**RTD2556T-EDP-CG**

# MULTI-FUNCTION DISPLAY CONTROLLER

# DATASHEET

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# 1. General Description

The Realtek RTD2556T-EDP-CG monitor controller combines an analog RGB input interface, HDMI 1.4 compliant digital input interfaces with HDCP1.4, DP1.2 digital input interfaces with HDCP1.4 and DVI digital input interfaces with HDCP1.4. The embedded MCU is based on an industrial standard 8051 core with external serial flash.

The RTD2556T-EDP-CG is suitable for multiple market segments and display applications, such as monitor, All in One PC, and embedded applications.

# 2. Features

### General

- RTD2556T-EDP-CG supports input format up to 1920x1200 @ 60Hz.
- Support eDP panel interfaces
- Zoom scaling up and down
- Embedded one MCU with SPI flash controller.
- It contains 4 ADCs in key pad application
- Require only one crystal to generate all timing.
- Programmable internal low-voltage-reset (LVR)
- High resolution 6 channels PWM output, and wide range selectable PWM frequency.

### Crystal

- Support 14.318MHz crystal type

### Analog RGB Input Interface

- 1 Analog input supported
- Integrated 8-bit triple-channel 210MHz ADC/PLL
- Embedded programmable Schmitt trigger of HSYNC
- Support Sync-On-Green (SOG) and various kinds of composite sync modes
- On-chip high-performance hybrid PLLs
- High resolution true 64 phase ADC PLL
- YPbPr support up to HDTV 1080p resolution

### High Speed Combo Receiver

- RTD2556T-EDP-CG supports 2 ports of high speed receivers including one port of DisplayPort1.2 and HDMI1.4 Combo receiver receiver and other port of HDMI1.4 and DVI Combo receiver.
- In DisplayPort mode, the latest DisplayPort 1.2 is supported
- In DisplayPort mode, three link layer speed HBR (2.7GHz), RBR (1.62GHz) are supported
- In DisplayPort mode, 6-bit, 8-bit, 10-bit, and 12-bit color depth transport is supported
- In DisplayPort mode, High-Bandwidth Digital Content Protection (HDCP 1.4) is supported
- In DisplayPort mode, audio is allowed to transmit to I2S/SPDIF output
- In HDMI mode, HDMI1.4 is supported
- In HDMI mode, data enable only mode is supported
- In HDMI mode, 6-bit, 8-bit, 10-bit, and 12-bit color depth transport is supported
- In HDMI mode, High-Bandwidth Digital Content Protection (HDCP 1.4) is supported
- In HDMI mode, HDMI audio is allowed to transmit to I2S/SPDIF output
- In DVI mode, Digital Content Protection (HDCP 1.4) is supported

**Embedded MCU**

- Industrial standard 8051 core with external serial flash
- Low speed ADC for various application
- I2C Master or Slave hardware supported

**Auto Detection /Auto Calibration**

- Input format detection
- Compatibility with standard VESA mode and support user-defined mode
- Smart engine for Phase/Image position/Color calibration

**Audio**

- Output: IIS , SPDIF
- Embedded Audio DAC
- Embedded headphone amp

**Scaling**

- Fully programmable zoom ratios
- Independent horizontal/vertical scaling
- Advanced zoom algorithm provides high image quality
- Sharpness/Smooth filter enhancement
- Support non-linear scaling from 4:3 to 16:9 or 16:9 to 4:3

**Color Processor**

- True 10 bits color processing engine
- xvYCC supported
- sRGB compliance
- Advanced dithering logic for 18-bit panel color depth enhancement
- Dynamic overshoot-smear canceling engine
- Brightness and contrast control
- Programmable 10-bit gamma support
- Peaking/Coring function for video sharpness

**VividColorTM**

- Independent color management (ICM)
- Dynamic contrast control (DCC)
- Precise color mapping (PCM)
- Image Adaptive Power Saving (IAPS)
- Support ADC Noise Reduction
- Support UltraVivid III function to enhance image quality with minimal artificial effect on productivity applications

**Output Interface**

- Support 8-bit output through either eDP
- Support 4 lane eDP HBR
- Fully programmable display timing generator
- Flexible data pair swapping for easier system design.
- Fixed Last Line output for perfect panel capability

**Embedded OSD**

- Embedded 30K SRAM dynamically stores OSD command and fonts

- Support multi-color RAM font, 1, 2 and 4-bit per pixel
- 64 color palette
- Maximum 26 window with alpha-blending /
- gradient / gradient target color / gradient reversed color/ dynamic fade-in/fade-out, bordering/ shadow
- Rotate 90,180,270 degree
- Independent row shadowing/bordering
- Programmable blinking effects for each character
- OSD-made internal pattern generator for factory mode
- Support 12x18 ~ 4x18 proportional font
- Hardware decompression for OSD font
- Support OSD scrolling
- Support 2 independent font based OSD

**Frame Buffer Support**

- LiveShow$^{TM}$ Function, High-performance RTC (response time compensation).
- Frame Rate Control Function

**Power Supply**

- 3.3V / 2.5V / 1.1V power supply

# 3. System Applications

- Display System on Motherboard, Monitor
- Display System for All in One PCs and embedded applications

# 4. Block Diagram

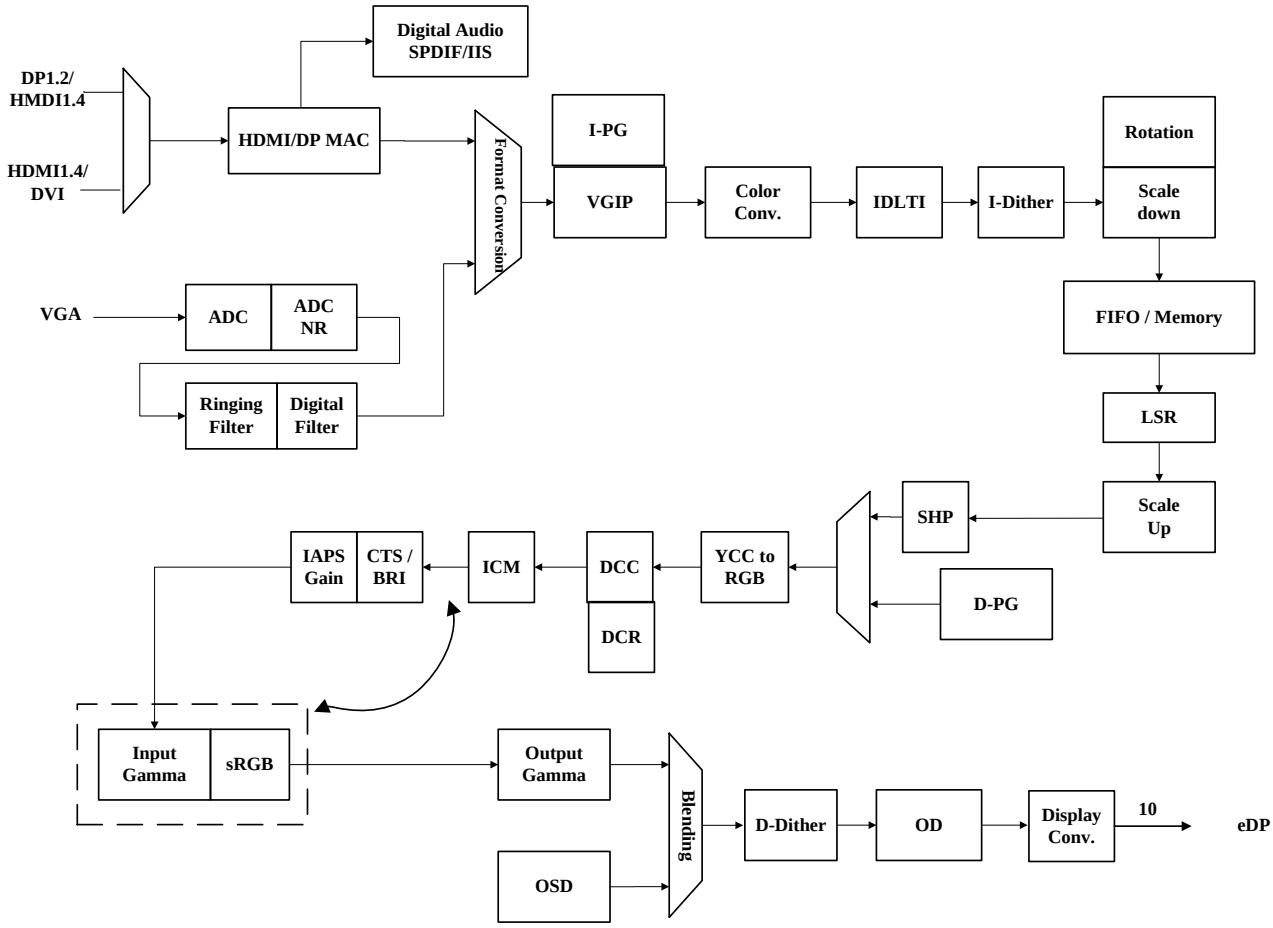


**Figure 1. Block Diagram**

# 5. Pin Assignments

## LQFP156

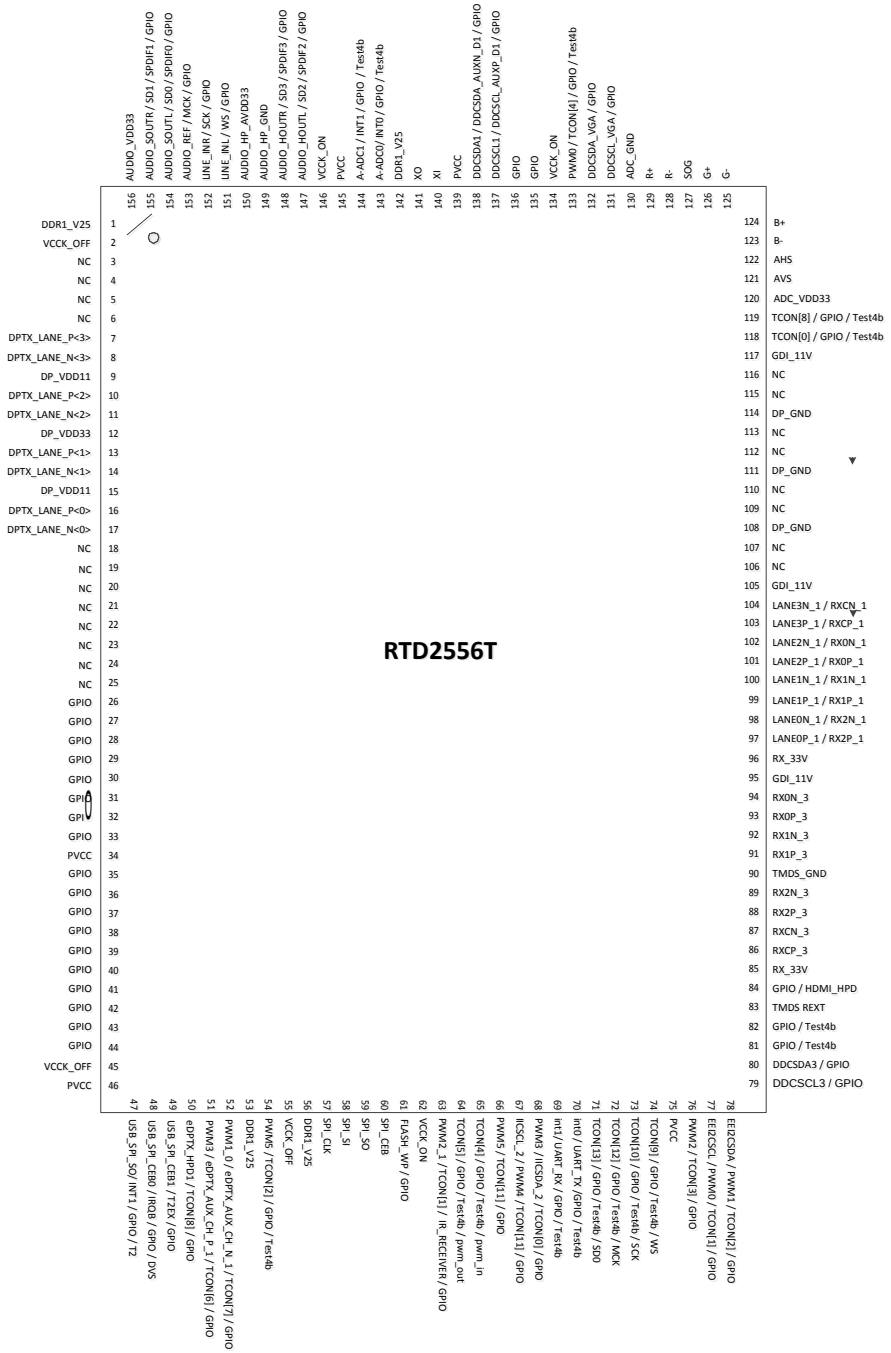


**Figure 2. Pin Diagram of LQFP**

# 6. Pin Assignments Table

Table 1. Signals Pin Assignment of LQFP156

(I/O Legend: A = Analog, I = Input, O = Output, P = Power, G = Ground)

| Pin Name | I/O | Pin # | Description | Note |
|---|---|---|---|---|
| DDR1_V25 | AP | 1 | DDR1 2.5V Power | (2.5V) |
| VCCK_OFF | DP | 2 | Core Power | (1.1V) |
| NC | NC | 3 | NC Pin | |
| NC | NC | 4 | NC Pin | |
| NC | NC | 5 | NC Pin | |
| NC | NC | 6 | NC Pin | |
| DPTX_LANE_P<3> | AO | 7 | eDPTX | 3.3V Tolerance |
| DPTX_LANE_N<3> | AO | 8 | eDPTX | 3.3V Tolerance |
| DP_VDD11 | AP | 9 | eDPTX 1.1V Power | (1.1V) |
| DPTX_LANE_P<2> | AO | 10 | eDPTX | 3.3V Tolerance |
| DPTX_LANE_N<2> | AO | 11 | eDPTX | 3.3V Tolerance |
| DP_VDD33 | AP | 12 | eDPTX 3.3V Power | (3.3V) |
| DPTX_LANE_P<1> | AO | 13 | eDPTX | 3.3V Tolerance |
| DPTX_LANE_N<1> | AO | 14 | eDPTX | 3.3V Tolerance |
| DP_VDD11 | AP | 15 | eDPTX 1.1V Power | (1.1V) |
| DPTX_LANE_P<0> | AO | 16 | eDPTX | 3.3V Tolerance |
| DPTX_LANE_N<0> | AO | 17 | eDPTX | 3.3V Tolerance |
| NC | NC | 18 | NC Pin | 3.3V Tolerance |
| NC | NC | 19 | NC Pin | 3.3V Tolerance |
| NC | NC | 20 | NC Pin | 3.3V Tolerance |
| NC | NC | 21 | NC Pin | 3.3V Tolerance |
| NC | NC | 22 | NC Pin | 3.3V Tolerance |
| NC | NC | 23 | NC Pin | 3.3V Tolerance |

| | | | | |
|---|---|---|---|---|
| NC | NC | 24 | NC Pin | 3.3V Tolerance |
| NC | NC | 25 | NC Pin | 3.3V Tolerance |
| GPIO | AI O | 26 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 27 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 28 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 29 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 30 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 31 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 32 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 33 | MCU GPIO | 3.3V Tolerance |
| PVCC | DP | 34 | Pad Power | (3.3V) |
| GPIO | AI O | 35 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 36 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 37 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 38 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 39 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 40 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 41 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 42 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 43 | MCU GPIO | 3.3V Tolerance |
| GPIO | AI O | 44 | MCU GPIO | 3.3V Tolerance |
| VCCK_OFF | DP | 45 | Core Power | (1.1V) |
| PVCC | DP | 46 | Pad Power | (3.3V) |
| USB_SPI_SO/ INT1 / GPIO / T2 | IO | 47 | SPI Serial Data Output / MCU EXINT / MCU GPIO / Timer | 5V Tolerance when power |

| | | | | |
|---|---|---|---|---|
| | | | | off |
| USB_SPI_CEB0 / IRQB / GPIO / DVS | IO | 48 | SPI Chip Enable / IRQB / MCU GPIO / DVS | 5V Tolerance when power off |
| USB_SPI_CEB1 / T2EX / GPIO | IO | 49 | SPI Chip Enable / T2EX / MCU GPIO | 5V Tolerance when power off |
| eDPTX_HPD1 / TCON[8] / GPIO | IO | 50 | eDPTX_HPD / TCON / MCU GPIO | 5V Tolerance when power off |
| PWM3 / eDPTX_AUX_CH_P_1 / TCON[6] / GPIO | IO | 51 | PWM / eDPTX AUX / TCON / MCU GPIO | 5V Tolerance when power off |
| PWM1_0 / eDPTX_AUX_CH_N_1 / TCON[7] / GPIO | IO | 52 | PWM / eDPTX AUX / TCON / MCU GPIO | 5V Tolerance when power off |
| DDR1_V25 | AP | 53 | DDR1 2.5V Power | (2.5V) |
| PWM5 / TCON[2] / GPIO / Test4b | IO | 54 | PWM / TCON / MCU GPIO / Test4b | 5V Tolerance when power off |
| VCCK_OFF | DP | 55 | Core Power | (1.1V) |
| DDR1_V25 | AP | 56 | DDR1 2.5V Power | (2.5V) |
| SPI_CLK | IO | 57 | SPI flash serial clock | 3.3V Tolerance |
| SPI_SI | IO | 58 | SPI flash serial Data Input | 3.3V Tolerance |
| SPI_SO | IO | 59 | SPI flash serial Data Output | 3.3V Tolerance |
| SPI_CEB | IO | 60 | SPI flash Chip Enable | 3.3V Tolerance |
| FLASH_WP / GPIO | IO | 61 | FLASH Write Protect / MCU GPIO | 3.3V Tolerance |
| VCCK_ON | DP | 62 | Core Power | (1.1V) |
| PWM2_1 / TCON[1] / IR_RECEIVER / GPIO | IO | 63 | PWM / TCON / IR Receiver / MCU GPIO | 5V Tolerance when power off |
| TCON[5] / pwm_out / GPIO / Test4b | IO | 64 | TCON / PWM_OUT / MCU GPIO / Test4b | 5V Tolerance when power off |
| TCON[4] / pwm_in / GPIO / Test4b | IO | 65 | TCON / PWM_IN / MCU GPIO / Test4b | 5V Tolerance when power off |

| | | | | |
|---|---|---|---|---|
| PWM5 / TCON[11] / GPIO | IO | 66 | PWM / TCON / MCU GPIO | 5V Tolerance when power off |
| IICSCL_2 / PWM4 / TCON[11] / GPIO | IO | 67 | IIC BUS / PWM / TCON / MCU GPIO | 5V Tolerance when power off |
| PWM3 / IICSDA_2 / TCON[0] / GPIO | IO | 68 | PWM / IIC BUS / TCON / MCU GPIO | 5V Tolerance when power off |
| int1/ UART_RX / GPIO / Test4b | IO | 69 | MCU EXINT / UART RX / MCU GPIO / Test4b | 5V Tolerance when power off |
| int0 / UART_TX /GPIO / Test4b | IO | 70 | MCU EXINT / UART TX / MCU GPIO / Test4b | 5V Tolerance when power off |
| TCON[13] / GPIO / Test4b / SD0 | IO | 71 | TCON / MCU GPIO / Test4b / I2S | 5V Tolerance when power off |
| TCON[12] / GPIO / Test4b / MCK | IO | 72 | TCON / MCU GPIO / Test4b / I2S | 5V Tolerance when power off |
| TCON[10] / GPIO / Test4b / SCK | IO | 73 | TCON / MCU GPIO / Test4b / I2S | 5V Tolerance when power off |
| TCON[9] / GPIO / Test4b / WS | IO | 74 | TCON / MCU GPIO / Test4b / I2S | 5V Tolerance when power off |
| PVCC | DP | 75 | Pad Power | (3.3V) |
| PWM2 / TCON[3] / GPIO | IO | 76 | PWM / TCON / MCU GPIO | 3.3V Tolerance |
| EEI2CSCL / PWM0 / TCON[1] / GPIO | IO | 77 | EEPROM IIC BUS / PWM / TCON / MCU GPIO | 3.3V Tolerance |
| EEI2CSDA / PWM1 / TCON[2] / GPIO | IO | 78 | EEPROM IIC BUS / PWM / TCON / MCU GPIO | 3.3V Tolerance |
| DDCSCL3 / GPIO | IO | 79 | DDC Channel (Open drain I/O) / MCU GPIO | 5V Tolerance when power off |
| DDCSDA3 / GPIO | IO | 80 | DDC Channel (Open drain I/O) / MCU GPIO | 5V Tolerance when power off |
| GPIO / Test4b | IO | 81 | MCU GPIO / Test4b | 5V Tolerance when power off |

| | | | | |
|---|---|---|---|---|
| GPIO / Test4b | IO | 82 | MCU_GPIO / Test4b | 5V Tolerance when power off |
| TMDS REXT | AI | 83 | Impedance Match Resistor | 12K ohm Reference to GND |
| GPIO / HDMI_HPD | AI O | 84 | MCU_GPIO / HDMI Hot-plug | 5V Tolerance when power off |
| RX_33V | AP | 85 | GDI 3.3V Power | (3.3V) |
| RXCP_3 | AI | 86 | TMDS Differential Signal Input | |
| RXCN_3 | AI | 87 | TMDS Differential Signal Input | |
| RX2P_3 | AI | 88 | TMDS Differential Signal Input | |
| RX2N_3 | AI | 89 | TMDS Differential Signal Input | |
| TMDS_GND | AG | 90 | TMDS Ground | |
| RX1P_3 | AI | 91 | TMDS Differential Signal Input | |
| RX1N_3 | AI | 92 | TMDS Differential Signal Input | |
| RX0P_3 | AI | 93 | TMDS Differential Signal Input | |
| RX0N_3 | AI | 94 | TMDS Differential Signal Input | |
| GDI_11V | AP | 95 | GDI 1.1V Power | (1.1V) |
| RX_33V | AP | 96 | GDI 3.3V Power | (3.3V) |
| LANE0P_1 / RX2P_1 | AI | 97 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE0N_1/ RX2N_1 | AI | 98 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE1P_1 / RX1P_1 | AI | 99 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE1N_1/ RX1N_1 | AI | 100 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE2P_1 / RX0P_1 | AI | 101 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE2N_1/ RX0N_1 | AI | 102 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE3P_1 / RXCP_1 | AI | 103 | DP Differential Signal Input / TMDS Differential Signal Input | |
| LANE3N_1/ RXCN_1 | AI | 104 | DP Differential Signal Input / TMDS Differential Signal Input | |
| GDI_11V | AP | 105 | GDI 1.1V Power | (1.1V) |
| NC | NC | 106 | NC Pin | |
| NC | NC | 107 | NC Pin | |
| DP_GND | AG | 108 | DP Ground | |
| NC | NC | 109 | NC Pin | |
| NC | NC | 110 | NC Pin | |
| DP_GND | AG | 111 | DP Ground | |

| | | | | |
|---|---|---|---|---|
| NC | NC | 112 | NC Pin | |
| NC | NC | 113 | NC Pin | |
| DP_GND | AG | 114 | DP Ground | |
| NC | NC | 115 | NC Pin | |
| NC | NC | 116 | NC Pin | |
| GDI_11V | AP | 117 | GDI 1.1V Power | (1.1V) |
| TCON[0] / GPIO / Test4b | IO | 118 | TCON / MCU_GPIO / Test4b | 5V Tolerance when power off |
| TCON[8] / GPIO / Test4b | IO | 119 | TCON / MCU_GPIO / Test4b | 5V Tolerance when power off |
| ADC_VDD33 | AP | 120 | ADC 3.3V Power | (3.3V) |
| AVS | AI | 121 | ADC Vertical Sync Input | 5V Tolerance when power off |
| AHS | AI | 122 | ADC Horizontal Sync Input | 5V Tolerance when power off |
| B- | AI | 123 | Negatice Blue analog input (Pb-) | 3.3V Tolerance |
| B+ | AI | 124 | Positive Blue analog input (Pb+) | 3.3V Tolerance |
| G- | AI | 125 | Negatice Green analog input (Y-) | 3.3V Tolerance |
| G+ | AI | 126 | Positive Green analog input (Y+) | 3.3V Tolerance |
| SOG | AI | 127 | Sync-On-Green | 3.3V Tolerance |
| R- | AI | 128 | Negative RED analog input (Pr-) | 3.3V Tolerance |
| R+ | AI | 129 | Positive RED analog input (Pr+) | 3.3V Tolerance |
| ADC_GND | AG | 130 | ADC Ground | |
| DDCSCL_VGA / GPIO | IO | 131 | DDC VGA (Open drain I/O) / MCU GPIO | 5V Tolerance when power off |
| DDCSDA_VGA / GPIO | IO | 132 | DDC VGA (Open drain I/O) / MCU GPIO | 5V Tolerance when power off |
| PWM0 / TCON[4] / GPIO / Test4b | IO | 133 | PWM / TCON / MCU_GPIO / Test4b | 5V Tolerance when power off |
| VCCK_ON | DP | 134 | Core Power | (1.1V) |
| GPIO | IO | 135 | MCU GPIO | 5V Tolerance |

| | | | | |
|---|---|---|---|---|
| | | | | when power off |
| GPIO | IO | 136 | MCU GPIO | 5V Tolerance when power off |
| DDCSCL1 / DDCSCL_AUXP_D1 / GPIO | IO | 137 | DDC Channel (Open drain I/O) / DPRX AUX-CH / MCU GPIO | 5V Tolerance when power off |
| DDCSDA1 / DDCSDA_AUXN_D1 / GPIO | IO | 138 | DDC Channel (Open drain I/O) / DPRX AUX-CH / MCU GPIO | 5V Tolerance when power off |
| PVCC | DP | 139 | Pad Power | (3.3V) |
| XI | AI | 140 | Crystal Input | 3.3V Tolerance |
| XO | AO | 141 | Crystal Output | 3.3V Tolerance |
| DDR1_V25 | AP | 142 | DDR1 2.5V Power | (2.5V) |
| A-ADC0/ INT0 / GPIO / Test4b | AIO | 143 | 5bits MCU ADC Input / MCU EXINT / MCU GPIO / Test4b | 3.3 V tolerance when using ADC Input; 5V Tolerance power on when using GPIO |
| A-ADC1 / INT1 / GPIO / Test4b | AIO | 144 | 5bits MCU ADC Input / MCU EXINT / MCU GPIO / Test4b | 3.3 V tolerance when using ADC Input; 5V Tolerance power on when using GPIO |
| PVCC | DP | 145 | Pad Power | (3.3V) |
| VCCK_ON | DP | 146 | Core Power | (1.1V) |
| AUDIO_HOUTL / SD2 / SPDIF2 / GPIO | AIO | 147 | AUDIO_HOUTL / I2S / SPDIF / MCU GPIO | 3.3V Tolerance |
| AUDIO_HOUTR / SD3 / SPDIF3 / GPIO | AIO | 148 | AUDIO_HOUTL / I2S / SPDIF / MCU GPIO | 3.3V Tolerance |
| AUDIO_HP_GND | AG | 149 | AUDIO HP Ground | |
| AUDIO_HP_AVDD33 | AP | 150 | AUDIO HP 3.3V Power | (3.3V) |
| LINE_INL / WS / | AI | 151 | LINE_INL / I2S / MCU GPIO | 3.3V |

| | | | | |
|---|---|---|---|---|
| GPIO | O | | | Tolerance |
| LINE_INR / SCK / GPIO | AI O | 152 | LINE_INR / I2S / MCU GPIO | 3.3V Tolerance |
| AUDIO_REF / MCK / GPIO | AI O | 153 | AUDIO_REF / I2S / MCU GPIO | 3.3V Tolerance |
| AUDIO_SOUTL / SD0 / SPDIF0 / GPIO | AI O | 154 | AUDIO_SOUTL / I2S / SPDIF / MCU GPIO | 3.3V Tolerance |
| AUDIO_SOUTR / SD1 / SPDIF1 / GPIO | AI O | 155 | AUDIO_SOUTR / I2S / SPDIF / MCU GPIO | 3.3V Tolerance |
| AUDIO_VDD33 | AP | 156 | Audio DAC 3.3V Power | (3.3V) |

# 7. Electrical Specifications

Electrical Specifications
**LQFP156 DC Characteristics (RTD2556T-EDP-CG Series)**

## *7.1. Recommended Operating Conditions*

**Table 2. Recommended Operating Conditions of LQFP156**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Voltage on Input (5V tolerance) | $V_{IN}$ | -1 | | 5.3 | V |
| Supply Voltage | PVCC | 3.14 | 3.30 | 3.47 | V |
| Core Power On Voltage | VCCK_ON | 1.05 | 1.1 | 1.15 | V |
| Core Power Off Voltage | VCCK_OFF | 1.05 | 1.1 | 1.15 | V |
| Electrostatic Discharge | $V_{ESD}$ | | | ±2.5 | kV |
| Latch-Up | $I_{LA}$ | | | ±100 | mA |
| Ambient Operating Temperature | $T_A$ | 0 | | 70 | ºC |
| Storage Temperature (plastic) | $T_{STG}$ | -55 | | 110 | ºC |
| Thermal Resistance (Junction to Air) | $\theta_{JA}$ | | 25.2 | | ºC/W |
| Thermal Resistance (Junction to Case) | $\theta_{JC}$ | | 10.1 | | ºC/W |
| Junction Acceptable Temperature | $T_j$ | | | 125 | ºC |

## *7.2. Absolute Maximum Ratings*

**Table 3. Absolute Maximum Ratings of LQFP156**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Supply Voltage | PVCC | | | 3.6 | V |
| Storage Temperature (plastic) | $T_{STG}$ | | | 150 | ºC |
| Junction Acceptable Temperature | $T_j$ | | | 125 | ºC |

**Note : Operation under the absolute maximum ratings does not imply well-functioning. Long-term stress to the absolute maximum ratings would probably affect the device reliability or further cause permanent damage.**

## *7.3. Reset Period*

**Table 4. Reset Period of LQFP156**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Reset Pulse Period | Trst-en[1] | 1120 | | | ns |
| Power-on-Reset Period | Tpor-rst[2] | 145 | 146.5 | 148 | ms |

1. 16 * Xtal_cycle(1/14.3Mhz)
2. 65536*16*2*Xtal_cycle(1/14.3Mhz)

# 8. Mechanical Specifications

Thermal Enhanced Low Profile Plastic Quad Flat Package 156 Leads

## 14x20mm$^2$ Outline

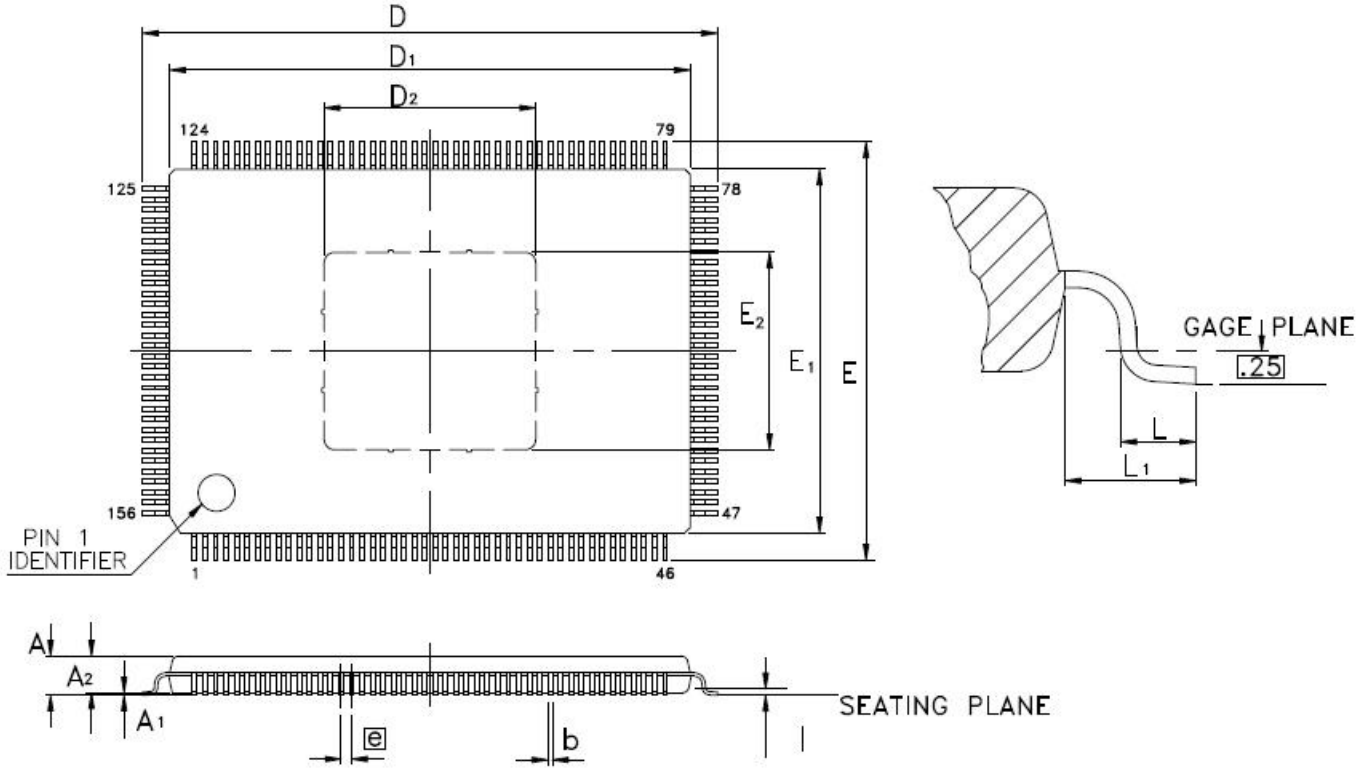


**Figure 3. Mechanical Specification of LQFP156 Leads**

**Table 5. Mechanical Specification of LQFP156 Leads**

| Symbol | Dimension in mm | | | Dimension in inch | | |
|---|---|---|---|---|---|---|
| | Min | Nom | Max | Min | Nom | Max |
| A | — | — | 1.60 | — | — | 0.063 |
| $A_1$ | 0.05 | — | 0.15 | 0.002 | — | 0.006 |
| $A_2$ | 1.35 | 1.40 | 1.45 | 0.053 | 0.055 | 0.057 |
| b | 0.13 | 0.18 | 0.23 | 0.005 | 0.007 | 0.009 |
| D | 21.90 | 22.00 | 22.10 | 0.862 | 0.866 | 0.870 |
| E | 15.90 | 16.00 | 16.10 | 0.626 | 0.630 | 0.634 |
| $D_1$ | 19.90 | 20.00 | 20.10 | 0.783 | 0.787 | 0.791 |
| $E_1$ | 13.90 | 14.00 | 14.10 | 0.547 | 0.551 | 0.555 |
| $D_2$ | 7.85 | 8.10 | 8.35 | 0.309 | 0.319 | 0.329 |
| $E_2$ | 7.30 | 7.55 | 7.80 | 0.287 | 0.297 | 0.307 |
| e | 0.40 BSC | | | 0.016 BSC | | |
| L | 0.45 | 0.60 | 0.75 | 0.018 | 0.024 | 0.030 |
| L1 | 1.00 REF | | | 0.039 REF | | |

Notes：

1. CONTROLLING DIMENSION：MILLIMETER(mm).

# 9. Ordering Information

**Table 6. Ordering Information**

| Part No. | Max. Resolution | Input : VGA | Input : DP1.2/ HDMI1.4 | Input : HDMI1.4/ DVI | Output : eDP | PKG |
|---|---|---|---|---|---|---|
| RTD2556T-EDP-CG | 1920x1200 @60Hz | ● | 1 Ports | 1 Ports | ● | LQFP156 |