2V~5.5V | | | | | | | | | | 2.10V | | |
| BS83B12A-3 | 8MHz | 2.7V~5.5V | 8MHz~16MHz | 2K×16 | 288×8 | 64×8 | 4 | 18 | 8-bit×1 | 12 | 18 | 2.55V | SPI/I ² C×1 | 20SOP/SSOP |
| BS83B12A-4 | 12MHz 16MHz | 2.2V~5.5V | | | | | | | | | | 2.10V | | |
| BS83B16A-3 | 8MHz | 2.7V~5.5V | 8MHz~16MHz | 2K×16 | 288×8 | 64×8 | 4 | 22 | 8-bit×1 | 16 | 22 | 2.55V | SPI/I ² C×1 | 24SOP/SSOP |
| BS83B16A-4 | 12MHz 16MHz | 2.2V~5.5V | | | | | | | | | | 2.10V | | |

Note: "4" V_{DD}: 2.2V~5.5V. Internal clock is 8/12/16MHz. For V_{DD}<3V internal clock is 8/12MHz.

Enhanced Touch I/O Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | Touch Key | High Current LED Driver | RTC | LVR | Interface | Package |
|----------|------------------------|-----------|--------------|----------------|-------------|--------------------|-------|-----|------------------------------|-----------|-------------------------|-----|---|----------------------------------|--------------------|
| BS83A01C | 8MHz | 1.8V~5.5V | 8MHz | 512×14 | 32×8 | — | 2 | 4 | — | 1 | — | — | 1.7V | — | 6DFN, 8SOP SOT23-6 |
| BS83A02C | 8MHz | 2.2V~5.5V | 8MHz | 1K×16 | 96×8 | — | 4 | 4 | 8-bit×1 | 2 | 4 | — | 2.10V 2.55V 3.15V 3.80V | — | 6DFN, 8SOP SOT23-6 |
| BS83A04C | 8MHz | 1.8V~5.5V | 8MHz | 1K×16 | 128×8 | 32×16 [#] | 4 | 8 | 10-bit CTM×1 | 4 | 8 | — | 1.7V | I ² C×1 | 8SOP, 10DFN 10MSOP |
| BS83B04C | 2MHz 4MHz 8MHz | 1.8V~5.5V | 2MHz~8MHz | 2K×16 | 128×8 | 32×8 | 4 | 8 | 10-bit CTM×1 | 4 | 8 | — | 1.7V 1.9V 2.55V 3.15V 3.80V | I ² C×1 | 8SOP 10MSOP/DFN |
| BS83B08C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 2K×16 | 288×8 | 64×8 | 6 | 14 | 10-bit PTM×1 | 8 | 14 | — | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 | 16NSOP/SSOP 16QFN |
| BS83B12C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 2K×16 | 512×8 | 64×8 | 6 | 18 | 10-bit PTM×1 | 12 | 18 | — | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 | 20SOP/SSOP 20QFN |
| BS83B16C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 2K×16 | 512×8 | 64×8 | 6 | 22 | 10-bit PTM×1 | 16 | 22 | — | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 | 24SOP/SSOP 24QFN |
| BS83B24C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 3K×16 | 512×8 | 128×8 | 6 | 26 | 10-bit PTM×1 | 24 | 26 | √ | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 UARTx1 | 28SOP/SSOP |
| BS83C40C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 768×8 | 128×8 | 6 | 42 | 10-bit CTM×1 10-bit PTM×1 | 40 | 42 | √ | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 UARTx1 | 44LQFP |

Note: # Emulated EEPROM.

V_{DD}: 2.2V~5.5V. Internal clock is 8/12/16MHz. For V_{DD} < 3V internal clock is 8/12MHz.

| Touch Flash MCU | | | | | | | | | | | | | | | | | |
|---|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|------------------------------|--|-----------|-------------------------|---|-------------------------|--|----------------------------------|------------------|
| Touch A/D Flash MCU | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | High Current LED Driver | LVR | Interface | Package | | |
| BS84B06A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 3K×16 | 288×8 | 64×8 | 6 | 18 | 8-bit×1 | 12-bit×4 | 6 | 18 | 2.55V | SPI/I ² C×1 | 16NSOP, 20SOP | | |
| BS84B08A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 3K×16 | 288×8 | 64×8 | 6 | 22 | 8-bit×1 | 12-bit×8 | 8 | 22 | 2.55V | SPI/I ² C×1 | 16NSOP 20SOP/NSOP/SSOP 24SOP | | |
| BS84C12A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 4K×16 | 384×8 | 128×8 | 6 | 26 | 8-bit×1 | 12-bit×8 | 12 | 26 | 2.55V | SPI/I ² C×1 | 20/24/28SOP/SSOP | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | RTC | Touch Key | High Current LED Driver | LVR/LVD | Interface | Package |
| BS66F340 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 128×8 | 8 | √ | 26 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | √ | 12 | 26 | √ | SPI/I ² C×1 UART×1 | 28SSOP |
| BS66F350 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 128×8 | 8 | √ | 40 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | √ | 20 | 40 | √ | SPI/I ² C×1 UART×1 | 44/48LQFP |
| BS66F360 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 16K×16 | 1024×8 | 128×8 | 12 | √ | 46 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | √ | 28 | 46 | √ | SPI/I ² C×1 UART×1 | 44/48LQFP |
| BS66F370 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 32K×16 | 1536×8 | 128×8 | 16 | √ | 60 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | √ | 36 | 60 | √ | SPI/I ² C×1 UART×1 | 44/48/64 LQFP |
| Enhanced Touch A/D Flash MCU | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | High Current LED Driver | LVR | Interface | Package | | |
| BS84B04C* | 8MHz 12MHz 16MHz | 1.8V~5.5V | 8MHz~16MHz | 2K×16 | 256×8 | 32×8 | 4 | 14 | 10-bit CTM×4 | 12-bit×8 | 4 | 14 | 1.70V 1.90V 2.55V 3.15V 3.80V | I ² C×1 | 8SOP 10MSOP/DFN 16NSOP | | |
| BS84B08C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 3K×16 | 288×8 | 64×8 | 6 | 22 | 10-bit PTM×1 | 12-bit×8 | 8 | 22 | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 | 16NSOP/SSOP 20/24SOP/SSOP 20NSOP | | |
| BS84C12C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 128×8 | 6 | 26 | 10-bit CTM×1 10-bit PTM×1 | 12-bit×8 | 12 | 26 | 2.10V 2.55V 3.15V 3.80V | SPI/I ² C×1 | 20/24/28 SOP/SSOP | | |
| * Under development, available in 4Q, 2020. | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Touch Key | RTC | High Current LED Driver | LVR/LVD | Interface | Package |
| BS66F340C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 128×8 | 8 | √ | 26 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | 12 | √ | 26 | √ | SPI/I ² C×1 UART×1 | 28SSOP |
| BS66F350C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 128×8 | 8 | √ | 40 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | 20 | √ | 40 | √ | SPI/I ² C×1 UART×1 | 44/48LQFP |
| BS66F360C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 16K×16 | 1024×8 | 128×8 | 12 | √ | 46 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit×8 | 28 | √ | 46 | √ | SPI/I ² C×1 UART×1 | 44/48LQFP |
| Touch I/O Flash MCU with LED / LCD Driver | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | LCD | Touch Key | RTC | High Current LED Driver | LVR | Interface | Package | |
| BS82B12A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 2K×16 | 384×8 | 64×8 | 6 | 22 | 10-bit CTM×1 10-bit PTM×1 | 16×4 | 12 | — | 22 | 2.55V | I ² C×1 UART×1 | 20/24SOP 24QFN | |
| BS82C16A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 64×8 | 6 | 26 | 10-bit CTM×1 10-bit PTM×1 | 20×4 | 16 | √ | 26 | 2.55V | I ² C×1 UART×1 | 24/28SOP 32QFN | |
| BS82D20A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 64×8 | 8 | 26 | 10-bit CTM×1 10-bit PTM×1 | 20×4 | 20 | √ | 26 | 2.55V | I ² C×1 UART×1 | 28SOP 28SSOP | |

Touch Flash MCU

Touch A/D Flash MCU with LED / LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | LCD | Touch Key | High Current LED Driver | RTC | LVR | Interface | Package |
|------------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|------|-----------|-------------------------|-----|-------|----------------------------------|----------|
| BS86B12A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 2K×16 | 384×8 | 64×8 | 6 | 22 | 10-bit CTM×1 10-bit PTM×2 | 12-bit ×8 | 16×4 | 12 | 22 | — | 2.55V | SPI/I ² C×1 UART×1 | 20/24SOP |
| BS86C16A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 64×8 | 6 | 26 | 10-bit CTM×1 10-bit PTM×2 | 12-bit ×8 | 20×4 | 16 | 26 | √ | 2.55V | SPI/I ² C×1 UART×1 | 24/28SOP |
| BS86D20A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 64×8 | 8 | 26 | 10-bit CTM×1 10-bit PTM×2 | 12-bit ×8 | 20×4 | 20 | 26 | √ | 2.55V | SPI/I ² C×1 UART×1 | 24/28SOP |

Enhanced Touch A/D Flash MCU with LED Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | High Current LED Driver | RTC | LVR/LVD | Interface | Package |
|----------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|-----------|-------------------------|-----|---------|---------------------------------------|---------------------------|
| BS86C08C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 384×8 | 32×8 | 8 | 26 | 10-bit CTM×1 10-bit PTM×1 | 12-bit ×8 | 8 | 26 | — | √ | I ² C×1 UART×1 | 24/28SOP 24/28SSOP |
| BS86D12C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 512×8 | 64×8 | 8 | 26 | 10-bit CTM×1 10-bit PTM×1 | 12-bit ×8 | 12 | 26 | — | √ | I ² C×1 UART×1 | 24/28SOP 24/28SSOP |
| BS86D20C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 64×8 | 8 | 26 | 10-bit CTM×1 10-bit PTM×2 | 12-bit ×8 | 20 | 26 | √ | √ | I ² C×1 SPI×1 UART×1 | 24/28SOP |
| BS86E16C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 16K×16 | 768×8 | 64×8 | 8 | 42 | 10-bit CTM×1 10-bit PTM×2 | 12-bit ×8 | 16 | 42 | √ | √ | I ² C×1 UART×2 | 28SOP 28SSOP 44LQFP |

Touch A/D Flash MCU with OPA / Comparator

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | LCD | High Current LED Driver | OPA/Comparator | RTC | LVR | Interface | Package |
|------------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|-----------|------|-------------------------|----------------|-----|-------|----------------------------------|--------------------|
| BS87B12A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 3K×16 | 384×8 | 64×8 | 6 | 22 | 10-bit CTM×1 10-bit PTM×1 | 12-bit ×8 | 12 | 16×4 | 22 | √ | — | 2.55V | SPI/I ² C×1 UART×1 | 20NSOP 24SOP |
| BS87C16A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 64×8 | 6 | 30 | 10-bit CTM×1 10-bit PTM×2 | 12-bit ×8 | 16 | 20×4 | 30 | √ | √ | 2.55V | SPI/I ² C×1 UART×1 | 24/28SOP 44LQFP |
| BS87D20A-3 | 8MHz 12MHz 16MHz | 2.7V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 64×8 | 8 | 42 | 10-bit CTM×2 10-bit PTM×2 | 12-bit ×8 | 20 | 36×4 | 42 | √ | √ | 2.55V | SPI/I ² C×1 UART×1 | 28SOP 44LQFP |

Touch A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Touch Key | LCD | RTC | LVR/LVD | Interface | Package |
|----------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|-----|--|-----------|-----------|------|-----|---------|----------------------------------|------------------|
| BS67F340 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 128×8 | 8 | √ | 31 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit ×8 | 16 | 24×4 | √ | √ | SPI/I ² C×1 UART×1 | 48LQFP |
| BS67F350 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 128×8 | 8 | √ | 39 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit ×8 | 20 | 32×4 | √ | √ | SPI/I ² C×1 UART×1 | 48/64LQFP |
| BS67F360 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 16K×16 | 1024×8 | 128×8 | 12 | √ | 43 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit ×8 | 28 | 40×4 | √ | √ | SPI/I ² C×1 UART×1 | 48/64LQFP |
| BS67F370 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 32K×16 | 1536×8 | 128×8 | 16 | √ | 59 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit ×8 | 36 | 48×4 | √ | √ | SPI/I ² C×1 UART×1 | 48/64/80 LQFP |

Enhanced Touch A/D Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Touch Key | LCD | RTC | LVR/LVD | Interface | Package |
|-----------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|-----|--|-----------|-----------|------|-----|---------|----------------------------------|-----------|
| BS67F350C | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 128×8 | 8 | √ | 43 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×1 | 12-bit ×8 | 24 | 32×4 | √ | √ | SPI/I ² C×1 UART×1 | 48/64LQFP |

Touch Flash MCU

Touch Voice A/D Flash MCU with Power Amplifier

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | SCOM/SSEG | ADC | RTC | Audio DAC | Power Amp. | Touch Key | Interface | Package |
|-----------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|-----|--|-------------------|-----------|-----|-----------|------------|-----------|--|-----------|
| BS66FV340 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K×16 | 512×8 | 128×8 | 8 | √ | 39 | 10-bit CTM×1 16-bit STM×1 10-bit PTM×2 | SCOM×6 SSEG×33 | 12-bit ×8 | √ | 16-bit ×1 | 1.5W | 20 | SPI/I ² C×1 SPIA×1 UART×1 | 44/48LQFP |
| BS66FV350 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K×16 | 768×8 | 128×8 | 8 | √ | 39 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×2 | SCOM×6 SSEG×33 | 12-bit ×8 | √ | 16-bit ×1 | 1.5W | 24 | SPI/I ² C×1 SPIA×1 UART×1 | 44/48LQFP |
| BS66FV360 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 16K×16 | 1024×8 | 256×8 | 12 | √ | 39 | 10-bit CTM×2 16-bit STM×1 10-bit PTM×2 | SCOM×6 SSEG×33 | 12-bit ×8 | √ | 16-bit ×1 | 1.5W | 28 | SPI/I ² C×1 SPIA×1 UART×1 | 44/48LQFP |

Wearable Peripheral Integrated Flash MCU with Touch

| Part No. | Internal Clock | VDD | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | LDO | Linear Charger CV | Linear Charger CC | DC Motor Driver | Interface | Package |
|-----------|-----------------------|-----------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|-----------|------|-------------------|-------------------|-----------------|--------------------|---------|
| BS45F5830 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 2K×16 | 128×8 | 32×8 | 4 | 16 | 10-bit CTM×1 10-bit STM×1 | 12-bit ×6 | 4 | 3.3V | 4.20V | 40mA~400mA | 150mA | I ² C×1 | 24QFN |
| BS45F5831 | | | | | | | | | | | 3.3V | 4.35V | | | | |
| BS45F5832 | | | | | | | | | | | 3.0V | 4.20V | | | | |
| BS45F5833 | | | | | | | | | | | 3.0V | 4.35V | | | | |

Ultrasonic Atomiser Flash MCU with Touch

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | Atomiser Processor | Interface | Package |
|-----------|------------------------|-----------|--------------------|----------------|-------------|-------------|-------|-----|--|-----------|-----------|--------------------|-----------|----------------------------|
| BS45F3832 | 12MHz | 2.7V~5.5V | 12MHz or 32kHz | 2K×16 | 64×8 | 32×8 | 4 | 8 | 10-bit CTM×1 10-bit PTM×1 | 12-bit ×2 | 2 | √ | — | 8/10SOP |
| BS45F3833 | 4MHz 8MHz 12MHz | 2.2V~5.5V | 4/8/12MHz or 32kHz | 2K×16 | 128×8 | 32×8 | 4 | 18 | 10-bit CTM×3 10-bit STM×1 10-bit PTM×1 | 12-bit ×4 | 4 | √ | — | 16NSOP 20NSOP |
| BS45F3843 | 8MHz 12MHz 14MHz | 2.2V~5.5V | 8MHz or 32kHz | 4K×16 | 256×8 | 32×8 | 8 | 26 | 10-bit CTM×3 10-bit STM×1 10-bit PTM×1 | 12-bit ×8 | 8 | √ | UART×1 | 16NSOP 24SSOP 28SSOP |

Ultra-Low Power Touch Flash MCU

Ultra-Low Power Touch I/O Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | Touch Key | Interface | Package |
|----------|----------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|--------------|-----------|--------------------|-----------------------|
| BS83A02L | 8MHz | 1.8V~5.5V | 8MHz | 1K×14 | 64×8 | — | 2 | 4 | 8-bit×1 | 2 | — | 6DFN, 8SOP SOT23-6 |
| BS83B04L | 2MHz 4MHz 8MHz | 1.8V~5.5V | 8MHz | 2K×16 | 128×8 | 32×8 | 4 | 8 | 10-bit CTM×1 | 4 | I ² C×1 | 8SOP 10DFN/MSOP |

Note: The standby current is less than 150nA at 3.0V (1 Key).

Ultra-Low Power Flash MCU with LCD Driver & Touch Key

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Touch Key | LCD | RTC | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|-----------|-----------|------|-----|--------------------------------------|---------|
| BS67F2563 | 4/8/12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 16K×16 | 2304×8 | 128×8 | 16 | √ | 31 | 10-bit CTM×2 16-bit STM×1 | 12-bit ×7 | 20 | 32×4 | √ | SPI×1 SPI/I ² C/UART×1 | 64LQFP |

Note: The power consumption of the RTC on standby current is less than 200nA at 3V.

High Supply Voltage Touch Flash MCU

9V Touch A/D Flash MCU with HVIO

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Touch Key | RTC | HVIO | LVR/LVD | Interface | Package |
|-----------|------------------------|----------|------|--------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|-----------|-----|------|---------|------------------------------|--------------------|
| BS86DH12C | 8MHz 12MHz 16MHz | 7V~10V | 5.0V | 8MHz~16MHz | 8K×16 | 512×8 | 64×8 | 8 | 22 | 10-bit CTM×2 10-bit PTM×1 | 12-bit ×8 | 12 | √ | 6 | √ | I ² C×1 UART×1 | 20/28SOP 44LQFP |

Touch Key IC
Touch Key

| Part No. | Touch Key | VDD | Standby Current at 3V | | Key Output Type | Package | Serial Interface |
|-----------|-----------|-----------|-----------------------|-----------------|-------------------------|---------|------------------|
| | | | One-key Wake-up | Any-key Wake-up | | | |
| BS812A-1 | 2-Key | 2.2V~5.5V | — | 3.0μA | Active Low | SOT23-6 | — |
| BS813A-1 | 3-Key | 2.2V~5.5V | — | 4.5μA | Active Low | 8SOP | — |
| BS814A-1 | 4-Key | 2.2V~5.5V | — | 5.0μA | Active Low | 10MSOP | — |
| BS814A-2 | 4-Key | 2.2V~5.5V | — | 5.0μA | — | 8SOP | √ |
| BS816A-1 | 6-Key | 2.2V~5.5V | — | 12μA/6.0μA* | Active Low/Active High* | 16NSOP | — |
| BS818A-2 | 8-Key | 2.2V~5.5V | — | 12μA/6.0μA* | Binary* | 16NSOP | √ |
| BS8112A-3 | 12-Key | 2.2V~5.5V | 6.0μA/3.0μA** | 13μA/6.5μA** | I ² C | 16NSOP | √ |
| BS8116A-3 | 16-Key | 2.2V~5.5V | 7.0μA/3.5μA** | 17μA/9.0μA** | I ² C | 20SSOP | √ |

Note: 1. The BS81x series devices have enhanced noise rejection performance.

2. * pin selected option.

3. ** option by I²C communication.

Enhanced Touch Key

| Part No. | Touch Key | VDD | Standby Current at 3V | | Key Output Type | Package | Serial Interface |
|-----------|-----------|-----------|-----------------------|-----------------|-------------------------|----------------|------------------|
| | | | One-key Wake-up | Any-key Wake-up | | | |
| BS811C-1 | 1-Key | 2.2V~5.5V | — | 2.5μA | Active Low | SOT23-6 | — |
| BS812C-1 | 2-Key | 2.2V~5.5V | — | 3.5μA | Active Low | SOT23-6 | — |
| BS813C-1 | 3-Key | 2.2V~5.5V | — | 4.0μA | Active Low | 8SOP | — |
| BS814C-1 | 4-Key | 2.2V~5.5V | — | 5.0μA | Active Low | 10MSOP | — |
| BS814C-2 | 4-Key | 2.2V~5.5V | — | 5.0μA | — | 8SOP | √ |
| BS816C-1 | 6-Key | 2.2V~5.5V | — | 7.5μA/3.5μA* | Active Low/Active High* | 16NSOP | — |
| BS818C-2 | 8-Key | 2.2V~5.5V | — | 8.5μA/3.5μA* | Binary* | 16NSOP | √ |
| BS818C-3 | 8-Key | 2.2V~5.5V | 3.5μA/2.5μA** | 8.0μA/3.5μA** | I ² C | 16NSOP | √ |
| BS8112C-3 | 12-Key | 2.2V~5.5V | 4.0μA/2.5μA** | 12.0μA/4.5μA** | I ² C | 16NSOP, 20SSOP | √ |
| BS8116C-3 | 16-Key | 2.2V~5.5V | 4.0μA/2.5μA** | 16.0μA/5.5μA** | I ² C | 20/24SSOP | √ |

Note: 1. The BS81x series devices have enhanced noise rejection performance.

2. * pin selected option.

3. ** option by I²C communication.

Cortex-M0+ 32-Bit Voice / Music Flash MCU

Cortex-M0+ 32-Bit Music Synthesizer Flash MCU

| Part No. | Max. Freq. | VDD | Flash | Ext. Flash | SRAM | PDMA | Audio DAC | ADC | Timers ^{*1} | I ² S | RTC | USB ^{*2} | MIDI Engine ^{*3} | SB Coding | Echo | Interface | I/O | Package |
|-----------|------------|-----------|-------|------------|------|------|-----------|------------------|-------------------------------|------------------|-----|-------------------|---------------------------|-----------|------|---|-----|------------------|
| HT32F0006 | 48MHz | 2.0V~3.6V | 128KB | SPI | 16KB | 6CH | 16-bit x2 | 1Msps 12-bit x16 | BFTM x2 SCTM x4 GPTM x1 | √ | √ | √ | √ | √ | √ | USART x1 UART x1 SPI x1 QSPI x1 I ² C x1 | 52 | 48LQFP 64LQFP |

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timers, GPTM: General-Purpose Timers.
2. USB 2.0 Full Speed device.
3. 32-CH Music Synthesis Engine.

Cortex-M0+ 32-Bit Music Synthesizer FlaSH MCU with Data ROM

| Part No. | Max. Freq. | VDD | Flash | Data Flash ^{*7} | SRAM | PDMA | Audio DAC | ADC | Timers ^{*1} | I ² S | RTC | USB ^{*5} | MIDI Engine ^{*6} | SB Coding | Echo | Interface | I/O | Package |
|------------|------------|-----------|-------|--------------------------|------|------|-----------|------------------|-------------------------------|------------------|-----|-------------------|---------------------------|-----------|------|---|-----|------------------|
| HT32F61355 | 48MHz | 2.3V~3.6V | 128KB | 32Mbits | 16KB | 6CH | 16-bit x2 | 1Msps 12-bit x16 | BFTM x2 SCTM x4 GPTM x1 | √ | √ | √ | √ | √ | √ | USART x1 UART x1 SPI x1 QSPI x1 I ² C x1 | 43 | 48LQFP 64LQFP |
| HT32F61356 | | | | 64Mbits | | | | | | | | | | | | | | |
| HT32F61357 | | | | 128Mbits | | | | | | | | | | | | | | |

Voice & Music Flash MCU

Voice Flash MCU with Power Amplifier

| Part No. | Internal Clock | VDD | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | RTC | LVR/LVD | Audio DAC | Power Amp. | Interface | Package |
|-----------|------------------------|-----------|----------------|-------------|-------------|-------|-----|-----|---|-----------|-----|---------|-----------|------------|---|---------------------|
| HT66FV130 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 2K x16 | 128 x8 | 32 x8 | 4 | √ | 15 | 10-bit CTM x1 10-bit PTM x1 | 12-bit x4 | — | √ | 16-bit x1 | 1.5W | SPIA x1 | 20/24SOP |
| HT66FV140 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 4K x16 | 256 x8 | 64 x8 | 8 | √ | 19 | 10-bit CTM x1 10-bit PTM x2 | 12-bit x8 | √ | √ | 16-bit x1 | 1.5W | SPI/I ² C x1 SPIA x1 | 24SOP/SSOP 28SOP |
| HT66FV150 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8K x16 | 512 x8 | 128 x8 | 8 | √ | 27 | 10-bit CTM x2 10-bit PTM x2 | 12-bit x8 | √ | √ | 16-bit x1 | 1.5W | SPI/I ² C x1 SPIA x1 UART x1 | 28SOP 44LQFP |
| HT66FV160 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 16K x16 | 1024 x8 | 256 x8 | 8 | √ | 35 | 10-bit CTM x2 10-bit PTM x2 16-bit STM x1 | 12-bit x8 | √ | √ | 16-bit x1 | 1.5W | SPI/I ² C x1 SPIA x1 UART x1 | 44LQFP |

Voice Flash Peripheral MCU

| Part No. | VDD | Control Mode | PWM Mode | Speech | LVR | Voice Output | PWM Output Power | Support Sentence | Max Voice Capacity | Package |
|-----------|-----------|--------------------------------|-----------------|----------------------------------|-----|--------------|------------------|------------------|--------------------|---------|
| HT68FV022 | 2.3V~5.5V | One Wire Two Wire Direct | Normal Green | HT-ADPCM4 HT-uPCM8 HT-PCM8 | √ | PWM | 0.5W into 5V, 8Ω | √ | 300 sec | 8SOP |

Touch Voice A/D Flash MCU with Power Amplifier

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | SCOM/SSEG | RTC | Audio DAC | Power Amp. | Touch Key | Interface | Package |
|-----------|------------------------|-----------|--------------|----------------|-------------|-------------|-------|-----|-----|---|-----------|---------------------|-----|-----------|------------|-----------|---|---------------|
| BS66FV340 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 4K x16 | 512 x8 | 128 x8 | 8 | √ | 39 | 10-bit CTM x1 16-bit STM x1 10-bit PTM x2 | 12-bit x8 | SCOM x6 SSEG x33 | √ | 16-bit x1 | 1.5W | 20 | SPI/I ² C x1 SPIA x1 UART x1 | 44/48 LQFP |
| BS66FV350 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 8K x16 | 768 x8 | 128 x8 | 8 | √ | 39 | 10-bit CTM x2 16-bit STM x1 10-bit PTM x2 | 12-bit x8 | SCOM x6 SSEG x33 | √ | 16-bit x1 | 1.5W | 24 | SPI/I ² C x1 SPIA x1 UART x1 | 44/48 LQFP |
| BS66FV360 | 8MHz 12MHz 16MHz | 2.2V~5.5V | 8MHz~16MHz | 16K x16 | 1024 x8 | 256 x8 | 12 | √ | 39 | 10-bit CTM x2 16-bit STM x1 10-bit PTM x2 | 12-bit x8 | SCOM x6 SSEG x33 | √ | 16-bit x1 | 1.5W | 28 | SPI/I ² C x1 SPIA x1 UART x1 | 44/48 LQFP |

Voice Record / Playback Flash MCU

Voice Record / Playback Flash MCU with Power Amplifier

| Part No. | Internal Clock | VDD | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | RTC | LVR/LVD | G.711 Voice Codec | 16-bit PCM ADC | Audio DAC | Power Amp. | Interface | Package |
|-----------|----------------|-----------|----------------|-------------|-------------|-------|-----|-----|--|-----------|-----|---------|-------------------|----------------|-----------|------------|------------------------|---------|
| HT66FV240 | 16MHz | 2.2V~5.5V | 4K×16 | 384×8 | 128×8 | 8 | √ | 28 | 16-bit CTM×1 16-bit STM×1 16-bit PTM×1 | 12-bit ×8 | √ | √ | √ | √ | 16-bit ×1 | 1.5W | SPI/I ² C×1 | 48LQFP |

Sound Effect Flash MCU

Waveform Generator Flash MCU

| Part No. | VCC (HV) | VDD | Internal Clock | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | Waveform Output | Package |
|-----------|----------|-----------|----------------|---------------|----------------|-------------|-------|-----|--------------|-----------------|-----------------|
| HT45F2020 | 8V~16V | 5.0V | 8MHz | 8MHz or 32kHz | 1K×14 | 32×8 | 2 | 4 | 10-bit PTM×1 | 2 | SOT23-6 8SOP |
| HT45F2022 | — | 2.2V~5.5V | | | | | | | | | |

| BLE | | | | | | | | | | | | | | |
|---|-----------|-------------------|----------------|-----------------------|-------------|--------------|-----|------------------------------|-----------|--------------------|-----------------------|--------------------|------------|----------------------|
| BLE Transparent Transmission | | | | | | | | | | | | | | |
| Part No. | VDD | Data EEPROM | | Data Rate | | Output Power | | Sensitivity | | Interface | | Stamp Holes | | |
| BCM-7602-G01 | 2.2V~3.6V | 8K×8 | | 1Mbps | | +3dBm | | -90dBm | | UART/SPI | | 8×2 (P=1.27mm) | | |
| BLE Beacon Transmitter | | | | | | | | | | | | | | |
| Part No. | VDD | Frequency | | Beacon Packet Handler | | Output Power | | Oscillator | | BQB 5.0 | | Interface | | Package |
| BC7161 | 2.0V~3.6V | 2402/2426/2480MHz | | √ | | -10~-+8dBm | | 32MHz | | √ | | I ² C×1 | | 8SOP-EP 10MSOP-EP |
| BLE Beacon 24-Bit A/D Flash MCU | | | | | | | | | | | | | | |
| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Frequency | Beacon Packet Handler | Output Power | Oscillator | Package |
| BH66F71252 | 2.2V~3.6V | 8MHz or 32kHz | 8K×16 | 256×8 | 32×8 | 8 | 23 | 10-bit CTM×1 16-bit PTM×1 | 24-bit ×4 | 2402/2426/2480 MHz | √ | -10~-+8 dBm | 32MHz | 46QFN |
| BLE Beacon Body Fat Measurement A/D Flash MCU | | | | | | | | | | | | | | |
| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Frequency | Beacon Packet Handler | Output Power | Oscillator | Package |
| BH66F71652 | 2.2V~3.6V | 8MHz or 32kHz | 8K×16 | 384×8 | 32×8 | 8 | 17 | 10-bit CTM×1 | 24-bit ×4 | 2402/2426/2480MHz | √ | -10~-+8 dBm | 32MHz | 46QFN |
| BH66F71662 | | | 16K×16 | 512×8 | 64×8 | | | 10-bit CTM×1 10-bit STM×1 | | | | | | |

| 2.4GHz RF | | | | | | | | | | | | | | | |
|--|-----------|-----------------------|----------------|-----------------|--------------------|----------------|--|--|----------------|---------------|--------------------------|------------------|---------------------------------|----------------------------------|---------|
| 2.4GHz RF Transceiver A/D Flash MCU | | | | | | | | | | | | | | | |
| Part No. | VDD | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | RTC | LVR/ LVD | Built-in 2.4GHz RF Block | Comp-arator | Interface | Package | |
| BC66F840 | 2.2V~3.6V | 4K×16 | 256×8 | 128×8 | 8 | 21 | 16-bit CTM×1 16-bit STM×1 16-bit ETM×1 | 12-bit×8 | √ | √ | √ | 1 | SPI/I ² C×1 SPI×1 | 32QFN | |
| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Frequency | Data Rate | Output Power | Sensitivity | Interface | Package |
| BC66F5652 | 1.9V~3.6V | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | 22 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×12 | 2402~2480 MHz | 125/250/500Kbps | -10~+6 dBm | -97dBm @ 250Kbps | SPI/I ² C×1 UART×1 | 46QFN |
| BC66F5662 | | | 16K×16 | 2048×8 | 1024×8 | 16 | 24 | 10-bit PTM×2 16-bit STM×3 | 12-bit ×4 | | | | | | |
| 2.4GHz RF Transceiver | | | | | | | | | | | | | | | |
| Part No. | VDD | Frequency | Modulation | Data Rate | Output Power | Sensitivity | Oscillator | Interface | Package | | | | | | |
| BC9824 | 1.9V~3.6V | 2400~2483MHz | GFSK | 250K~2Mbps | -40~+3dBm | -96dBm@250Kbps | 16MHz | SPI | 20QFN | | | | | | |
| BC5602 | 1.9V~3.6V | 2402~2480MHz | GFSK | 125/250/500Kbps | -10~+6dBm | -97dBm@250Kbps | 16MHz | SPI | 16QFN | | | | | | |
| 2.4GHz RF Transmitter with Encoder A/D Flash MCU | | | | | | | | | | | | | | | |
| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Frequency | Modulation | Data Rate | Output Power | Package | |
| BC66F5132 | 2.0V~3.6V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×14 [#] | 4 | 12 | 8-bit×1 | 10-bit×4 | 2402~2480MHz | GFSK | 125/250/500 Kbps | -10~+8dBm | 24SSOP-EP | |
| Note: # Emulated EEPROM. | | | | | | | | | | | | | | | |
| 2.4GHz RF Transmitter with Encoder | | | | | | | | | | | | | | | |
| Part No. | VDD | Frequency | Modulation | Data Rate | Output Power | Oscillator | Key Mode | Interface | Package | | | | | | |
| BC5161 | 2.0V~3.6V | 2402~2480MHz | GFSK | 125/250/500Kbps | -10~+8dBm | 32MHz | √ | — | 8SOP-EP, 16QFN | | | | | | |
| BC5162 | | | | | | | — | I ² C | 8SOP-EP | | | | | | |

Sub-1GHz RF

Sub-1GHz RF Transceiver A/D Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Band | Data Rate | Max. Output Power | Rx Current Consumption | Package |
|-----------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|--|------------|------------------------|------------|-------------------|------------------------------|---------|
| BC66F3652 | 1.9V~3.6V | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | 22 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×12 | 315/433/470/868/915MHz | 2~250 Kbps | 13dBm | 4.2mA@433MHz 5.5mA@868MHz | 46QFN |
| BC66F3662 | 1.9V~3.6V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 1024×8 | 16 | 22 | 10-bit PTM×2 16-bit STM×2 | 12-bit ×4 | 315/433/470/868/915MHz | 2~250 Kbps | 13dBm | 4.2mA@433MHz 5.5mA@868MHz | 46QFN |

Sub-1GHz RF Transceiver

| Part No. | VDD | Band | FSK/GFSK | Low Current | External Inductor | Data Rate | Max. Output Power | Sensitivity | Package |
|----------|-----------|------------------------|----------|-------------|-------------------|-----------|-------------------|---------------|---------|
| BC3601 | 2.0V~3.6V | 315/433/470/868/915MHz | √ | — | — | 2~250Kbps | 17dBm | -121dBm@2kbps | 24QFN |
| BC3602 | 1.9V~3.6V | 315/433/470/868/915MHz | √ | √ | √ | 2~250Kbps | 13dBm | -120dBm@2kbps | 24QFN |

Sub-1GHz RF Transmitter Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | LVR/LVD | Band | OOK/FSK | Symbol Rate | Output Power | Package |
|-----------|-----------|----------------|----------------|-------------|--------------------|-------|-----|-----|------------------------------|-----------|---------|--------------------|---------|------------------|--------------|--------------------|
| BC68F2123 | 2.2V~3.6V | 8MHz | 1K×14 | 64×8 | 32×8 | 2 | — | 9 | 10-bit STM×1 10-bit PTM×1 | — | √ | 315/433/868/915MHz | √ | 0.5~25Ksps (OOK) | 0/5/10/13dBm | 16NSOP-EP |
| BC66F2133 | 2.2V~3.6V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×14 [#] | 4 | — | 9 | 8-bit×1 | 10-bit ×4 | — | 315/433/868/915MHz | √ | 0.5~25Ksps (OOK) | 0/5/10/13dBm | 16NSOP-EP |
| BC68F2130 | 2.0V~3.6V | 16MHz or 32kHz | 2K×16 | 256×8 | — | 8 | √ | 8 | 10-bit CTM×1 10-bit PTM×1 | — | √ | 315/433/868/915MHz | √ | 0.5~25Ksps (OOK) | 0/10/13dBm | 16NSOP-EP 16QFN |
| BC68F2140 | 2.0V~3.6V | 16MHz or 32kHz | 4K×16 | 256×8 | — | 8 | √ | 14 | 10-bit CTM×1 10-bit PTM×1 | — | √ | 315/433/868/915MHz | √ | 0.5~25Ksps (OOK) | 0/10/13dBm | 24SSOP-EP 24QFN |
| BC68F2150 | 2.0V~3.6V | 16MHz or 32kHz | 8K×16 | 256×8 | — | 8 | √ | 14 | 10-bit CTM×1 10-bit PTM×1 | — | √ | 315/433/868/915MHz | √ | 0.5~25Ksps (OOK) | 0/10/13dBm | 24SSOP-EP 24QFN |

Note: # Emulated EEPROM.

Sub-1GHz RF Transmitter Touch Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Stack | IAP | I/O | Timer | ADC | LVR/LVD | Band | OOK/FSK | Touch key | Output Power | Package |
|-----------|-----------|---------------|----------------|-------------|-------|-----|-----|------------------------------|----------|---------|--------------------|---------|-----------|--------------|-----------|
| BC66F2235 | 1.8V~3.6V | 8MHz or 32kHz | 2K×16 | 384×8 | 8 | √ | 8 | 10-bit CTM×2 10-bit PTM×1 | 12-bit×1 | √ | 315/433/868/915MHz | √ | 8 | 0/10/13dBm | 16NSOP-EP |
| BC66F2245 | 1.8V~3.6V | 8MHz or 32kHz | 4K×16 | 384×8 | 8 | √ | 15 | 10-bit CTM×2 10-bit PTM×1 | 12-bit×4 | √ | 315/433/868/915MHz | √ | 14 | 0/10/13dBm | 24SSOP-EP |
| BC66F2255 | 1.8V~3.6V | 8MHz or 32kHz | 8K×16 | 384×8 | 8 | √ | 23 | 10-bit CTM×2 10-bit PTM×1 | 12-bit×4 | √ | 315/433/868/915MHz | √ | 16 | 0/10/13dBm | 32QFN |

Sub-1GHz RF Transmitter

| Part No. | VDD | Band | OOK/FSK | Symbol Rate | Output Power | Package |
|----------|-----------|--------------------|---------|-------------|--------------|---------|
| BC2102 | 2.2V~3.6V | 315/433/868/915MHz | √ | 0.5~25Ksps | 0/5/10/13dBm | 8SOP-EP |

Sub-1GHz RF Transmitter with Encoder

| Part No. | VDD | Band | OOK | Symbol Rate | Output Power | Encoding Format | Package |
|----------|-----------|--------------------|-----|-------------|--------------|------------------------------|--------------------------|
| BC2161 | 2.2V~3.6V | 315/433/868/915MHz | √ | 1.5~24Ksps | 0/5/10/13dBm | 1527, 2262 and HT compatible | 8SOP-EP 16NSOP-EP/QFN |

Sub-1GHz OOK Rx Flash MCU

| Part No. | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | Band | Demod. | Symbol Rate | Current Consumption | Sensitivity | Package |
|-----------|-----------|---------------|----------------|-------------|--------------------|-------|-----|------------------------------|--------------------|--------|---------------|------------------------------|-----------------|-----------|
| BC68F2332 | 2.5V~5.5V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×8 | 4 | 8 | 10-bit STM×1 | 315/433/868/915MHz | OOK | 20Ksps (Max.) | 3.2mA@433MHz 4.0mA@868MHz | -112dBm @10Ksps | 16NSOP-EP |
| BC66F2342 | | | 4K×15 | 128×8 | 32×15 [#] | 6 | 13 | 10-bit STM×1 10-bit PTM×1 | | | | | | 24SSOP-EP |

Note: # Emulated EEPROM.

Sub-1GHz RF

Sub-1GHz OOK Rx HVIO A/D Flash MCU

| Part No. | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | HVIO | ADC | LDO Output Voltage | Band | Symbol Rate | Current Consumption | Sensitivity | Package |
|-----------|----------|-----------|--------------|----------------|-------------|-------------|-------|-----|------|-----------|--------------------|--------------------|---------------|------------------------------|----------------|--------------------|
| BC45F7930 | 7.5V~12V | 4.5V~5.5V | 32kHz~16MHz | 2K×16 | 128×8 | 64×8 | 4 | 9 | 10 | 12-bit ×4 | 5.0V | 315/433/868/915MHz | 20Ksps (Max.) | 3.2mA@433MHz 4.0mA@868MHz | -112dBm @10kps | 46QFN 48LQFP-EP |
| BC45F7940 | | | | 4K×16 | 256×8 | 128×8 | 8 | 13 | | 12-bit ×7 | | | | | | |

Sub-1GHz OOK Rx

| Part No. | VDD | Band | OOK | Symbol Rate | Current Consumption | Sensitivity | Package |
|----------|-----------|--------------------|-----|---------------|---------------------|----------------|---------|
| BC2302A | 2.5V~5.5V | 315/433MHz | √ | 20Ksps (Max.) | 3.2mA@433MHz | -112dBm@10Ksps | 8SOP-EP |
| BC2302B | | 315/433/868/915MHz | | | 4.0mA@868MHz | | |

NFC

A/D NFC TAG Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | SCOM | Comparator | High Current LED Driver | NFC Standards | Interface | Package |
|-----------|-----------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|--|------------|------|------------|-------------------------|---------------|---|---------|
| HT45F4050 | 4MHz 8MHz 12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 8K×16 | 256×8 | 64×8 | 8 | 41 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit ×13 | 4 | 1 | 41 | ISO14443A | SPI/I ² C×1 UART×1 NFC×1 | 48LQFP |

NFC Reader

| Part No. | VDD | System Clock | RF Frequency | NFC Standards | RF Data Rate | RF Output Current | NFC FIFO-buffer | CRC | Receiver AGC | VDDIO | Interface | Package |
|-----------|-----------|--------------|--------------|-------------------------|-----------------------------------|-------------------|-----------------|-----|--------------|-------|-----------|---------|
| BC45B4523 | 2.7V~5.5V | 27.12MHz | 13.56MHz | ISO14443A/B ISO15693 | 106/212/424/848Kbps @ ISO14443A/B | 250mA | 64×8 | √ | √ | √ | SPI×1 | 24QFN |

Infrared / Encoder / Decoder

IR Remote Flash MCU with High Precision HIRC

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | IR Carrier | Package |
|-----------|----------------|-----------|---------------|----------------|-------------|-------|-----|------------|---------------------------|
| HT68F2420 | 4MHz±0.4% | 1.8V~5.5V | 4MHz or 32kHz | 1K×13 | 32×8 | 2 | 16 | √ | 8SOP, 16/20NSOP 20SSOP |

| RF Module | | | | | | | | |
|------------------------------|-----------|--------------|-----------------|---------------------|------------------------|------------------|------------------|------------------|
| BLE Transparent Transmission | | | | | | | | |
| Part No. | VDD | Data EEPROM | Data Rate | Output Power | Sensitivity | Interface | Stamp Holes | |
| BCM-7602-G01 | 2.2V~3.6V | 8K×8 | 1Mbps | +3dBm | -90dBm | UART/SPI | 8×2 (P=1.27mm) | |
| Sub-1GHz Receiver | | | | | | | | |
| Part No. | VDD | Band | Symbol Rate | Current Consumption | Sensitivity | Interface | Dimension | |
| BM2302-33-1 | 3.0V~5.5V | 315MHz | 20Ksps (Max.) | 3.2mA@315MHz | -112dBm@10ksps | I ² C | 43×10.5×5.2 (mm) | |
| BM2302-34-1 | | 433MHz | | 3.2mA@433MHz | -112dBm@10ksps | | | |
| BM2302-38-1 | | 868MHz | | 4.0mA@868MHz | -111dBm@10ksps | | | |
| BM2302-39-1 | | 915MHz | | 4.0mA@915MHz | -110dBm@10ksps | | | |
| BM2302-63-1 | 3.0V~5.5V | 315MHz | 20Ksps (Max.) | 3.2mA@315MHz | -112dBm@10ksps | I ² C | 16×15×2.6 (mm) | |
| BM2302-64-1 | | 433MHz | | 3.2mA@433MHz | -112dBm@10ksps | | | |
| BM2302-68-1 | | 868MHz | | 4.0mA@868MHz | -111dBm@10ksps | | | |
| BM2302-69-1 | | 915MHz | | 4.0mA@915MHz | -110dBm@10ksps | | | |
| Sub-1GHz Transceiver | | | | | | | | |
| Part No. | VDD | Band | Data Rate | Output Power | Rx Current Consumption | Sensitivity | Interface | Dimension |
| BM3601-03-1 | 2.0V~3.6V | 315MHz | 2~250Kbps | 17dBm (Max.) | 13.5mA@315MHz | -120dBm@2Kbps | SPI | 15×18.5×2.5 (mm) |
| BM3601-04-1 | | 433MHz | | | 13.0mA@433MHz | | | |
| BM3601-08-1 | | 868MHz | | | 13.5mA@868MHz | -119dBm@2Kbps | | |
| BM3601-09-1 | | 915MHz | | | 13.5mA@915MHz | | | |
| BM3602-03-1 | 2.0V~3.6V | 315MHz | 2~250Kbps | 13dBm (Max.) | 4.1mA@315MHz | -120dBm@2Kbps | SPI | 15×18.5×2.5 (mm) |
| BM3602-04-1 | | 433MHz | | | 4.2mA@433MHz | | | |
| BM3602-08-1 | | 868MHz | | | 5.5mA@868MHz | -119dBm@2Kbps | | |
| BM3602-09-1 | | 915MHz | | | 6.0mA@915MHz | | | |
| 2.4GHz Transceiver | | | | | | | | |
| Part No. | VDD | Band | Data Rate | Output Power | Sensitivity | Interface | Dimension | |
| BM5602-60-1 | 1.9V~3.6V | 2402~2480MHz | 125/250/500Kbps | 7dBm (Max.) | -98dBm@125Kbps | SPI | 17×16×2 (mm) | |

| Interface Bridge | | | | | | | | | | | |
|--|--------------------------------|-----------|----------------|-----------------------------|-----------------|----------------|------------------------------------|--------------------------------|-------------------------|-------|-----------------------------|
| Bridge | | | | | | | | | | | |
| Part No. | Description | VDD | Internal Clock | Interface | USB | Virtual COM | HID | FIFO/Buffer | Interface Data Rate | VDDIO | Package |
| HT42B532-1 | USB to I ² C Bridge | 3.3V~5.5V | 12MHz | USB×1 I ² C×1 | Full Speed | √ | — | TX: 62 bytes RX: 62 bytes | Up to 400kHz | √ | 8SOP 10MSOP |
| HT42B533-1 | USB to SPI Bridge | 3.3V~5.5V | 12MHz | USB×1 SPI×1 | Full Speed | √ | — | TX: 128 bytes RX: 128 bytes | Up to 8MHz | √ | 10MSOP 16NSOP |
| HT42B534-2 | USB to UART Bridge | 3.3V~5.5V | 12MHz | USB×1 UART×1 | Full Speed | √ | — | TX: 128 bytes RX: 128 bytes | Up to 3Mbps Baud | √ | 8/10SOP 10MSOP 16NSOP |
| HT42B564-1 | USB to UART Bridge | 3.3V~5.5V | 12MHz | USB×1 UART×1 | Full Speed | — | √ | TX: 32 bytes RX: 32 bytes | Up to 115.2kbps Baud | √ | 10SOP |
| CAN Bus Controller | | | | | | | | | | | |
| Part No. | Description | VDD | System Clock | Protocol | Message Objects | Message Memory | Interface | Package | | | |
| HT45B3305H | CAN Controller | 3.0V~5.5V | 8MHz~ 24MHz | CAN 2.0A/B ISO11898-1 | 32 | 32×139-bit | CAN×1 SPI×1, I ² C×1 | 16NSOP/QFN | | | |
| Note: Operating temperture rage -40°C~+125°C. Based on BOSCH CAN IP module C CAN. | | | | | | | | | | | |

| Telecom IC | | | | |
|---|----------------|-----------|---------------|---------|
| Telecom Peripheral | | | | |
| Part No. | Description | VDD | OSC Frequency | Package |
| HT9200A | DTMF generator | 2.5V~5.5V | 3.58MHz | 8SOP |
| HT9200B | | | | 14SOP |
| HT9170D | DTMF receiver | 2.5V~5.5V | 3.58MHz | 18SOP |
| HT9172 | DTMF receiver | 2.5V~5.5V | 3.58MHz | 18SOP |
| Note: The HT9172 has enhanced performance over the HT9170B/HT9170D devices. | | | | |

Battery Management

Power Bank Flash MCU

| Part No. | Internal Clock | VCC (HV) | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Protections | LDO | HVO | VREF | Q.C 2.0 | Package |
|-------------|----------------|----------|------------|-----------------------|----------------|-------------|-------------|-------|-----|------------------------------|------------|-----------------|-----|-----|----------|---------|--------------------|
| HT45F4MA | 30MHz | — | 2.55V~5.5V | 470kHz~15MHz or 32kHz | 2K×16 | 128×8 | 64×8 | 4 | 16 | 10-bit PTM×1 16-bit STM×1 | 12-bit ×8 | OVP×1 OCP×1 | — | — | — | — | 16NSOP 20SSOP |
| HT45FH4MA-1 | | 3V~28V | | | | | | | 13 | | | | 5V | 2 | | | 20SSOP |
| BP45F4MB | 30MHz | — | 2.5V~5.5V | 470kHz~15MHz or 32kHz | 2K×16 | 128×8 | — | 4 | 18 | 10-bit PTM×1 16-bit STM×1 | 12-bit ×7 | OVP×1 OCP×1 | — | — | 2.4V ±1% | — | 16NSOP 20SSOP |
| HT45F4N | 30MHz | — | 2.55V~5.5V | 470kHz~15MHz or 32kHz | 4K×16 | 192×8 | 64×8 | 8 | 26 | 10-bit PTM×3 16-bit STM×1 | 12-bit ×13 | OCP×2 OUPV×1 | — | — | — | — | 28SSOP |
| HT45FH4N | | 3V~28V | | | | | | | 21 | | | | 5V | 2 | | | |
| BP45F4NB | 30MHz | — | 2.6V~5.5V | 470kHz~15MHz or 32kHz | 4K×16 | 256×8 | — | 8 | 26 | 10-bit CTM×2 16-bit PTM×1 | 12-bit ×11 | OCP×2 OUPV×1 | — | — | 2.4V ±1% | — | 24/28SSOP 28QFN |
| BP45FH4NB | | 3V~28V | | | | | | | 21 | | | | 5V | 2 | | | 28SSOP |

Advanced Power Bank Flash MCU

| Part No. | Internal Clock | VCC (HV) | VDD | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | Auto-adjust H.R. PWM | Protections | LDO | HVO | VREF | Q.C 2.0 | Package |
|----------|------------------------|----------|------------|----------------|-------------|-------------|-------|-----|------------------------------|------------|----------------------|-----------------|-----|-----|--------------|---------|-----------------|
| HT45F5N | 8MHz | — | 2.55V~5.5V | 4K×16 | 256×8 | 64×8 | 8 | 30 | 10-bit PTM×1 16-bit STM×1 | 12-bit ×14 | 2 | OCP×2 OUPV×2 | — | — | 2.4V ±1% | — | 28SSOP 32QFN |
| HT45FH5N | | 3V~28V | | | | | | 28 | | | | | 5V | 2 | | | 28SSOP 46QFN |
| BP45FH6N | 8MHz 12MHz 16MHz | 3V~15V | 2.55V~5.5V | 6K×16 | 256×8 | 64×8 | 8 | 28 | 10-bit PTM×1 16-bit STM×1 | 12-bit ×14 | 2 | OCP×2 OUPV×2 | 5V | 8 | 2V/3V/4V ±1% | √ | 46QFN |

Note: 1. H.R. PWM: High Resolution and Complementary PWM Outputs with dead-time control, the duty cycle resolution is 7.8ns when the HIRC is 8MHz.
2. BP45FH6N has 4 pin high voltage output with 12V/90mA and 4 pin High Voltage MOS Gate Driver with 12V/450mA.

Battery Charger Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | DAC | OPA | CRC | LVR | Interface | Package |
|-----------|----------------|-----------|----------------------|----------------|-------------|--------------------|-------|-----|------------------------------|------------|----------------------|-----|-----|------|---------------------------------|-----------|
| HT45F5Q-1 | 8MHz | 2.2V~5.5V | 8MHz | 1K×14 | 32×8 | 32×14 [#] | 4 | 9 | — | 10-bit ×5 | 8-bit×1 12-bit×1 | 2 | — | 2.1V | — | 16NSOP |
| HT45F5Q-2 | 8MHz 32kHz | 2.2V~5.5V | 125kHz~8MHz or 32kHz | 2K×16 | 128×8 | 32×8 | 6 | 15 | 10-bit CTM×1 | 12-bit ×7 | 8-bit×1 12-bit×1 | 3 | — | 2.1V | UART×1 | 20NSOP |
| HT45F5Q-3 | 8MHz 32kHz | 2.2V~5.5V | 125kHz~8MHz or 32kHz | 4K×15 | 256×8 | 32×15 [#] | 6 | 23 | 10-bit CTM×1 10-bit STM×1 | 12-bit ×11 | 14-bit×1 12-bit×1 | 3 | √ | 2.1V | SPI/I ² C/ UART×1 | 24/28SSOP |

Note: # Emulated EEPROM.

Wireless Charger Tx Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | OCP | De-Modulation | PLL | Clock Gen. | Modulation | Interface | Package |
|------------|----------------|-----------|--------------|----------------|-------------|-------------|-------|-----|--|-----------|-----|---------------|--------|------------|------------|--------------------|-----------------|
| HT66FW2230 | 20MHz | 4.0V~5.5V | 312kHz~20MHz | 4K×16 | 128×8 | 64×8 | 8 | 21 | 10-bit CTM×1 10-bit STM×1 | 12-bit ×8 | 1 | 1 | 0 | 1 | — | I ² C×1 | 28SSOP 28QFN |
| HT66FW2350 | 8MHz | 4.0V~5.5V | 125kHz~20MHz | 8K×16 | 256×8 | 64×8 | 8 | 27 | 10-bit CTM×1 10-bit STM×1 16-bit PTM×1 | 12-bit ×7 | 1 | 2 | 32 MHz | 1 | FSK | I ² C×1 | 32QFN |

Wireless Charger Rx Flash MCU

| Part No. | Internal Clock | VIN | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | IAP | I/O | Timer | ADC | Sync. Rectifier | LDO | Linear Charge | Modulation | Receive Power | Package |
|------------|------------------------|-------|-----------|-----------------------|----------------|-------------|-------------|-----|-----|--|------------|-----------------|----------|---------------|------------|---------------|---------|
| BP66FW1240 | 8MHz 12MHz 16MHz | 7V~7V | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 4K×16 | 256×8 | 128×8 | √ | 20 | 16-bit CTM×1 16-bit STM×1 10-bit PTM×1 | 12-bit ×11 | √ | 30mA @5V | 40~600 mA | √ | 5W | 46QFN |

Wireless Charger Tx Power Stage IC

| Part No. | VIN | VDD | OCP | OTP | R _{DS(ON)} | Package |
|-----------|----------|-----------|-----|-----|---------------------|---------|
| HT45B0016 | 4.5V~25V | 4.5V~5.5V | √ | √ | 12mΩ/30mΩ | 23QFN |

| Battery Management | | | | | | | | | | | | | | | | | |
|----------------------------|----------------|-----------|----------------|-----------------------|----------------|--------------------|-------|---------|------------------------------|-------------------------|---------------|-------------------------|----------------|-------|-----------------|-----------------|-----------|
| Handheld Product Flash MCU | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | PWM | High Current LED Driver | Linear Charger | N-MOS | H-Bridge Driver | Package | |
| BP45F1120 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 1K×14 | 64×8 | 32×14 [#] | 4 | 11 | 8-bit×1 | 10-bit×4 | 8-bit×1 | 11 | 40~800mA | — | — | 16NSOP | 16QFN |
| BP45F1320 | | | | | | | | | | | | 9 | | √ | | 16NSOP | |
| BP45F1322 | | | | | | | | | | | | 9 | | — | 2.1A | 24SSOP-EP | |
| BP45F1130 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×14 [#] | 4 | 19 | 8-bit×1 | 10-bit×4 | 8-bit×1 | 19 | 40~400mA | — | — | 16/20NSOP | 24SSOP |
| BP45F0102 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 2K×14 | 64×8 | 32×14 [#] | 4 | 13 | 8-bit×1 | 10-bit×4 | 8-bit×1 | 13 | — | — | 2.1A | 20SSOP | |
| BP45F1330 | | | | | | | | 14 | | | | 14 | 40~400mA | | | 24SSOP | |
| BP45F1132 | 8MHz | 2.2V~5.5V | 8MHz or 32kHz | 2K×15 | 128×8 | 32×8 | 4 | 18 | 8-bit×1 | 12-bit×4 | 8-bit×2 | 17 | 200~1000mA | — | — | 16NSOP-EP | 24SSOP-EP |
| BP45F1332 | | | | | | | | | | | | 14 | | | | 24QFN | 24SSOP-EP |
| BP45F0106 | 8MHz | 1.8V~5.5V | 8MHz or 32kHz | 4K×15 | 128×8 | 32×15 [#] | 6 | 16 | 10-bit PTM×1 10-bit STM×1 | 10-bit×8 | — | 16 | — | — | 2.1A | 24SSOP | |
| Note: # Emulated EEPROM. | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VIN | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | ADC | VREF | High Current LED Driver | LDO | HVIO | Protections | H-Bridge Driver | Package |
| BP45F1430 | 30MHz | 6V~12V | 2.6V~5.5V | 235KHz~15MHz or 32kHz | 2K×16 | 128×8 | 4 | 12 | 10-bit PTM×1 10-bit STM×1 | 12-bit×6 | 2.4V±1% | 12 | 150mA @5V | 4 | OCP×1 OVP×1 | — | 24SSOP |
| BP45F1632 | | | | | | | | 8 | | | | 8 | | | | 2.1A | 24SSOP |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | PWM | High Current LED Driver | De-modulation | HV-MOSFET | Package | | | | |
| BP45F0044 | 16MHz | 3.3V~5.5V | 16MHz or 32kHz | 512×13 | 32×8 | 2 | 4 | 8-bit×1 | 8-bit×1 | 4 | 1 | 1 | 8SOP | | | | |

| Li Battery & Power Management Flash MCU | | | | | | | | | | | | | | | | | |
|---|------------------------|----------|-----------|---------------------------|---------------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|----------|-----|--|---------------------|
| Li Battery Protection Flash MCU | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VIN | VDD | V _{MON} Accuracy | LDO | System Clock | Program Memory | Data memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | CRC | Inter-face | Package |
| HT45F8550 | 8MHz 12MHz 16MHz | 7.5V~36V | 1.8V~5.5V | 1/n±0.5% (Ratio) | 5V±1% 30mA | 400kHz~16MHz or 32kHz | 8K×16 | 512×8 | 128×8 | 8 | √ | 22 | 10-bit PTM×1 16-bit CTM×1 16-bit STM×1 | 12-bit×9 | — | UART×1 SPI/I ² C×1 | 28SSOP 48LQFP-EP |
| HT45F8560 | | | | | | | 16K×16 | 2048×8 | 1024×8 | 16 | √ | 33 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit×8 | √ | UART×2 SPI/I ² C×1 SPIA×1 | 48LQFP |

| Inverter Flash MCU | | | | | | | | | | | | | | | | | |
|--------------------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|------------------------------|-----------|----------|-----|-----|-------------|---------|------------|-----------|
| Inverter Flash MCU | | | | | | | | | | | | | | | | | |
| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | SPWM | OCP | OVP | AC Detector | LVD/LVR | Inter-face | Package |
| HT45F5V | 16MHz | 4.0V~5.5V | 250kHz~20MHz or 32kHz | 4K×16 | 256×8 | 64×8 | 6 | 24 | 10-bit CTM×2 16-bit STM×1 | 12-bit×10 | 12-bit×1 | 2 | 1 | √ | √ | UART×1 | 24/28SSOP |

LDO & Detector

TinyPower™ LDO

| Part No. | Maximum Input Voltage | Output Voltage, V_{OUT} | Max. Output Current | Typical Current Consumption | Chip Enable Function | Tolerance | Protections | Package |
|----------|-----------------------|--|---------------------|-----------------------------|----------------------|-----------|----------------------|---------------------------|
| HT1015-1 | 12V | 1.5V | 18mA | 2.2μA | — | ±3% | — | SOT23-5, SOT89 |
| HT71xx-1 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.4V/5.0V | 30mA | 2.5μA | — | ±3% | Soft-Start | TO92, SOT23-5 SOT89 |
| HT71xx-2 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.4V/5.0V | 30mA | 2.5μA | — | ±1% | Soft-Start | SOT23-5, SOT89 |
| HT71xx-3 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.4V/5.0V | 30mA | 1.0μA | — | ±2% | Soft-Start | SOT23-5, SOT89 |
| HT75xx-1 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V | 100mA | 2.5μA | — | ±3% | Soft-Start | TO92, SOT23-5 SOT89 |
| | | 5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V | 150mA | | | | | |
| HT75xx-2 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V | 100mA | 2.5μA | — | ±1% | Soft-Start | TO92, SOT23-5 SOT89 |
| | | 5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V | 150mA | | | | | |
| HT75xx-3 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V | 100mA | 1.0μA | — | ±2% | Soft-Start | SOT23-5, SOT89 |
| | | 5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V | 150mA | | | | | |
| HT75xx-7 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V | 100mA | 2.5μA | √ | ±2% | Soft-Start, OCP, OTP | SOT23-5, SOT89 |
| | | 5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V | 150mA | | | | | |
| HT73xx | 12V | 1.8V | 150mA | 3.5μA | — | ±3% | — | SOT89 |
| | | 2.5V | 180mA | | | | | |
| | | 2.7V | 200mA | | | | | |
| | | 3.0V/3.3V/3.5V/4.15V/5.0V | 250mA | | | | | |
| HT73xx-1 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V | 250mA | 2.5μA | — | ±3% | Soft-Start | SOT89, 8SOP-EP |
| HT73xx-2 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V | 250mA | 2.5μA | — | ±1% | Soft-Start | SOT89, 8SOP-EP |
| HT73xx-3 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V | 250mA | 1.0μA | — | ±2% | Soft-Start | SOT89, 8SOP-EP |
| HT73xx-7 | 30V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V | 250mA | 2.5μA | √ | ±2% | Soft-Start, OCP, OTP | SOT89, 8SOP-EP |
| HT72xx | 8V | 1.8V/2.5V/2.7V/3.0V/3.3V/4.5V/5.0V | 300mA | 4.0μA | √ | ±2% | OCP, OTP | SOT23, SOT23-5 SOT89 |
| HT78xx | 8V | 1.8V/2.5V/2.7V/3.0V/3.3V/5.0V | 500mA | 4.0μA | √ | ±2% | OCP, OTP | SOT23-5, SOT89 |
| HT73Lxx | 6.6V | 0.9V/1.05V/1.2V/1.5V/1.8V/ 2.5V/2.7V/3.0V/3.3V/3.6V | 250mA | 1.0μA | √ | ±2% | Soft-Start, OCP, OTP | 4DFN, SOT89, SOT23-5 |
| HT75Hxx | 40V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V | 150mA | 2.5μA | √ | ±1.5% | Soft-Start, OCP, OTP | SOT89, SOT23-5 8SOP-EP |
| HT73Hxx | 40V | 2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V | 250mA | 2.5μA | √ | ±1.5% | Soft-Start, OCP, OTP | SOT89, SOT23-5 8SOP-EP |

Note: The xx in the part number is the LDO output voltage.

TinyPower™ Voltage Detector

| Part No. | Maximum Input Voltage | Detector Voltage, V_{DET} | Hysteresis Width | Typical Current Consumption | Tolerance | Package |
|-----------|-----------------------|---|------------------------|-----------------------------|-----------|-----------------------------|
| HT70xxA-1 | 30V | 2.2V/2.4V/2.7V/3.3V/3.9V/4.4V/5.0V/8.2V | $0.05V \times V_{DET}$ | 3.0μA | ±3% | TO92, SOT23, SOT23-5, SOT89 |
| HT70xxA-2 | 30V | 2.2V/2.4V/2.7V/3.3V/3.9V/4.4V/5.0V/8.2V | $0.05V \times V_{DET}$ | 3.0μA | ±1% | SOT23-5, SOT89 |
| HT70xxA-3 | 30V | 2.2V/2.4V/2.7V/3.3V/3.9V/4.4V/5.0V/8.2V | $0.05V \times V_{DET}$ | 1.0μA | ±2% | SOT23-5, SOT89 |

Note: The xx in the part number is the detect voltage.

DC to DC Converter

Asynchronous Step-Down DC to DC Converter

| Part No. | Max. Input Voltage | Output Voltage | Output Current | Switching Frequency | Current Limit | Accuracy | Shutdown Current, I _{OFF} | Operation Current, I _Q | Efficiency | Mode | Package |
|----------|--------------------|----------------|----------------|---------------------|---------------|-----------|------------------------------------|-----------------------------------|------------|---------|---------|
| HT7463A | 52V | 1.0V~36V | 0.6A | 1250kHz | 1.0A | 0.8V±2.0% | 1.0μA | 0.7mA | 95% | PWM/PSM | SOT23-6 |
| HT7463B | | | | 550kHz | | | | | | | |
| HT74T35A | 60V | 0.8V~36V | 0.6A | 1250kHz | 1.2A | 0.8V±2.0% | 1.0μA | 0.2mA | 95% | PWM/PSM | SOT23-6 |
| HT74T35B | | | | 550kHz | | | | | | | |

Synchronous Step-Down DC to DC Converter

| Part No. | Max. Input Voltage | Output Voltage, V _{OUT} | Output Current | Switching Frequency | Current Limit | Accuracy | Shutdown Current, I _{OFF} | Operation Current, I _Q | Efficiency | Mode | Package |
|-----------|--------------------|----------------------------------|----------------|---------------------|---------------|-----------|------------------------------------|-----------------------------------|------------|---------|--------------------|
| HT74153 | 6V | 0.6V~5V | 1.8A | 1200kHz | 3.2A | 0.6V±1.5% | 0.5μA | 0.05mA | 95% | PWM/PSM | 8SOP-EP |
| HT74173 | | | 3.0A | 1200kHz | 5.0A | | | | | | |
| HT74U26L* | 60V | 0.8V~36V | 0.6A | 400kHz | 1.5A | 0.8V±1.5% | 1.0μA | 0.005mA | 95% | PWM/PSM | 8SOP-EP SOT23-6 |

* Under development, available in 2Q, 2021.

Asynchronous Step-Up DC to DC Converter

| Part No. | Input Voltage | Output Voltage, V _{OUT} | Output Current | Switching Frequency | Current Limit | Accuracy | Shutdown Current, I _{OFF} | Operation Current, I _Q | Efficiency | Mode | Package |
|----------|---------------|----------------------------------|-----------------|---------------------|---------------|------------------------|------------------------------------|-----------------------------------|------------|------|-------------------------|
| HT77xxB | 0.7V~6.0V | 1.8V/2.2V | 0.1A | 115kHz | — | V _{OUT} ±2.5% | 1.0μA | 4μA | 80% | PFM | SOT23, SOT23-5 SOT89 |
| | | 2.7V/3.0V/3.3V/3.7V/5.0V | | | | | | | 85% | | |
| HT77xxBA | 0.7V~6.0V | 2.7V/3.0V/3.3V/3.7V/5.0V | 0.2A | 200kHz | 0.8A | V _{OUT} ±2.5% | 1.0μA | 5μA | 85% | PFM | SOT23, SOT23-5 SOT89 |
| HT77xxC | 0.7V~6.0V | 1.8V/2.2V | — (External) | 115kHz | — | V _{OUT} ±2.5% | 1.0μA | 4μA | 80% | PFM | SOT23-5, SOT89 |
| | | 2.7V/3.0V/3.3V/3.7V/5.0V | | | | | | | 85% | | |
| HT7991 | 2.6V~5.5V | 3.0V~12.0V | 1.0A | 1000kHz | 2.5A | 0.6V±2.0% | 1.0μA | 210μA | 85% | PWM | SOT23-6 |

Note: The xx in the part number is the output voltage.

Synchronous Step-Up DC to DC Converter

| Part No. | Input Voltage | Output Voltage, V _{OUT} | Output Current | Switching Frequency | Current Limit | Accuracy | Shutdown Current, I _{OFF} | Operation Current, I _Q | Efficiency | Mode | Package |
|----------|---------------|----------------------------------|----------------|---------------------|---------------|----------------------|------------------------------------|-----------------------------------|------------|---------|--------------------------|
| HT77xxF | 0.7V~6.0V | 2.7V/3.0V/3.3V/3.7V/5.0V | 0.1A | — | — | V _{OUT} ±2% | 1.0μA | 4μA | 85% | PFM | SOT23, SOT23-5, SOT89 |
| HT77xxFA | 0.7V~6.0V | 2.7V/3.0V/3.3V/3.7V/5.0V | 0.2A | — | — | V _{OUT} ±2% | 1.0μA | 4μA | 90% | PFM | SOT23, SOT23-5, SOT89 |
| HT79171 | 2.2V~5.0V | 2.6V~5.2V | 2.0A | 500kHz | 5.0A | 0.6V±1.5% | 1.0μA | 65μA | 95% | PWM/PSM | 8SOP-EP, 10QFN |
| HT79181 | 2.2V~5.0V | 2.6V~5.2V | 3.0A | 500kHz | 6.0A | 0.6V±1.5% | 1.0μA | 65μA | 95% | PWM/PSM | 10QFN |

Note: The xx in the part number is the output voltage.

Charge Pump DC to DC Converter

| Part No. | Input Voltage | Output Voltage, V _{OUT} | Output Current | Switching Frequency | Current Limit | Accuracy | Shutdown Current, I _{OFF} | Operation Current, I _Q | Efficiency | Package |
|----------|---------------|-----------------------------------|----------------|---------------------|---------------|------------------------|------------------------------------|-----------------------------------|------------|----------|
| HT7660 | 3V~12V | -V _{DD} ~V _{DD} | 20mA | 10kHz | — | V _{OUT} ±4.0% | — | 0.08mA | 98% | 8DIP/SOP |

AC to DC Converter

AC to DC Converter

| Part No. | Topology | PF | Power MOS (BV) | Input Voltage | R _{DS(ON)} | Operation Current | Typical Power Capability | Frequency | Protections | Package |
|----------|---------------------------------|--------|----------------|---------------|---------------------|-------------------|--------------------------|-----------|---|----------|
| HT7A6312 | Flyback (SSR), Buck, Buck-Boost | — | 730V | 9V~38V | 19Ω | 0.7mA | 8W/13W* | 60kHz | UVLO, OTP, OVP, OCP | 8DIP/SOP |
| HT7A6322 | | | | | 12Ω | | 12W/20W* | | | |
| HT7L5820 | Flyback (PFC+QR PWM) | > 0.97 | Ext. | 9V~28V | — | 3mA | 200W | — | Brown In/Out, UVLO, OCP, open/short, OVP (Auto Recovery), OTP (Auto Recovery) | 16NSOP |
| HT7L5821 | | | | | | | | | Brown In/Out, UVLO, OCP, open/short, OVP (Latched), OTP (Latched) | |

Note: All of ICs operate from 85V_{AC} to 265V_{AC}.

* Max. output power from 85V_{AC} to 265V_{AC}/176V_{AC} to 265V_{AC}.

LCD Controller & Driver

RAM Mapping LCD Controller & Driver

| Part No. | VDD | Max. Resolution Segment × Common | LCD Voltage | Bias | Gray Scale | Serial Data | Built-in OSC. | Ext. Crystal | Package |
|----------|-----------|----------------------------------|--------------------|----------|------------|-------------|---------------|--------------|---------------------|
| HT1620 | 2.4V~3.3V | 32×4, 32×3, 32×2 | 3/2V _{DD} | 1/2, 1/3 | — | 1 | — | √ | 64LQFP |
| HT1621 | 2.4V~5.2V | 32×4, 32×3, 32×2 | ≤ V _{DD} | 1/2, 1/3 | — | 1 | √ | √ | 44LQFP, 48SSOP/LQFP |
| HT1621S | 2.4V~5.5V | | | | | | | | Gold Bump |
| HT1621G | 2.4V~5.2V | | | | | | | | |
| HT1621SG | 2.4V~5.5V | | | | | | | | |
| HT1622 | 2.7V~5.2V | 32×8 | ≤ V _{DD} | 1/4 | — | 1 | √ | — | 44/52/64LQFP |
| HT1622G | | | | | | | | | Gold Bump |
| HT16220 | 2.7V~5.2V | 32×8 | ≤ V _{DD} | 1/4 | — | 1 | — | √ | 64LQFP |
| HT1623 | 2.7V~5.2V | 48×8 | ≤ V _{DD} | 1/4 | — | 1 | √ | √ | 100LQFP |
| HT1625 | 2.7V~5.2V | 64×8 | ≤ V _{DD} | 1/4 | — | 1 | √ | √ | 100LQFP |
| HT1626 | 2.7V~5.2V | 48×16 | ≤ V _{DD} | 1/5 | — | 1 | √ | √ | 100LQFP |
| HT1629G | 2.4V~5.5V | 240×2, 240×1 | 2.4V~5.5V | 1/1, 1/2 | — | 1 | √ | √ | Gold Bump |
| HT1647 | 2.7V~5.2V | 64×16 | ≤ V _{DD} | 1/4, 1/5 | 4 | 4 | √ | √ | 100LQFP |

High Noise Immunity LCD Controller & Driver

| Part No. | VDD | Max. Resolution Segment × Common | LCD Voltage | Bias | Power Saving Mode | Keyscan | Interface | Package |
|-------------|-----------|----------------------------------|-------------------|---------------|-------------------|--------------|------------------|-----------------------|
| HT16C21 | 2.4V~5.5V | 20×4, 16×8 | ≤ V _{DD} | 1/3, 1/4 | — | — | I ² C | 16NSOP 20/24/28SOP |
| HT16C22A* | 2.4V~5.5V | 44×4 | ≤ V _{DD} | 1/2, 1/3 | — | — | I ² C | 48/52LQFP |
| HT16C22AG** | | | | | | | | Gold Bump |
| HT16C23A** | 2.4V~5.5V | 56×4, 52×8 | 2.4V~5.5V | 1/3, 1/4 | — | — | I ² C | 48/64LQFP |
| HT16C23G | | | | | | | | Gold Bump |
| HT16C24 | 2.4V~5.5V | 72×4, 68×8, 60×16 | 2.4V~5.5V | 1/3, 1/4, 1/5 | — | — | I ² C | 64/80LQFP |
| HT16C24G | | | | | | | | Gold Bump |
| HT16K23 | 2.4V~5.5V | 20×4 16×8 | = V _{DD} | 1/3 1/4 | — | 20×1 16×1 | I ² C | 28SOP |
| HT9B92 | 2.4V~5.5V | 36×4 | ≤ V _{DD} | 1/2, 1/3 | √ | — | I ² C | 48LQFP/TSSOP |
| HT9B95A | 2.4V~5.5V | 35×8 | 2.4V~5.5V | 1/4 | √ | — | I ² C | 48TSSOP, 52LQFP |
| HT9B95B | | 43×4 | | 1/3 | | | | 52LQFP |
| | | 39×8 | | 1/4 | | | | |

* Under development, available in 4Q, 2020.

** Under development, available in 2Q, 2021.

Low Voltage LCD Controller & Driver

| Part No. | VDD | Max. Resolution Segment × Common | LCD Voltage | Bias | LED | Interface | Package |
|----------|-----------|----------------------------------|-------------|----------|-----|------------------------------|---------|
| HT16L21 | 1.8V~5.5V | 32×4 | 2.4V~6.0V | 1/2, 1/3 | 8 | I ² C, SPI 3-Wire | 44LQFP |
| HT16L23 | 1.8V~5.5V | 52×4, 48×8 | 2.4V~6.0V | 1/3, 1/4 | 8 | I ² C, SPI 3-Wire | 64LQFP |

High Operating Voltage LCD Controller & Driver

| Part No. | VDD | Max. Resolution Segment × Common | LCD Voltage | Bias | Duty | Charge Pump | Contrast Adjustment | GPO | Interface | Package |
|----------|-----------|----------------------------------|-------------|---------|------------------|----------------|---------------------|-----|------------------------------|------------|
| HT16H25 | 2.4V~5.5V | 60×16 | 2.5~12V | 1/1~1/5 | Static, 1/2~1/16 | ×2, ×3, ×4, ×5 | 4-bit | 4CH | I ² C, SPI 3-Wire | 80/100LQFP |

| LED Controller & Driver | | | | | | | | | | | | | |
|--|-----------|----------------------------|----------------------------|---------------------------|---------------------------|-------------------------|--------------------|----------|------------------|----------------------|----------------------|------------------|------------------------|
| RAM Mapping LED Controller & Driver | | | | | | | | | | | | | |
| Part No. | VDD | Max. Resolution Row×Common | Row Source Current (Min.) | Row Sink Current (Min.) | Com Source Current (Min.) | Com Sink Current (Min.) | PWM Gray Scale | Key-scan | Interface | Package | | | |
| HT1632D* | 4.5V~5.5V | 32×8, 24×16 | 50mA | 12mA | 45mA | 250mA | 16Level for Global | — | 4-Wire | 52LQFP | | | |
| | | 24×8 | | | | | | | | 48LQFP | | | |
| HT1635C** | 4.5V~5.5V | 44×8 | 50mA | 10mA | 45mA | 250mA | 16Level for Global | — | 4-Wire | 64LQFP | | | |
| HT1635D** | | | | | | | | | I ² C | | | | |
| HT16K33 | 4.5V~5.5V | 16×8 | 20mA±5% | 6mA | 20mA | 160mA | 16Level for Global | 13×3 | I ² C | 28SOP | | | |
| | | 12×8 | | | | | | 10×3 | | 24SOP | | | |
| | | 8×8 | | | | | | 8×3 | | 20SOP | | | |
| * Under development, available in 4Q, 2020. | | | | | | | | | | | | | |
| ** Under development, available in 1Q, 2021. | | | | | | | | | | | | | |
| Advanced LED Controller & Driver | | | | | | | | | | | | | |
| Part No. | VDD | LED_VDD | Max. Resolution Row×Common | Com Source Current (Min.) | Com Sink Current (Min.) | PWM Gray Scale | Constant Current | Fade | Auto Scrolling | Over Temp. Detection | Open/Short Detection | Interface | Package |
| HT16D31A | 2.7V~5.5V | 4.5V~5.5V | 8×9 | 270mA | — | 256Level for each dot | 33mA±3% Max. 48mA | √ | √ | √ | √ | 3-Wire SPI | 16NSOP-EP 16QFN |
| HT16D31B | | | | | | | | | | | | I ² C | |
| HT16D33A | 2.7V~5.5V | 4.5V~5.5V | 9×10 + 9×10 12×12 16×16 | 315mA | — | 256Level for each dot | 33mA±3% Max. 48mA | √ | √ | √ | √ | 3-Wire SPI | 24SSOP-EP 28SSOP 32QFN |
| HT16D33B | | | | | | | | | | | | I ² C | |
| HT16D35A | 2.7V~5.5V | 4.5V~5.5V | 28×8 | 250mA | 45mA | 64Level for each dot | 30mA±3% Max. 45mA | √ | √ | √ | — | 3-Wire SPI | 48LQFP-EP |
| HT16D35B | | | | | | | | | | | | I ² C | |

| White LED Backlight Driver | | | | | | | | | | | | |
|----------------------------|---------------|----------------|---------------------|------------|-------------|----------|-----------|-----------------------|---------------|-----------------|---|---------|
| White LED Backlight Driver | | | | | | | | | | | | |
| Part No. | Input Voltage | Output Current | Switching Frequency | Efficiency | Typical OVP | Accuracy | Max. LED# | PWM Dimming Frequency | Power Element | Backlight Type | Protections | Package |
| HT7938A-3 | 2.6V~5.5V | 200mA | 1200kHz | 90% | 39V | 300mV±5% | 39 | 100Hz~200kHz | Internal | Parallel/Series | UVLO, OVP, OCP, OTP | SOT23-6 |
| HT7939A | 2.6V~5.5V | 260mA | 1200kHz | 90% | 17.6/32.0V | 200mV±5% | 39 | 100Hz~200kHz | Internal | Parallel/Series | UVLO, OVP, OCP, OTP | SOT23-6 |
| HT7963 | 9.0V~30V | 1200mA | 200kHz | 90% | Adjustable | 300mV±3% | — | 100Hz~1kHz | External | Parallel/Series | UVLO, OVP, OCP, OTP, Soft-Start, LED open, LED short, OSP | 8SOP |

| AC / DC LED Lighting Driver | | | | | | | | |
|--|----------------------|-------|-----------|-------------|----------------------|------------------|---|---------|
| AC / DC LED Lighting | | | | | | | | |
| Part No. | Topology | PF | Power MOS | HV Start-up | Maximum Output Power | Current Accuracy | Protections | Package |
| HT7L5600 | Flyback (PSR) | >0.9 | Ext. | — | 60W | ±3% | UVLO, OVP, OTP, OCP, LED open/short | SOT23-6 |
| HT7L5820 | Flyback (PFC+QR PWM) | >0.97 | Ext. | 650V | 200W | ±2% | Brown In/Out, UVLO, OCP, open/short, OVP (Auto Recovery), OTP (Auto Recovery) | 16NSOP |
| HT7L5821 | | | | | | | Brown In/Out, UVLO, OCP, open/short, OVP (Latched), OTP (Latched) | |
| Note: All of LED Lighting Drivers operate from 85V _{AC} to 265V _{AC} . Max. output power from 85V _{AC} to 265V _{AC} /176V _{AC} to 265V _{AC} . | | | | | | | | |

Bank & Commercial Flash MCU

Smart Card Reader Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP/ISP | I/O | Timer | ADC | RTC | Comparator | USB | LDO | EMVCo | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|---------|-----|--|-----------|-----|------------|-----|----------------------|--------------------------|---------------------------------------|---------------|
| HT66F4360 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 3072×8 | — | 12 | √ | 36 | 10-bit CTM×2 10-bit PTM×1 16-bit STM×1 | 12-bit ×8 | √ | 2 | √ | 1.8V 3.0V 5.0V | ISO7816-3 Class A/B/C | UART×2 SPI×2 I ² C×1 | 48/64 LQFP |
| HT66F4370 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 3072×8 | — | 12 | √ | 36 | 10-bit CTM×2 10-bit PTM×1 16-bit STM×1 | 12-bit ×8 | √ | 2 | √ | 1.8V 3.0V 5.0V | ISO7816-3 Class A/B/C | UART×2 SPI×2 I ² C×1 | 48/64 LQFP |
| HT66F4390 | 12MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 64K×16 | 3072×8 | 256×8 | 16 | √ | 36 | 10-bit CTM×2 10-bit PTM×1 16-bit STM×1 | 12-bit ×8 | √ | 2 | √ | 1.8V 3.0V 5.0V | ISO7816-3 Class A/B/C | UART×2 SPI×2 I ² C×1 | 48/64 LQFP |

Ultra-Low Power Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU [#] | Stack | IAP | I/O | Timer | ADC | LCD | RTC | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|------------------|-------|-----|-----|------------------------------|-----------|------------|-----|--|---------|
| HT66F2560 | 1/2/4/8/12MHz | 1.8V~5.5V | 400kHz~16MHz or 32kHz | 16K×16 | 2048×8 | 256×8 | 16-bit | 16 | √ | 42 | 16-bit PTM×2 16-bit STM×3 | 12-bit ×8 | SCOM ×4 | √ | SPI/I ² C×1 SPIA×1 UART×2 | 48LQFP |
| HT69F2562 | 4/8/12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 16K×16 | 2304×8 | 128×8 | — | 16 | √ | 19 | 10-bit CTM×2 16-bit STM×1 | — | 32×4 | √ | SPI×1 SPI/I ² C/UART×1 | 64LQFP |

Note: # MDU: Multiplier Divider Unit.

The power consumption of the RTC on standby current is less than 200nA at 3V.

Ultra-Low Power Flash MCU with LCD Driver & Touch Key

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | Touch Key | LCD | RTC | Interface | Package |
|-----------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|-----------|-----------|------|-----|--------------------------------------|---------|
| BS67F2563 | 4/8/12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 16K×16 | 2304×8 | 128×8 | 16 | √ | 31 | 10-bit CTM×2 16-bit STM×1 | 12-bit ×7 | 20 | 32×4 | √ | SPI×1 SPI/I ² C/UART×1 | 64LQFP |

Note: The power consumption of the RTC on standby current is less than 200nA at 3V.

Ultra-Low Power Flash MCU with EPD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | EPD [#] | RTC | Interface | Package |
|------------|----------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|------------------------------|-----------|-------------------------|-----|--------------------------------------|-----------|
| HT67F2567 | 4/8/12MHz | 1.8V~5.5V | 400kHz~12MHz or 32kHz | 16K×16 | 2304×8 | 128×8 | 16 | √ | 19 | 10-bit CTM×2 16-bit STM×1 | 12-bit ×7 | SEG×64 COM×1 BG×1 | √ | SPI×1 SPI/I ² C/UART×1 | 100LQFP |
| HT67F2567G | | | | | | | | | | | | | | | Gold Bump |

Note: # EPD: Electronic Paper Displays.

The power consumption of the RTC on standby current is less than 200nA at 3V.

Special Purpose Flash MCU

Waveform Generator Flash MCU

| Part No. | VCC (HV) | VDD | Internal Clock | System Clock | Program Memory | Data Memory | Stack | I/O | Timer | Waveform Output | Package |
|-----------|----------|-----------|----------------|---------------|----------------|-------------|-------|-----|--------------|-----------------|--------------|
| HT45F2020 | 8V~16V | 5.0V | 8MHz | 8MHz or 32kHz | 1K×14 | 32×8 | 2 | 4 | 10-bit PTM×1 | 2 | SOT23-6 8SOP |
| HT45F2022 | — | 2.2V~5.5V | | | | | | | | | |

Induction Cooker Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | ADC | PWM | PPG | Comp- arator | OVP | OPA | Inter- face | Package |
|-----------|----------------|-----------|--------------|----------------|-------------|-------------|-------|-----|----------|------------|----------|----------|--------------|-----|-----|--------------------|----------------------|
| HT45F0004 | 8MHz | 2.2V~5.5V | 400kHz~8MHz | 4K×16 | 208×8 | 32×8 | 8 | 17 | 8-bit ×3 | 12-bit ×12 | 8-bit ×1 | 9-bit ×1 | 4 | — | 1 | I ² C×1 | 16DIP/NSOP 20DIP/SOP |
| HT45F0057 | 8MHz | 2.2V~5.5V | 8MHz | 4K×16 | 208×8 | — | 6 | 13 | 8-bit ×3 | 12-bit ×9 | — | 9-bit ×1 | 4 | — | 1 | — | 16DIP/NSOP |
| HT45F0058 | 16MHz | 3.3V~5.5V | 32kHz~16MHz | 4K×16 | 256×8 | 32×8 | 8 | 13 | 8-bit ×3 | 12-bit ×10 | — | 9-bit ×1 | 4 | 1 | 1 | — | 16NSOP |

Half-bridge Induction Cooker Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | MDU [#] | Stack | I/O | Timer | ADC | PWM | OPA | OVP | CRC | Inter- face | Package |
|-----------|----------------|-----------|--------------|----------------|-------------|-------------|------------------|-------|-----|------------------------------|-----------|-----------|-----|-----|-----|---------------------------------|--------------|
| HT45F0074 | 16MHz | 4.5V~5.5V | 32kHz~16MHz | 8K×16 | 512×8 | 128×8 | 16-bit | 8 | 20 | 10-bit CTM×3 10-bit PTM×1 | 12-bit ×8 | 12-bit ×1 | 1 | 7 | √ | SPI/I ² C/ UART×1 | 20NSOP 24SOP |

Note: # MDU: Multiplier Divider Unit.

Low Power Flash MCU

Ultra-Low Voltage & Low Current Flash MCU with LCD Driver

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | I/O | Timer | LCD | Power Switch | Package |
|------------|----------------|-----------|----------------------|----------------|-------------|-------------|-------|-----|--------------|--------------|--------------|------------|
| HT69F3742L | 2/4/8MHz | 1.2V~5.5V | 400kHz~8MHz or 32kHz | 4K×16 | 128×8 | 128×8 | 4 | 9 | 10-bit STM×1 | 23×4 24×3 | √ | Dice 46QFN |

CAN Bus Flash MCU

CAN Bus A/D Flash MCU

| Part No. | Internal Clock | VDD | System Clock | Program Memory | Data Memory | Data EEPROM | Stack | IAP | I/O | Timer | ADC | SCOM | CAN Protocol | Message Objects | Message Memory | Inter- face | Package |
|------------|------------------------|-----------|-----------------------|----------------|-------------|-------------|-------|-----|-----|--|------------|------|--------------------------|-----------------|----------------|---|------------|
| HT66F3370H | 8MHz 12MHz 16MHz | 2.2V~5.5V | 400kHz~16MHz or 32kHz | 32K×16 | 3K×8 | 1K×8 | 16 | √ | 58 | 10-bit PTM×2 16-bit PTM×2 16-bit STM×3 | 12-bit ×16 | 4 | CAN 2.0A/B ISO11898-1 | 32 | 32×139-bit | CAN×1 SPI/I ² C×1 SPIA×1 UART×3 | 48/64 LQFP |

Note: Operating temperature range -40°C~+125°C.
Based on BOSCH CAN IP module C_CAN.

USB Data Logger Flash MCU

Cortex-M0+ 32-Bit LCD MCU

| Part No. | Max. Freq. | VDD | Flash | SRAM | PDF Create LIB | PDMA | ADC | CMP | DAC | Timers ¹ | Cap. ² or PWM | RTC | SCI ³ | USB ⁴ | I ² S | LCD | Inter- face | Others | I/O | Package |
|-----------|------------|-------------|-------|------|----------------|------|---------------------|-----|---------------------|-------------------------------------|--------------------------|-----|------------------|------------------|------------------|-------------------|--|-------------------|----------|------------------|
| HT32F5828 | 60MHz | 1.65V~3.60V | 128KB | 16KB | √ | 6CH | 1 Msps 12-bit×10 | 2 | 500Ksps 12-bit×2 | BFTM×2 SCTM×2 PWM×2 GPTM×1 | 14 | √ | 2 | √ | √ | 37×4 ~ 33×8 | USART×1 UART×2 SPI×2 I ² C×2 | AES CRC DIV | 39 67 | 48LQFP 80LQFP |

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timers, 8-PWM: 8 Output channel PWM Timer, GPTM: General-Purpose Timers, MCTM: Motor Control Timer.
2. Cap.: Input Capture.
3. SCI: ISO7816-3 Smart Card Interface.
4. USB 2.0 Full Speed device.

RF Module

BLE Transparent Transmission

| Part No. | VDD | Data EEPROM | Data Rate | Output Power | Sensitivity | Interface | Stamp Holes |
|--------------|-----------|-------------|-----------|--------------|-------------|-----------|----------------|
| BCM-7602-G01 | 2.2V~3.6V | 8K×8 | 1Mbps | +3dBm | -90dBm | UART/SPI | 8×2 (P=1.27mm) |

Sub-1GHz Receiver

| Part No. | VDD | Band | Symbol Rate | Current Consumption | Sensitivity | Interface | Dimension |
|-------------|-----------|--------|---------------|---------------------|----------------|------------------|------------------|
| BM2302-33-1 | 3.0V~5.5V | 315MHz | 20Ksps (Max.) | 3.2mA@315MHz | -112dBm@10ksps | I ² C | 43×10.5×5.2 (mm) |
| BM2302-34-1 | | 433MHz | | 3.2mA@433MHz | -112dBm@10ksps | | |
| BM2302-38-1 | | 868MHz | | 4.0mA@868MHz | -111dBm@10ksps | | |
| BM2302-39-1 | | 915MHz | | 4.0mA@915MHz | -110dBm@10ksps | | |
| BM2302-63-1 | 3.0V~5.5V | 315MHz | 20Ksps (Max.) | 3.2mA@315MHz | -112dBm@10ksps | I ² C | 16×15×2.6 (mm) |
| BM2302-64-1 | | 433MHz | | 3.2mA@433MHz | -112dBm@10ksps | | |
| BM2302-68-1 | | 868MHz | | 4.0mA@868MHz | -111dBm@10ksps | | |
| BM2302-69-1 | | 915MHz | | 4.0mA@915MHz | -110dBm@10ksps | | |

Sub-1GHz Transceiver

| Part No. | VDD | Band | Data Rate | Output Power | Rx Current Consumption | Sensitivity | Interface | Dimension |
|-------------|-----------|--------|-----------|-----------------|------------------------|---------------|-----------|------------------|
| BM3601-03-1 | 2.0V~3.6V | 315MHz | 2~250Kbps | 17dBm (Max.) | 13.5mA@315MHz | -120dBm@2Kbps | SPI | 15×18.5×2.5 (mm) |
| BM3601-04-1 | | 433MHz | | | 13.0mA@433MHz | | | |
| BM3601-08-1 | | 868MHz | | | 13.5mA@868MHz | -119dBm@2Kbps | | |
| BM3601-09-1 | | 915MHz | | | 13.5mA@915MHz | | | |
| BM3602-03-1 | 2.0V~3.6V | 315MHz | 2~250Kbps | 13dBm (Max.) | 4.1mA@315MHz | -120dBm@2Kbps | SPI | 15×18.5×2.5 (mm) |
| BM3602-04-1 | | 433MHz | | | 4.2mA@433MHz | | | |
| BM3602-08-1 | | 868MHz | | | 5.5mA@868MHz | -119dBm@2Kbps | | |
| BM3602-09-1 | | 915MHz | | | 6.0mA@915MHz | | | |

2.4GHz Transceiver

| Part No. | VDD | Band | Data Rate | Output Power | Sensitivity | Interface | Dimension |
|-------------|-----------|--------------|-----------------|--------------|----------------|-----------|--------------|
| BM5602-60-1 | 1.9V~3.6V | 2402~2480MHz | 125/250/500Kbps | 7dBm (Max.) | -98dBm@125Kbps | SPI | 17×16×2 (mm) |

| Digital Sensor & Module | | | | | | | | | | |
|---|----------------|---------------------|----------------------------------|----------------------------|-----------------------------|------------------------|-----------------------|-----------------------|-----------------|---------------|
| PIR Module | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Detection Range (Typ.) | FOV H, V | Lens Color | Interface | Dimension | | | |
| HT7M2126 | 2.7V~5.5V | 50μA | 3.5~6 Meter | 121°, 77° | Nature | I²C or I/O | 12.8×12.9×13.3(mm) | | | |
| HT7M2127 | | | 2.8~5 Meter | 121°, 77° | Black | | | | | |
| HT7M2136 | | | 5.5~8 Meter | 91°, 10° | Nature | | 12.8×12.9×14.4(mm) | | | |
| HT7M2156 | | | 8~12 Meter | 20°, 10° | Nature | | | | | |
| HT7M2176 | | | 5~7.5 Meter | 86°, 75° | Nature | | 12.8×12.9×14.9(mm) | | | |
| PIR Sensor | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Responsibility | Noise | Opcital Window | Viewing Angle H/V | Interface | Package | | |
| BM22S4021-1* | 2.7V~5.5V | 0.7mA | 4.3kV/W (To=100°C, 1Hz @25°C) | 33μVp-p (0.3~3Hz @25°C) | 5×4mm | 136°/123° | UART or I/O | TO-5 | | |
| * Under development, available in 3Q, 2020. | | | | | | | | | | |
| Air Pressure Sensor | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Accuracy | Pressure Range | Linearity | Response | Operating Temperature | Interface | Dimension | |
| BM62S2201-1* | 2.7V~5.5V | 0.7mA | 1.0%FS @25°C | 0~1psi | 0.3%FS | 1ms | -20~+85°C | UART or I²C | 18×11×13(mm) | |
| * Under development, available in 3Q, 2020. | | | | | | | | | | |
| Temperature and Humidity Sensor | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Relative Humidity Resolution | Relative Humidity Rang | Relative Humidity Precision | Temperature Resolution | Temperature Range | Temperature Precision | Interface | Dimension |
| BM25S2021-1 | 2.7V~5.5V | 0.2mA | 0.1%RH | 10~95%RH | ±3%RH @25°C | 0.1°C | -40~+80°C | ±0.5°C | I²C or One-Wire | 22×12×5.8(mm) |
| Smoke Detector Sensor | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Detection Sensitivity | | | Interface | | Dimension | | |
| BM22S2021-1 | 3V~5V | 10μA | 0.05dB/m-0.4dB/m | | | UART or I/O | | 36×36×27(mm) | | |
| GAS Detector Sensor | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Detection Range | | | Interface | | Dimension | | |
| BM22S3021-1 | 5V | 250mA | 300ppm~10000ppm | | | UART or I/O | | 24×20×22(mm) | | |
| BM22S3031-1* | 2.5V | 160mA | 0ppm~10000ppm | | | UART or I/O | | 25×16.6×20(mm) | | |
| * Under development, available in 4Q, 2020. | | | | | | | | | | |
| Proximity Sensing Module | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Detection Range | | | Interface | | Dimension | | |
| BM32S2021-1 | 3.3V/5V | 30μA | 1~100cm | | | UART or I/O | | 17×10×7(mm) | | |
| Water Level Sensor | | | | | | | | | | |
| Part No. | Supply Voltage | Current Consumption | Accuracy | Resolution | Output Frequency Range | Pressure Range | Operating Temperature | Interface | Dimension | |
| BM62S3201-1* | 2.7V~5.5V | 0.7mA | 10mmH₂O @25°C | 1mmH₂O | — | 0~1500mmH₂O | -40~+85°C | UART or I²C | 28×28×14.6(mm) | |
| BM62S3201-5* | | | | 5mmH₂O | 20~40kHz; Step 33Hz | | | Frequency Output | | |
| * Under development, available in 4Q, 2020. | | | | | | | | | | |

I²C EEPROM
I²C EEPROM

| Part No. | Capacity | VDD | Clock Rate | Write Speed @2.4V | Operating Current @5V | Standby Current @5V | Package |
|-----------|----------|-----------|------------|-------------------|-----------------------|---------------------|---------------|
| HT24LC02 | 256×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 3μA | 8SOP |
| HT24LC02A | 256×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 2μA | 8SOP, SOT23-5 |
| HT24LC04 | 512×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 3μA | 8SOP |
| HT24LC08 | 1024×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 3μA | 8SOP |
| HT24LC16 | 2048×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 3μA | 8SOP |
| HT24LC32 | 4096×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 3μA | 8SOP |
| HT24LC64 | 8192×8 | 1.8V~5.5V | 400kHz | 5ms | 5mA | 3μA | 8SOP |

Note: Operating temperature range -40°C ~ +85°C.

General OP Amplifier

General Purpose OP Amplifier

| Part No. | Description | OP No. | VDD | BW | Current/OP | Package |
|----------|---|--------|-----------|--------|------------|-----------|
| HT9231 | 220μA, 2.3MHz Single OP amplifier | 1 | 2.0V~5.5V | 2.3MHz | 220μA | SOT23-5 |
| HT9232 | 220μA, 2.3MHz Dual OP amplifier | 2 | 2.0V~5.5V | 2.3MHz | 220μA | 8SOP |
| HT9234 | 220μA, 2.3MHz Quad OP amplifier | 4 | 2.0V~5.5V | 2.3MHz | 220μA | 14SOP |
| HT9251 | 50μA, 550kHz Single OP amplifier | 1 | 1.8V~5.5V | 550KHz | 50μA | SOT23-5 |
| HT9252 | 50μA, 550kHz Dual OP amplifier | 2 | 1.8V~5.5V | 550KHz | 50μA | 8SOP |
| HT9254 | 50μA, 550kHz Quad OP amplifier | 4 | 1.8V~5.5V | 550KHz | 50μA | 14SOP |
| HT9274 | Quad micropower OP amplifier | 4 | 1.6V~5.5V | 100KHz | 3.0μA | 14SOP |
| HT9291 | TinyPower™ Single OP amplifier | 1 | 1.4V~5.5V | 11KHz | 0.6μA | SOT23-5 |
| HT9292 | TinyPower™ Dual OP amplifier | 2 | 1.4V~5.5V | 11KHz | 0.6μA | 8SOP |
| HT9294 | TinyPower™ Quad OP amplifier | 4 | 1.4V~5.5V | 11KHz | 0.6μA | 14SOP |
| HT92232 | 16μA, 300kHz, Rail to Rail, Dual OP amplifier | 2 | 2.1V~5.5V | 300KHz | 16μA | 8SOP/MSOP |
| HT92252 | 40μA, 1MHz, Rail to Rail, Dual OP amplifier | 2 | 2.1V~5.5V | 1MHz | 40μA | 8SOP/MSOP |

Precision OP Amplifier

| Part No. | Description | OP No. | VDD | BW | Current/OP | Package |
|----------|--|--------|-----------|--------|------------|-----------|
| HT92632 | 30μA, 300kHz, Rail to Rail, Dual OP amplifier | 2 | 2.0V~5.5V | 300KHz | 30μA | 8SOP/MSOP |
| HT92652 | 500μA, 1.5MHz, Rail to Rail, Dual OP amplifier | 2 | 2.0V~5.5V | 1.5MHz | 500μA | 8SOP/MSOP |

Low Power OP Amplifier

| Part No. | Description | OP No. | VDD | BW | Current/OP | Package |
|----------|--|--------|-----------|--------|------------|-----------|
| HT92112 | 0.6μA, 14kHz, Rail to Rail, Dual OP amplifier | 2 | 1.4V~5.5V | 14KHz | 0.6μA | 8SOP/MSOP |
| HT92122 | 0.6μA, 100kHz, Rail to Rail, Dual OP amplifier | 2 | 1.4V~5.5V | 100KHz | 0.6μA | 8SOP/MSOP |

Audio Amplifier

Class AB Audio Amplifier

| Part No. | Description | VDD | Output Power | Mute/Shutdown Function | Package |
|----------|---|-----------|----------------|------------------------|---------|
| HT82V733 | Mono audio power amplifier | 2.4V~5.5V | 400mW into 8Ω | √ | 8SOP |
| HT82V735 | Stereo audio power amplifier with shutdown | 2.4V~6.0V | 330mW into 32Ω | √ | 8SOP |
| HT82V739 | 1200mW mono audio power amplifier with shutdown | 2.2V~5.5V | 1200mW into 8Ω | √ | 8SOP |
| HT82V73A | 1500mW mono audio power amplifier with shutdown | 2.2V~5.5V | 1500mW into 8Ω | √ | 8SOP-EP |

Audio PWM Driver

| Part No. | Description | VDD | Output Power | Mute/Shutdown Function | Package |
|----------|------------------|-----------|------------------|------------------------|---------|
| HT82V742 | Audio PWM driver | 2.0V~5.5V | 1.5W into 5V, 8Ω | — | 8SOP |

Class D Audio Amplifier

| Part No. | Description | VDD | Output Power | Mute/Shutdown Function | Package |
|-----------|---|-----------|----------------|------------------------|------------|
| HT82V7524 | 3W mono filter-free class-D audio power amplifier | 1.8V~6.0V | 3W into 5V, 4Ω | — | 8SOP-EP |
| HT82V7534 | 3W Stereo Filter-free Class-D Audio Power Amplifier | 1.8V~6.0V | 3W into 5V, 4Ω | √ | 20TSSOP-EP |

24-Bit A/D Peripheral

Enhanced 24-Bit A/D Peripheral

| Part No. | Internal Clock | VDD | ADC | ENOB | Data Rate | PGA | Interface | Package |
|-----------|----------------|-----------|----------|---------|------------|-------|--------------------|-------------|
| BH45B1225 | 4.91MHz | 2.4V~5.5V | 24-bit×4 | 19.4@5V | 5Hz~1.6kHz | 1~128 | I ² C×1 | 8SOP/16NSOP |

CCD / CIS Analog Signal Processor

CCD / CIS Analog Signal Processor

| Part No. | AVDD/VDD | ADC (Bit) | Input CH. | MSPS | Clamp Bias | PGA | Prog. Offset | Full Scale | Power Consumption | Package |
|----------|-------------|-----------|-----------|------------|--------------------|---------------------|----------------|------------|-------------------|-----------|
| HT82V36 | 3.0V~3.6V | 16 | 1 | 10 (CCD:6) | 2.5V/2.0V | 1~5.85V/V (6-bit) | ±100mV (9-bit) | 1.4V | 56mW/1μA | 28SSOP |
| HT82V38 | 3.15V~3.45V | 16 | 3/2/1 | 30/30/20 | 0.45V~2.7V (4-bit) | 1~6.25V/V (6-bit) | ±250mV (9-bit) | 1.6V/2V | 300mW/10μA | 28SSOP |
| HT82V42 | 3.0V~3.6V | 16 | 1 | 15 | 0.4V~3.0V (4-bit) | 0.7~7.84V/V (8-bit) | ±315mV (8-bit) | 2V | 188mW/300μA | 20SSOP |
| HT82V48 | 3.0V~3.6V | 16×2 | 3×2 | 60×2 | 0.4V~3.0V (4-bit) | 0.65~6.0V/V (9-bit) | ±290mV (8-bit) | 1.2V/2V | 925mW/400μA | 48LQFP-EP |

Image Signal Processor

Image/Neural-network Processor

| Part No. | Max. Freq. | VDD (I/O) | DSP | | | | L2 RAM | DDR I/F | DMA | e-Fuse | ADC | CMP | Timers ² | Interface ³ | Others ⁴ | I/O | Power | Package |
|----------|------------|-----------|------|--------------------------|--------------------------|---------|--------|--------------|------------------------|---------|------------------------|-----|------------------------------------|--|---|-----|-------|----------|
| | | | Core | Cache | L1 RAM | FPU | | | | | | | | | | | | |
| HT82V82 | 250MHz | 3.0V~3.6V | 2 | I: 32KB D: 32KB ×2 | I: 16KB D: 32KB ×2 | 1 ×2 | 256KB | DDR2 DDR3 | EDMA: 2CH PDMA: 8CH | 128-bit | 1MSPS 12-bit ×16 | 1 | RTC×1 WDT×1 BFTM×2 GPTM×4 | UART×4 SPI×3, I ² C×2 CLSI×2 CASIF×2 HSSPI SDIO EPI 8080 LCD I/F | AES-128 SHA-256 TG, LINFO SHDC JPG ENC HWE | 40 | 750mW | 256TFBGA |

Note: 1. VDD Core: 0.9V~1.1V; VDD DDR: 1.425V~1.575V.

2. BFTM: Basic Function Timer, GPTM: General-Purpose Timers.

3. CLSI: CMOS Line Sensor Interface; CASIF: CMOS Area Sensor Interface; HSSPI: 40MHz High Speed SPI; EPI: External Parallel Interface.

4. AES-128: Advanced Encryption Standard; SHA-256: Secure Hash Algorithm; TG: Sensor, LED & AFE Timing Generator; LINFO: Scan Line Information; SHDC: Shading Correction; JPG ENC: JPEG Encoder; HWE: Hardware Matrix & Neural Calculation Engine.

Currency Recognition Processor

CIS Analog Front End Processor

| Part No. | AVDD/VDD | ADC (Bit) | Input Channel | MSPS | Clamp Bias | PGA | Prog. Offset | Full Scale | Power Consumption | Package |
|----------|-----------|-----------|---------------|------|------------------|---------------------|----------------|------------|-------------------|-----------|
| HT82V48 | 3.0V~3.6V | 16×2 | 3×2 | 60×2 | 0.4~3.0V (4-bit) | 0.65~6.0V/V (9-bit) | ±290mV (8-bit) | 1.2V/2V | 925mW/400μA | 48LQFP-EP |

CIS Digital Front End Processor

| Part No. | AVDD/VDD | CIS Module | | | | Shading Correction | | Line Information | Others | Output | Power Consumption | Package |
|----------|-----------|------------|-----------|---------|-----|--------------------|------------------|--|-----------------------------------|-------------|-------------------|---------|
| | | Channel | MSPS | Element | LED | Gain | Offset | | | | | |
| HT82V70 | 3.0V~3.6V | 3~6 ×2 | 120 ×2 | 1,584 | 6×2 | 0x~8x (10-bit) | 0~255 (8-bit) | Index, Left/Right Boundary, Max, Min, Sum, Histogram | COMP, TG I ² C, SPI | VPFE, EMIFA | 400mW/3mW | 100LQFP |

CIS Front End Processor

| Part No. | AVDD/VDD | ADC (Bit) | Input Ch. | MSPS | PGA (V/V) | Prog. Offset (mV) | Full Scale | CIS Module | | Shading Correction | | Line Information | Others | Output | Power | Package |
|----------|-----------|-----------|-----------|------|------------------|-------------------|------------|------------|-----|--------------------|---------------|--|---------------------------------|-------------|-------------|-----------|
| | | | | | | | | Element | LED | Gain | Offset | | | | | |
| HT82V72 | 3.0V~3.6V | 16×2 | 3×2 | 60×2 | 0.65~6.0 (9-bit) | ±290 (8-bit) | 1.2V/2V | 1,584 | 6×2 | 0x~8x (10-bit) | 0~255 (8-bit) | Index, Left/Right Boundary, Max, Min, Sum, Histogram | COMP, TG, I ² C, SPI | VPFE, EMIFA | 1100mW/10μW | 64TQFP-EP |

Image/Neural-network Processor

| Part No. | Max. Freq. | VDD (I/O) | DSP | | | | L2 RAM | DDR I/F | DMA | e-Fuse | ADC | CMP | Timers ² | Interface ³ | Others ⁴ | I/O | Power | Package |
|----------|------------|-----------|------|--------------------------|--------------------------|---------|--------|--------------|------------------------|---------|------------------------|-----|------------------------------------|--|---|-----|-------|----------|
| | | | Core | Cache | L1 RAM | FPU | | | | | | | | | | | | |
| HT82V82 | 250MHz | 3.0V~3.6V | 2 | I: 32KB D: 32KB ×2 | I: 16KB D: 32KB ×2 | 1 ×2 | 256KB | DDR2 DDR3 | EDMA: 2CH PDMA: 8CH | 128-bit | 1MSPS 12-bit ×16 | 1 | RTC×1 WDT×1 BFTM×2 GPTM×4 | UART×4 SPI×3, I ² C×2 CLSI×2 CASIF×2 HSSPI SDIO EPI 8080 LCD I/F | AES-128 SHA-256 TG, LINFO SHDC JPG ENC HWE | 40 | 750mW | 256TFBGA |

Note: 1. VDD Core: 0.9V~1.1V; VDD DDR: 1.425V~1.575V.

2. BFTM: Basic Function Timer, GPTM: General-Purpose Timers.

3. CLSI: CMOS Line Sensor Interface; CASIF: CMOS Area Sensor Interface; HSSPI: 40MHz High Speed SPI; EPI: External Parallel Interface.

4. AES-128: Advanced Encryption Standard; SHA-256: Secure Hash Algorithm; TG: Sensor, LED & AFE Timing Generator; LINFO: Scan Line Information; SHDC: Shading Correction; JPG ENC: JPEG Encoder; HWE: Hardware Matrix & Neural Calculation Engine.

Miscellaneous

IGBT Driver

| Part No. | Description | VIN | LDO | Level Shifter | Voltage Detect Protection | Package |
|----------|---|----------|------|---------------|---------------------------|---------|
| HT45B1S | IGBT Driver with LDO and Voltage Detector | 6.0V~24V | 5.0V | √ | √ | 8SOP |

Timepiece

| Part No. | VDD | V _{BAT} | I _{DD} (μA) | I _{BAT} (μA) | I _{STB} (μA) | External X'tal Osc. | Build in Memory (Bytes) | Oscillator Compensation | Package |
|----------|-----------|------------------|----------------------|-----------------------|-----------------------|---------------------|-------------------------|-------------------------|--------------|
| HT1380A | 2.0V~5.5V | — | 1.0 at 5V | — | 0.1 | 32.768kHz | — | — | 8DIP |
| HT1381A | | | | | | | | | 8SOP |
| HT1382 | 2.7V~5.5V | 2.0V~5.5V | 15 at 3V | 1.2 at 3V | 0.1 | 32.768kHz | 4 | √ | 8SOP, 10MSOP |

Infrared / Encoder / Decoder

2¹² Encoder / Decoder

| Part No. | Encoder/Decoder | VDD | Addr. No. | Addr./Data No. | Data No. | Data Type | Trig. | Check Times | Package | Pair |
|----------|-----------------|----------|-----------|----------------|----------|-----------|-----------------|-------------|--------------|-----------|
| HT12E | Encoder | 2.4V~12V | 8 | 4 | 0 | — | \overline{TE} | — | 18DIP, 20SOP | HT12D/12F |
| HT12D | Decoder | 2.4V~12V | 8 | 0 | 4 | Latch | — | 3 | 18DIP, 20SOP | HT12E |
| HT12F | Decoder | 2.4V~12V | 12 | 0 | 0 | — | — | 3 | 18DIP, 20SOP | HT12E |

3⁸ Encoder

| Part No. | Encoder/Decoder | VDD | Addr. No. | Addr./Data No. | Trig. | Package |
|----------|-----------------|--------|-----------|----------------|-----------------|------------|
| HT6026 | Encoder | 4V~18V | 0 | 9 | \overline{TE} | 16DIP/NSOP |

Learning Encoder

| Part No. | VDD | Addr. No. | Data No. | Trig. | Package |
|----------|--------|-----------|----------|----------|---------|
| HT6P20B | 2V~12V | 22 | 2 | Data Low | 8SOP |
| HT6P20D | | 20 | 4 | | 16NSOP |

IR Remote Controller

| Part No. | VDD | Addr. No. | Data No. | Key No. | Signal Gap Time | 38kHz Carrier | Package |
|----------|-----------|-----------|----------|---------|-----------------|---------------|--------------------|
| HT62104 | 2.0V~5.0V | 2 | 7 | 8 | 4T | √ | 16DIP/NSOP |
| HT6220A | 2.0V~3.6V | 16 | 8 | 6 | — | √ | 8SOP |
| | | | | 30 | | | 16NSOP |
| HT6221A | 2.0V~3.6V | 16 | 8 | 32 | — | √ | 20SOP |
| HT6221B | | | | 48 | | | |
| HT6222A | 2.0V~3.6V | 16 | 8 | 64 | — | √ | 24SOP, Chip, Wafer |

32-Bit MCU Programming Tools

Holtek is fully aware that the success of their microcontroller device range also depends upon the availability of high quality development tools. As a result, Holtek has developed a full suite of professional hardware and software tools to provide designers with an excellent set of development resources to ensure their application are designed and debugged as efficiently as possible.

In this section can be found details regarding which set of tools should be used for the HT32 series microcontrollers.

| HT32 Series MCU | | | | |
|------------------------|---------------|---------------------------------------|------------|---|
| Device Part No. | Debug Adapter | Development Kit | Writer | e-Socket32 |
| HT32F0006 | e-Link32 Pro | N/A | e-Writer32 | ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F0008 | e-Link32 Pro | ESK32-30508, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3224QFN3B, ESKT3233QFN4B, ESKT3246QFN, ESKT3248LQFPB, ESKT32ICPB |
| HT32F12345 | e-Link32 Pro | ESK32-30106, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F12364 | e-Link32 Pro | ESK32-30107, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3240QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F12365, HT32F12366 | e-Link32 Pro | ESK32-30105, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32100LQFPB, ESKT32ICPB |
| HT32F22366 | e-Link32 Pro | N/A | e-Writer32 | ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32100LQFPB, ESKT32ICPB |
| HT32F50220, HT32F50230 | e-Link32 Pro | ESK32-30506, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3228SSOPB, ESKT3228SOPC, ESKT3224QFN3B, ESKT3233QFN4B, ESKT3244LQFPB, ESKT3248LQFPB, ESKT32ICPB |
| HT32F50231, HT32F50241 | e-Link32 Pro | ESK32-30507, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3228SSOPB, ESKT3228SOPC, ESKT3224QFN3B, ESKT3233QFN4B, ESKT3244LQFPB, ESKT3248LQFPB, ESKT32ICPB |
| HT32F50343 | e-Link32 Pro | ESK32-30515, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3233QFN4B, ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F52220, HT32F52230 | e-Link32 Pro | ESK32-30504, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3228SSOPB, ESKT3233QFN4B, ESKT32ICPB |
| HT32F52231, HT32F52241 | e-Link32 Pro | ESK32-30503, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3228SSOPB, ESKT3233QFN4B, ESKT3248LQFPB, ESKT32ICPB |
| HT32F52243, HT32F52253 | e-Link32 Pro | ESK32-30505, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3233QFN4B, ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F52331, HT32F52341 | e-Link32 Pro | ESK32-30502, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3233QFN4B, ESKT3248LQFPB, ESKT32ICPB |
| HT32F52342, HT32F52352 | e-Link32 Pro | ESK32-30501, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3233QFN4B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F52344, HT32F52354 | e-Link32 Pro | ESK32-30509, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3233QFN4B, ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F52357, HT32F52367 | e-Link32 Pro | ESK32-30510, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT3280LQFPB, ESKT32ICPB |
| HT32F57331, HT32F57341 | e-Link32 Pro | ESK32-30512, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32ICPB |
| HT32F57342, HT32F57352 | e-Link32 Pro | ESK32-30511, ESK32-20001, ESK32-21001 | e-Writer32 | ESKT3246QFN, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT3280LQFPB, ESKT32ICPB |
| HT32F59041 | e-Link32 Pro | N/A | e-Writer32 | ESKT3248LQFPB, ESKT32ICPB |
| HT32F59741 | e-Link32 Pro | N/A | e-Writer32 | ESKT3264LQFPB, ESKT32ICPB |
| HT32F65230, HT32F65240 | e-Link32 Pro | N/A | e-Writer32 | ESKT3248LQFPB, ESKT32ICPB |

| Hardware | | |
|-----------------|--|--|
| ICE | | |
| Model | Function | Support Software |
| e-Link32 Pro | On Chip Debug Support (OCDS) new debug adapter for HT32 series | Keil µVision, IAR EWARM |
| Programmer | | |
| Model | Function | Support Software |
| e-Writer32 | HT32 series MCU Dedicated Writer | HOPE3000 For HT32 series MCU |
| e-Socket32 | Adaptors used together with e-Writer32 | HOPE3000 For HT32 series MCU |
| Development Kit | | |
| Model | Function | Note |
| ESK32-300SK | 32-bit Arm® Cortex®-M3 HT32F1656 Starter Kit | This board has a built-in e-Link32 USB debug adapter |
| ESK32-30105 | 32-bit Arm® Cortex®-M3 HT32F12366 Starter Kit | This board has a built-in e-Link32 Pro USB debug adapter |
| ESK32-30106 | 32-bit Arm® Cortex®-M3 HT32F12345 Starter Kit | This board has a built-in e-Link32 Pro USB debug adapter |
| ESK32-30107 | 32-bit Arm® Cortex®-M3 HT32F12364 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30501 | 32-bit Arm® Cortex®-M0+ HT32F52352 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30502 | 32-bit Arm® Cortex®-M0+ HT32F52341 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30503 | 32-bit Arm® Cortex®-M0+ HT32F52241 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30504 | 32-bit Arm® Cortex®-M0+ HT32F52230 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| Development Kit | | |
| ESK32-30505 | 32-bit Arm® Cortex®-M0+ HT32F52253 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30506 | 32-bit Arm® Cortex®-M0+ HT32F50230 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30507 | 32-bit Arm® Cortex®-M0+ HT32F50241 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30508 | 32-bit Arm® Cortex®-M0+ HT32F0008 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |

| Hardware | | |
|-------------|--|---|
| ESK32-30509 | 32-bit Arm® Cortex®-M0+ HT32F52354 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30510 | 32-bit Arm® Cortex®-M0+ HT32F52367 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30511 | 32-bit Arm® Cortex®-M0+ HT32F57352 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30512 | 32-bit Arm® Cortex®-M0+ HT32F57341 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-30515 | 32-bit Arm® Cortex®-M0+ HT32F50343 Starter Kit | This board has a built-in e-Link32Pro USB debug adapter |
| ESK32-20001 | HT32 Series Expansion Board Basic | Expansion Board for ESK32-30xxx |
| ESK32-21001 | HT32 Series Expansion Board Plus | Expansion Board for ESK32-30xxx |
| ESK32-A2A31 | 2.8 inches TFT-LCD Module | 2.8 inches SPI / EBI LCD Module * This module can be used with the ESK32-20001 / ESK32-21001 providing a complete development kit. |

| Software | | |
|---------------------------|---|--|
| Software | | |
| Model | Function | Support Hardware |
| HOPE3000 or 32Bits | e-Writer32 programmer software for HT32 series MCUs | e-Writer32 |
| HT32 Flash Programmer | In-System / In-Application programmer software for HT32 series MCUs | All series of HT32 Development Board or Starter Kit. ESK32-xxx, ESK32-xxxSK, ESK32-30xxx |
| HT32 Keil Support Package | Integrated Keil development environment software for HT32 series MCUs | |
| HT32 IAR Support Package | Integrated IAR development environment software for HT32 series MCUs | |
| HT32 Virtual COM Driver | HT32 USB Virtual COM Driver setup program | e-Link32 Pro. All series of HT32 Development Board or Starter Kit with USB Virtual COM example. |

e-Link32 Pro Debug Adapter

The e-Link32 Pro is a new generation debug adapter for Holtek's 32-bit microcontrollers allowing users to program and debug their programs on their target boards. By using the e-Link32 Pro together with the Keil µVision IDE or IAR EWARM IDE, users are provided with a suite of development tools for rapid MCU product development.

The e-Link32 Pro package includes the e-Link32 Pro debug adapter, flat cable and USB cable.

8-Bit MCU Programming Tools

Holtek is fully aware that success of their microcontroller device range also depends upon the availability of high quality development tools. As a result Holtek has developed a full suite of professional hardware and software tools to provide designers with an excellent set of development resources to ensure their applications are designed and debugged as efficiently as possible. In this section can be found details regarding which set of tools should be used for each microcontroller device.

| Hardware | | |
|-------------------------------|--|--|
| ICE | | |
| Model | Function | Support Software |
| HT-ICE | LPT Type in-circuit emulator | HT-IDE3000 |
| e-ICE | USB Type in-circuit emulator | HT-IDE3000 |
| e-Link | On Chip Debug Support(OCDS) Type MCU debug adapter | HT-IDE3000 |
| | On Chip Debug Support (OCDS) debug adapter for HT85 series | Keil C51 Development Tools |
| e-FPCB (e-Link selected item) | OCDS EV Flex Cable Converter | — |
| Programmer | | |
| Model | Function | Support Software |
| e-WriterPro | Universal Writer for OTP/Flash MCU | HOPE3000 |
| e-Socket | Adaptors used together with e-WriterPro | HOPE3000 |
| EIC-300 | Slimmed-down ICP programmer for Flash MCU | HOPE3000 |
| Development Kit | | |
| Model | Function | Note |
| ESK-66F-A01 | HT66F50 Development Board (Starter Kit for HT66F50) | (ESK-200 + ESK-201 + e-Link + M1001D + D1003C + mini USB cable + e-cable1225A) |
| Development Platform | | |
| Model | Function | Note |
| Holtek USB Workshop | Development Platform for USB MCU | This board can be used with the ESK66FB-200 + e-Link. |

| Software | | |
|---------------------------|--|----------------------------|
| Software | | |
| Model | Function | Support Hardware |
| HT-IDE3000 | Integrated development Environment software for all series of Holtek MCU | HT-ICE, e-ICE, e-Link |
| HOPE3000 | Integrated software for Holtek e-Writer series Programmers. | e-WriterPro, e-Writer plus |
| HOPE3000 for e-Link | Engineering programmer for HT8 Flash MCU | e-Link |
| Holtek USB Workshop | Holtek USB MCU Library Generator | ESK66FB-200 + e-Link |
| Holtek Touch Key Workshop | Touch Key development platform | e-Link, e-Isolator |
| I3000 | HT8 Flash MCU with Bootloader ISP Programming Tool (Program MCU by Bootloader) | |

Note: It is strongly recommended to download the latest version.

HT-IDE3000 Development Environment

The HT-IDE3000 is a fully integrated development system for the Holtek range of microcontrollers. Working in conjunction with the Holtek ICE hardware emulator, the HT-IDE3000 system provides a user friendly workbench to ensure the process of application program development and debug is as efficient and trouble free as possible. By combining all software tools, such as editor, cross assembler, linker, library manager, symbolic debuggers as well as hardware tools, application designers have all the tools required at their disposal to ensure rapid development and debug of their new designs. An HT-IDE3000 User's Guide is available for download from the Holtek website, which provides much more detailed information on the HT-IDE3000 development system.

The HT-IDE3000 development system software is available for free download from the Holtek website. To ensure that users are provided with the latest modifications and enhancements to the system and to support new device releases, Service Packs are regularly provided.

HT-ICE – Holtek In-Circuit Emulator

The HT-ICEs are multi-featured hardware emulators to assist designers with the rapid development of their Holtek MCU applications. Their expansive integrated hardware and software features, provide designers with a full suite of tools for rapid and easy product development. At the heart of the system is the hardware emulator, which can fully emulate Holtek 8-bit MCU devices in real time as well as providing full debug and trace integrated functions. The HT-ICE package includes the hardware mainboard platform, CD, flat cables, power adapter, power cord and printer cable.

HT-ICE USB cable allowing customers to connect the HT-ICE LPT connector to the computer USB port. The part number of this USB cable is CUSBICECABLE4A. Please contact us for purchasing details.

e-ICE

The e-ICE is Holtek's new generation of MCU in-circuit emulators that uses a real chip EV for device emulation. In this way a more accurate emulation of device function and characteristics can be implemented. Together with the HT-IDE3000 software development system the user is provided with a suite of development tools for rapid MCU product development.

Holtek New Universal Writer – e-WriterPro

The e-WriterPro can be used not only as a programming tool for all of Holtek's OTP and Flash devices during the development stage but can also be used for small to medium volume production purposes.

The e-WriterPro must be used together with a corresponding e-Socket according to the package type of the MCU that is to be programmed. Devices with the same package type require only a single e-Socket, thus reducing the problem of changing different adaptors for different IC part numbers.

For all available Holtek devices, the following e-Socket table shows which one should be used with which device package type.

| e-Socket | | | |
|----------|-----------------|-----------------------------------|-----------------------------|
| No. | Product Name | Supported Package | Suggested Programming Times |
| 1 | ESKT6SOTC | SOT23-6 | 10,000 |
| 2 | ESKT6DFNC | 6DFN(2mm×2mm×0.75mm) | 10,000 |
| 3 | ESKT6DFNC-35 | 6DFN(2mm×2mm×0.35mm) | 10,000 |
| 4 | ESKT8SOP-RF | 8SOP-EP(for BC2102, BC2161 only) | 10,000 |
| 5 | ESKT8SOP-RF2.4G | 8SOP-EP(Dedicated for 2.4G RF IC) | 10,000 |
| 6 | ESKT8ICPL | ICP Adapter board | N/A |
| 7 | ESKT10SOPC | 10SOP | 10,000 |
| 8 | ESKT10MSOPC | 8MSOP, 10MSOP | 10,000 |

| e-Socket | | | |
|----------|---------------------|--|-----------------------------|
| No. | Product Name | Supported Package | Suggested Programming Times |
| 9 | ESKT10DFNC | 10DFN(3mm×3mm×0.75mm) | 10,000 |
| 10 | ESKT16NSOP-RF | 16NSOP-EP(for BC2161 only) | 10,000 |
| 11 | ESKT16NSOPC | 8SOP, 8SOP-EP, 14SOP, 16NSOP(Applicable beside the HT48RA0-6 series MCU) | 10,000 |
| 12 | ESKT16NSOPHIRCA | 16NSOP(for HT48RA0-6 only) | 10,000 |
| 13 | ESKT16QFN-RF2.4G | 16QFN(Dedicated for 2.4G RF IC) | 5,000 |
| 14 | ESKT16QFN4C | 16QFN(4mm×4mm×0.75mm) | 5,000 |
| 15 | ESKT16QFN3C | 16QFN(3mm×3mm×0.75mm) | 5,000 |
| 16 | ESKT20NSOPC | 20NSOP | 10,000 |
| 17 | ESKT20QFN3C | 20QFN(3mm×3mm×0.75mm) | 5,000 |
| 18 | ESKT20QFN4A | 20QFN(4mm×4mm×0.75mm) | 5,000 |
| 19 | ESKT20QFN5A | 20QFN(5mm×5mm×0.75mm) | 5,000 |
| 20 | ESKT20TSSOPA | 16TSSOP, 20TSSOP | 10,000 |
| 21 | ESKT24QFN3C | 24QFN(3mm×3mm×0.55mm) | 5,000 |
| 22 | ESKT24QFN4C | 24QFN(4mm×4mm×0.75mm) | 5,000 |
| 23 | ESKT28QFN4C | 28QFN (4mm×4mm×0.75mm) | 5,000 |
| 24 | ESKT28SSOPC | 16SSOP(150mil), 20SSOP(150mil), 24SSOP(150mil), 28SSOP(150mil) (Applicable beside the HT48RA0-6 series MCU) | 10,000 |
| 25 | ESKT28SSOPHIRCA | 20SSOP(for HT48RA0-6 only) | 10,000 |
| 26 | ESKT28SOPD | 16SOP, 18SOP, 20SOP, 24SOP, 28SOP | 10,000 |
| 27 | ESKT30SSOPA | 20SSOP(209mil), 24SSOP(209mil), 28SSOP(209mil) | 10,000 |
| 28 | ESKT32QFNA | 32QFN(5mm×5mm×0.75mm) | 5,000 |
| 29 | ESKT32QFN4C | 32QFN(4mm×4mm×0.75mm)(4mm×4mm×0.55mm) | 5,000 |
| 30 | ESKT40DIPC | 8DIP, 16DIP, 18DIP, 20DIP, 22SKDIP, 24SKDIP, 28SKDIP, 40DIP | 25,000 |
| 31 | ESKT40QFN6A | 40QFN(6mm×6mm×0.75mm) | 5,000 |
| 32 | ESKT44QFPA | 44LQFP(FP3.2mm), 44QFP(10mm×10mm) | 10,000 |
| 33 | ESKT44LQFPC | 44LQFP(FP2.0mm) | 10,000 |
| 34 | ESKT46QFNC | 46QFN(6.5mm×4.5mm×0.75mm) | 5,000 |
| 35 | ESKT48LQFPC | 48LQFP(7mm×7mm)(Applicable beside the HT48RA0-6 series MCU) | 10,000 |
| 36 | ESKT48LQFPHIRCA | 48LQFP(7mm×7mm)(for HT49RA0-6 only) | 10,000 |
| 37 | ESKT48LQFPC_67F2132 | 48LQFP(7mm×7mm)(for BH67F2132 only) | 10,000 |
| 38 | ESKT52QFPA | 52QFP(14mm×14mm) | 10,000 |
| 39 | ESKT52LQFPA | 52LQFP(14mm×14mm) | 10,000 |
| 40 | ESKT56SSOPC | 48SSOP, 56SSOP | 10,000 |
| 41 | ESKT64LQFP7C | 64LQFP(7mm×7mm) | 5,000 |
| 42 | ESKT64LQFP10A | 64LQFP(10mm×10mm) | 10,000 |
| 43 | ESKT80LQFPC | 80LQFP(10mm×10mm) | 10,000 |
| 44 | ESKT100QFPC | 100QFP(14mm×20mm) | 5,000 |
| 45 | ESKT100LQFPA | 100LQFP(14mm×14mm) | 5,000 |
| 46 | ESKT128QFPC | 128QFP(14mm×20mm) | 10,000 |
| 47 | ESKT128LQFPC | 128LQFP(14mm×14mm) | 10,000 |
| 48 | ESKT144LQFPA | 144LQFP(20mm×20mm) | 5,000 |

Note: 1. Data in parentheses next to each package type shows the actual width of the IC package.

2. ESKxxxxxC is completely compatible with ESKxxxxxA.

8-Bit MCU Tools Indexing Table

The following table allows the correct tools to be quickly located against a device part number. In instances where tools are not listed for specific devices, this may infer that such tools are not required. Note that the "HT-ICE(S)" ICE type stands for the HT-ICE set and the corresponding I/O card.

| 8-Bit MCU Tools | | | | | |
|-----------------|------------|---|--------------------|--------------------------|-----------------|
| Device Part No. | ICE Type | Tool Part No. | Programming Timing | ICP Type / ICPDA / ICPCK | OCDSDA / OCDSCK |
| BA45F5241 | e-Link | e-Link + BA45V5241 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F0096 | Demo Board | e-Link + DM20180501-BA45F0096 | Flash Type-9 | ICP-2C / PA0 / PA2 | — |
| BA45F5220 | e-Link | e-Link + BA45V5220 + (e-FADP08N3 or e-FADP10N3) | Flash Type-23 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BA45F5240 | | e-Link + BA45V5240 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5240-2 | | e-Link + BA45V5240-2 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5250 | | e-Link + BA45V5250 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5260 | e-Link | e-Link + BA45V5260 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5420 | | e-Link + BA45V5420 | Flash Type-23 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BA45F5440 | | e-Link + BA45V5440 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5450 | | e-Link + BA45V5450 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5542 | e-Link | e-Link + BA45V5542 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5542-2 | | e-Link + BA45V5542-2 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5552 | | e-Link + BA45V5552 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5562 | | e-Link + BA45V5562 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5640 | e-Link | e-Link + BA45V5640 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5650 | | e-Link + BA45V5650 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5660 | | e-Link + BA45V5660 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5740 | | e-Link + BA45V5740 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5750 | e-Link | e-Link + BA45V5750 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5760 | | e-Link + BA45V5760 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6630 | | e-Link + BA45V6630 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6622 | | e-Link + BA45V6622 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6720 | e-Link | e-Link + BA45V6720 + (e-FADP08N3 or e-FADP10N3) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BA45F6730 | | e-Link + BA45V6730 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6740 | | e-Link + BA45V6740 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6746 | | e-Link + BA45V6746 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6742 | e-Link | e-Link + BA45V6742 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6748 | | e-Link + BA45V6748 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F6753 | | e-Link + BA45V6753 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BA45F5541 | e-Link | e-Link + BA45V5541 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC45F7930 | e-Link | e-Link + BC45V7930 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC45F7940 | | e-Link + BC45V7940 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC66F2342 | | e-Link + BC66V2342 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC66F3652 | | e-Link + BC66V3652 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0/PA2 |
| BC66F3662 | e-Link | e-Link + BC66F3662 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0/PA2 |
| BC66F5132 | | e-Link + BC66V5132 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC66F5652 | | e-Link + BC66V5652 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC66F5662 | | e-Link + BC66F5662 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC66F840 | e-Link | e-Link + BC66V840 | Flash Type-9 | ICP-2C / PB4 / PB2 | PB4 / PB2 |
| BC66F2133 | | e-Link + BC66V2133 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC68F2123 | | e-Link + BC68V2123 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC68F2130 | | e-Link + BC68F2130 | Flash Type-16 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC68F2140 | e-Link | e-Link + BC68F2140 | Flash Type-16 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC68F2150 | | e-Link + BC68F2150 | Flash Type-16 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BC68F2332 | | e-Link + DEV-BC68F2332 | Flash Type-9 | ICP-2C / PA0 / PA7 | OCDSDA / OCDSCK |
| BD66FM5243 | e-Link | e-Link + BD66VM5243 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH45F68 | e-Link | e-Link + BH45V68 | Flash Type-9C | ICP-2C / PA0 / RESB | PA0 / RESB |
| BH66F2232 | e-Link | e-Link + BH66V2232 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2260 | | e-Link + BH66V2260 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2260 | | e-Link + BH67V2260 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2261 | | e-Link + BH67V2261 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2262 | | e-Link + BH67V2262 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2270 | | e-Link + BH67V2270 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |

| 8-Bit MCU Tools | | | | | |
|------------------------|----------|--|--------------------|--------------------------|-----------------|
| Device Part No. | ICE Type | Tool Part No. | Programming Timing | ICP Type / ICPDA / ICPCK | OCDSDA / OCDSCK |
| BH66F2470 | e-Link | e-Link + BH66V2470 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2470 | | e-Link + BH67V2470 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2480 | | e-Link + BH67V2480 | Flash Type-9D | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2632 | e-Link | e-Link + BH66V2632 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2650 | | e-Link + BH66V2650 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2652, BH66F2652-2 | | e-Link + BH66V2652 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2662, BH66F2662-2 | | e-Link + BH66V2662 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2660 | | e-Link + BH66V2660 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2662 | | e-Link + BH67V2662 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F5232 | | e-Link + BH66V5232-10 + e-FADP10N3 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BH66F5233 | e-Link | e-Link + BH66V5233 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| | | e-Link + BH66V5233-10 + e-FADP10N3 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BH66F5242 | | e-Link + BH66V5242 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F5235 | | e-Link + BH67V5235 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F5245 | | e-Link + BH67V5245 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F5252 | | e-Link + BH66V5252 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F5250 | | e-Link + BH66V5250 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F5250 | | e-Link + BH67V5250 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F5260 | | e-Link + BH67V5260 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F5270 | | e-Link + BH67V5270 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F5362 | e-Link | e-Link + BH66F5362 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F71252 | e-Link | e-Link + BH66V71252 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F71652 | e-Link | e-Link + BH66V71652 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F71662 | | e-Link + BH66V71662 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2132 | e-Link | e-Link + BH67V2132 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2485 | e-Link | e-Link + BH67V2485 | Flash Type-9D | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH66F2663 | | e-Link + BH66V2663 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2742 | e-Link | e-Link + BH67V2742 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2752 | | e-Link + BH67V2752 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F2762 | | e-Link + BH67V2762 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BH67F5362 | e-Link | e-Link + BH67F5362 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F0044 | e-Link | e-Link + BP45V0044 | Flash Type-21 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F0102 | e-Link | e-Link + BP45V0102 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F0106 | | e-Link + BP45V0106 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1120 | | e-Link + BP45V1120 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1130 | | e-Link + BP45V1130 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1132 | | e-Link + BP45V1132 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1320 | | e-Link + BP45V1320 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1322 | | e-Link + BP45V1322 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1330 | | e-Link + BP45V1330 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1332 | | e-Link + BP45V1332 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1430 | | e-Link + BP45V1430 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F1632 | | e-Link + BP45V1632 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45F4MB | e-Link | e-Link + BP45V4MB | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BP45FH6N | e-Link | e-Link + BP45VH6N | Flash Type-9B | ICP-2C / PA0 / PA7 | PA0 / PA7 |
| BP66FW1240 | e-Link | e-Link + BP66VW1240 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F3232 | e-Link | e-Link + BS45V3232 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F3235 | | e-Link + BS45V3235 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F3340 | | e-Link + BS45V3340 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BS45F3345 | | e-Link + BS45V3345 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BS45F3346 | | e-Link + BS45V3346 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BS45F3832 | e-Link | e-Link + BS45V3832-10 + (e-FADP08N3 or e-FADP10N3) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BS45F3833 | | e-Link + BS45V3833 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F3843 | | e-Link + BS45V3843 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCDSDA / OCDSCK |
| BS45F5830 | e-Link | e-Link + BS45V5830 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F5831 | | e-Link + BS45V5831 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F5832 | | e-Link + BS45V5832 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS45F5833 | | e-Link + BS45V5833 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |

| 8-Bit MCU Tools | | | | | |
|------------------------|----------|--|--------------------|---------------------------|------------------|
| Device Part No. | ICE Type | Tool Part No. | Programming Timing | ICP Type / ICPDA / ICPCCK | OCSDSA / OCDSCCK |
| BS66F340 | e-Link | e-Link + BS66V340 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66F350 | | e-Link + BS66V350 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66F360 | | e-Link + BS66V360 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66F370 | | e-Link + BS66V370 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66F340C | e-Link | e-Link + BS66V340C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66F350C | | e-Link + BS66V350C | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66F360C | | e-Link + BS66V360C | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66FV340 | e-Link | e-Link + BS66V340 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66FV350 | | e-Link + BS66V350 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS66FV360 | | e-Link + BS66V360 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS67F2563 | e-Link | e-Link + BS67V2563 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS67F340 | e-Link | e-Link + BS67V340 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS67F350 | | e-Link + BS67V350 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS67F360 | | e-Link + BS67V360 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS67F370 | | e-Link + BS67V370 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS67F350C | e-Link | e-Link + BS67V350C | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS82B12A-3 | e-Link | e-Link + BS82BV12A-3 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS82C16A-3 | | e-Link + BS82CV16A-3 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS82D20A-3 | | e-Link + BS82DV20A-3 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83A02A-4 | e-Link | e-Link + BS83AV02A + (Optional e-FADP06T) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83A04A-3, BS83A04A-4 | | e-Link + BS83V04A + (Optional e-FADP08N-BS or e-FADP10M-BS) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83B04A-4 | | e-Link + BS83BV04A + (Optional e-FADP08N-BS or e-FADP10M-BS) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83B08A-3, BS83B08A-4 | | e-Link + 83V08AV15 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83B12A-3, BS83B12A-4 | | e-Link + BS83V12A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83B16A-3, BS83B16A-4 | | e-Link + BS83V16A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83A01C | e-Link | e-Link + BS83AV01C | Flash Type-23 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83A02C | | e-Link + BS83AV02C | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83A04C | | e-Link + BS83AV04C | Flash Type-24 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83B04C | | e-Link + BS83BV04C + (Optional e-FADP08N-BS or e-FADP10M-BS) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83B08C | | e-Link + BS83BV08C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83B12C | | e-Link + BS83BV12C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83B16C | | e-Link + BS83BV16C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83B24C | | e-Link + BS83BV24C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83C40C | | e-Link + BS83CV40C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS83A02L | e-Link | e-Link + BS83AV02L | Flash Type-23 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS83B04L | | e-Link + BS83BV04L + (Optional e-FADP08N-BS or e-FADP10M-BS) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCCK |
| BS84B06A-3 | e-Link | e-Link + BS84BV06A-3 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS84B08A-3 | | e-Link + BS84V08A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS84C12A-3 | | e-Link + BS84V12A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS84B08C | e-Link | e-Link + BS84BV08C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS84C12C | | e-Link + BS84CV12C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86B12A-3 | e-Link | e-Link + BS86BV12A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86C16A-3 | | e-Link + BS86CV16A-3 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86D20A-3 | | e-Link + BS86DV20A-3 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86C08C | e-Link | e-Link + BS86CV08C | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86D12C | | e-Link + BS86DV12C | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86D20C | | e-Link + BS86DV20C | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86E16C | | e-Link + BS86EV16C | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS86DH12C | e-Link | e-Link + BS86DHV12C | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS87B12A-3 | e-Link | e-Link + BS87BV12A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS87C16A-3 | | e-Link + BS87CV16A | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| BS87D20A-3 | | e-Link + BS87DV20A | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F0004 | e-Link | e-Link + HT45V0004 | Flash Type-9B | ICP-2C / PB0 / PB3 | PB0 / PB3 |
| HT45F0057 | | e-Link + HT45V0057 | Flash Type-9 | ICP-2C / PB0 / PB3 | PB0 / PB3 |
| HT45F0058 | | e-Link + HT45V0058 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |

| 8-Bit MCU Tools | | | | | |
|----------------------|----------|---|--------------------|--------------------------|-----------------|
| Device Part No. | ICE Type | Tool Part No. | Programming Timing | ICP Type / ICPDA / ICPCK | OCSDSA / OCDSCK |
| HT45F0060 | e-Link | e-Link + HT45V0060 + (optional e-FADP08N3 or e-FADP10N3) | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F0062 | | e-Link + HT45V0062 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F0063 | | e-Link + HT45V0063 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F0074 | e-Link | e-Link + HT45V0074 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F23A | e-ICE | M1001D + D1088A | Flash Type-6 | ICP-2B | |
| HT45F24A | | M1001D + D1095A | Flash Type-6 | ICP-2B | |
| HT45F3230 | e-Link | e-Link + HT45V3230 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F3630 | e-Link | e-Link + HT45V3630 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F39, HT45F391 | e-Link | e-Link + HT45V39 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F4050 | e-Link | e-Link + HT45V4050 | Flash Type-10B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F4630 | e-Link | e-Link + HT45V4630 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F4830 | e-Link | e-Link + HT45V4830 | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCK |
| HT45F4840 | | e-Link + HT45V4840 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F4842 | | e-Link + HT45V4842 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F4MA | e-Link | e-Link + HT45V4MA | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45FH4MA | | e-Link + HT45VH4MA | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45FH4MA-1 | | e-Link + HT45VH4MA-1 | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45F4N | | e-Link + HT45V4N | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45FH4N | | e-Link + HT45VH4N | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45F5N | | e-Link + HT45V5N | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45FH5N | | e-Link + HT45VH5N | Flash Type-9 | ICP-2C / PA6 / PA7 | PA6 / PA7 |
| HT45F56 | e-Link | e-Link+HT45V56 + (Optional FPCB) | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F5Q-1 | e-Link | e-Link + HT45V5Q-1 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F5Q-2 | | e-Link + HT45V5Q-2 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F5Q-3 | | e-Link + HT45V5Q-3 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F5V | e-Link | e-Link + HT45V5V | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F67 | e-Link | e-Link + HT45V67 | Flash Type-9C | ICP-2C / PA0 / RES | PA0 / RES |
| HT45F8550 | e-Link | e-Link + HT45V8550 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT45F8560 | | e-Link + HT45F8560 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F002 | e-Link | e-Link + HT66V002 + (Optional e-FADP08N or e-FADP10M2) | Flash Type-9 | ICP-2C / PA0 / PA7 | OCSDSA / OCDSCK |
| HT66F0021 | | e-Link + HT66V0021 + e-FADP08N | Flash Type-23 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCK |
| HT66F0025 | | e-Link + HT66V0025 + (Optional e-FADP08N or e-FADP10N2) | Flash Type-9 | ICP-2C / PA0 / PA7 | OCSDSA / OCDSCK |
| HT66F007 | | e-Link + HT66V007 + (Optional e-FADP08D or e-FADP08N or e-FADP10M) | Flash Type-9 | ICP-2C / PA0 / PA1 | OCSDSA / OCDSCK |
| HT66F008 | | e-Link + HT66V008 + (Optional e-FADP08D or e-FADP08N or e-FADP10M) | Flash Type-9 | ICP-2C / PA0 / PA1 | OCSDSA / OCDSCK |
| HT66F003 | e-Link | e-Link + HT66V003 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0031 | | e-Link + HT66V0031 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F004 | | e-Link + HT66V004 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0041 | | e-Link + HT66V0041 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2030 | | e-Link + HT66V2030, e-Link + HT66V2030-10 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0042 | e-Link | e-Link + HT66V0042 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0082 | | e-Link + HT66V0082 | | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F017 | e-ICE | M1001D + D1070A | Flash Type-6A | ICP-2B | |
| HT66F0172, HT66F0174 | e-Link | e-Link + HT66V0174 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0175 | | e-Link + HT66V0175 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0176 | | e-Link + HT66V0176 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0181 | | e-Link + HT66V0181 | Flash Type-24 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F0186 | | e-Link + HT66V0186 | Flash Type-14 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F019 | | e-Link + HT66V019 | Flash Type-9B | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCK |
| HT66F3185 | | e-Link + HT66V3185 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F3195 | | e-Link + HT66V3195 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2350 | e-Link | e-Link + HT66V2350 | Flash Type-10B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2362 | | e-Link + HT66F2362 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2370 | | e-Link + HT66V2370 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2390 | | e-Link + HT66V2390 | Flash Type-10D | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2630 | e-Link | e-Link + HT66V2630 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |

| 8-Bit MCU Tools | | | | | |
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| Device Part No. | ICE Type | Tool Part No. | Programming Timing | ICP Type / ICPDA / ICPCK | OCSDSA / OCDSCK |
| HT66F2730 | e-Link | e-Link + HT66V2730 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2740 | | e-Link + HT66V2740 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F302 | e-Link | e-Link + HT66V302 (Optional e-FADP08N or e-FADP10N2) | Flash Type-9 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCK |
| HT66F303 | | e-Link + HT66V303 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F317 | e-Link | e-Link + HT66V317 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F318 | | e-Link + HT66V318 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F319 | | e-Link + HT66V319 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F3370H | e-Link | e-Link + HT66V3370H | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4360 | e-Link | e-Link + HT66V4360 | Flash Type-7C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4370 | | e-Link + HT66V4370 | Flash Type-7C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4390 | | e-Link + HT66V4390 | Flash Type-15J | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4530 | e-Link | e-Link + HT66V4530 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4540 | | e-Link + HT66V4540 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4550 | | e-Link + HT66V4550 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F4560 | | e-Link + HT66V4560 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FB540 | e-Link | e-Link + HT66VB540 | Flash Type-7A | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB542 | | e-Link + HT66VB542 | Flash Type-7A | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB550 | | e-Link + HT66VB550 | Flash Type-7A | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB560 | | e-Link + HT66VB560 | Flash Type-7B | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB570 | | e-Link + HT66VB570 | Flash Type-7E | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB582 | | e-Link + HT66VB582 | Flash Type-15N | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB572 | e-Link | e-Link + HT66VB572 | Flash Type-15A | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB574 | | e-Link + HT66VB574 | Flash Type-15E | ICP-2C / UDN / RES | PA0 / RES |
| HT66FB576 | | e-Link + HT66VB576 | Flash Type-15E | ICP-2C / UDN / RES | PA0 / RES |
| HT68FB541 | | e-Link + HT68VB541 | Flash Type-22A | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT68FB571 | e-Link | e-Link + HT68VB571 | Flash Type-22A | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FM5230 | | e-Link + HT66VM5230 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FM5240 | e-Link | e-Link + HT66VM5240 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FM5440 | | e-Link + HT66VM5440 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FM5340 | e-Link | e-Link + HT66VM5340 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FV130 | e-Link | e-Link + HT66VV130 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FV140 | | e-Link + HT66VV140 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FV150 | | e-Link + HT66VV150 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FV160 | | e-Link + HT66VV160 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FV240 | e-Link | e-Link + HT66VV240 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FW2230 | e-Link | e-Link + HT66VW2230 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66FW2350 | | e-Link + HT66VW2350 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F2350 | e-Link | e-Link + HT67V2350 | Flash Type-10B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F2360 | | e-Link + HT67V2360 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F2362 | | e-Link + HT67F2362 | Flash Type-31 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F2370 | | e-Link + HT67V2370 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
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| HT67F2567 | e-Link | e-Link + HT67V2567 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F40 | e-ICE | M1001D + D2004C | Flash Type-6 | ICP-2B | |
| HT67F50 | | M1001D + D2004D | Flash Type-6 | ICP-2B | |
| HT67F5652 | e-Link | e-Link + HT67V5652 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F60A | e-Link | e-Link + HT67V60A | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F489 | e-Link | e-Link + HT67V489 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT67F4892 | | e-Link + HT67V4892 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT68F0017 | e-Link | e-Link + HT68V0017 (Optional e-FADP08N3 or e-FADP10N3) | Flash Type-20 | ICP-2C / PA0 / PA2 | OCSDSA / OCDSCK |
| HT68F002 | | e-Link + HT68V002 (Optional e-FADP08N or e-FADP10M2) | Flash Type-9 | ICP-2C / PA0 / PA7 | OCSDSA / OCDSCK |
| HT68F0025 | | e-Link + HT68V0025 (Optional e-FADP08N or e-FADP10N2) | Flash Type-9 | ICP-2C / PA0 / PA7 | OCSDSA / OCDSCK |
| HT68F003 | | e-Link + HT68V003 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT68F0036 | | e-Link + HT68V0036 | Flash Type-23 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT68F2420 | e-Link | e-Link + HT68V2420 | Flash Type-21 | ICP-2C / PA0 / PA2 | PA0 / PA2 |

| 8-Bit MCU Tools | | | | | |
|-----------------|----------|--------------------|--------------------|--------------------------|-----------------|
| Device Part No. | ICE Type | Tool Part No. | Programming Timing | ICP Type / ICPDA / ICPCK | OCDSDA / OCDSCK |
| HT68FB240 | e-Link | e-Link + HT68VB240 | Flash Type-7A | ICP-2C / UDN / RES | PA0 / RES |
| HT68FB550 | e-Link | e-Link + HT68VB550 | Flash Type-7A | ICP-2C / UDN / RES | PA0 / RES |
| HT68FB560 | | e-Link + HT68VB560 | Flash Type-7B | ICP-2C / UDN / RES | PA0 / RES |
| HT67F370 | e-Link | e-Link + HT67V370 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT69F340 | | e-Link + HT69V340 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT69F350 | | e-Link + HT69V350 | Flash Type-9B | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT69F360 | | e-Link + HT69V360 | Flash Type-9C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT66F2560 | e-Link | e-Link + HT66V2560 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT69F2562 | | e-Link + HT69V2562 | Flash Type-10C | ICP-2C / PA0 / PA2 | PA0 / PA2 |
| HT69F3742 | e-Link | e-Link + HT69V3742 | Flash Type-9 | ICP-2C / PA0 / PA2 | PA0 / PA2 |
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