CREATEK
凌盟科技

CK-WB-B29-SM

WLAN +BT+FM 3-in-1 Module
802.11b/g/n + BT3.0 + FM Radio

Datasheet

A. General Description

CK-WB-B29-SM is a "3-in-1 module" module which includes WLAN + BT + FM receiver. It provides function of 802.11b/g/n, Bluetooth 3.0/class1 /class2 and FM Receiver.

This multi- functionality and board to board physical interface provides SDIO/SPI interface for WiFi, UART for Bluetooth and FM receiver. The small size & low profile physical design make it easier for system design to enable high performance wireless connectivity without space constrain.

The module is based on Broadcom 4329 chipset which is a WiFi+BT+FM Transceiver SOC. The Radio architecture & high integration MAC/BB chip provide excellent sensitivity with rich system performance. The module is designed as single antenna for WiFi and Bluetooth for the application of small size hand held device.

B. Features

_ Lead Free design which supporting Green design requirement, RoHS Compliance.
_ The module can support Halogen Free
_ Support single Antenna for WiFi and Bluetooth
_ Small size suitable for low volume system integration
_ Low power consumption & excellent power management performance extend battery life.
_ 2.412-2.484 GHz two SKUs for worldwide market
_ Easy for integration into mobile and handheld device with flexible system configuration and antenna design

C. Standards General Specification

Model	CK-WB-B29-SM
Product Type	802.11b/g/n, Bluetooth and FM /receiver Combo Module
Main Chip(s)	BCM4329
Package	44-pin QFN/VIA
WLAN Standard(s)	IEEE 802.11b/g/n
WLAN Interface(s)	SDIO v1.2 (1-bit and 4-bit)/SPI(48M)
WLAN Spreading	IEEE 802.11g/b/n OFDM/DSSS PHY specification
WLAN Operating Frequency	2412~2484MHz ISM band
WLAN Number of Channels	11 (US), 13 (EU), 14 (Japan)
WLAN Data Rates	802.11n data rates of 7.2,14.4,21.7,28.9,43.3,57.8,65.0 and 72.2Mbps 802.11g data rates of 6,9,12,18,24,36,48, 54Mbps 802.11b data rates of 1, 2, 5.5, and 11Mbps
WLAN Modulation Schemes	802.11g/n: 64QAM (72.2/54/48Mbps), 16QAM(36/24Mbps) QPSK (18/12Mbps), BPSK (9/6Mbps) 802.11b: CCK (11/5.5Mbps), DQPSK (2Mbps) and DBPSK (1Mbps)
WLAN Tx Power (typical)	+14dBm (11g mode), +13dBm (11n mode), + 17dBm (11b mode)
WLAN Rx Sensitivity (typical)	-88dBm@11Mbps, -69dBm@65Mbps, -73dBm@54Mbps

Media Access Protocol	CSMA/CA with ACK
Bluetooth Standard(s)	BT 3.0/2.1+ EDR
Bluetooth Operating Frequency	2402-2480MHz
BT Interface(s)	High-speed UART
Bluetooth Data Rates	Up to 3Mbps
Bluetooth Modulation Schemes	FHSS/GFSK/DQPSK/8DPSK
Bluetooth Tx Power (MAX)	6dB
Bluetooth Rx Sensitivity (typical)	-85dBm at 0.1% BER
Bluetooth UART Interfaces	Tx, Rx, RTS, CTS
FM Interfaces	Analog Stereo I/O, PCM
FM Receiver	76-108MHz
FM Receive Sensitivity	-107dBm (FM), -88dBm(RDS)
Operating System Support	Windows Mobile 5.0/6.0, Linux 2.6.9 and above, Android serials
Power Requirements (typical) (Nominal Voltage: 3.6V)	**Current for WLAN:** Tx mode: 345mA (11b Continuous @+21dBm) Rx mode: 82mA Power Saving Mode (DTIM=1): 1.2mA **Current for BT:** ACL with file transfer : 42.5mA SCO HV3 : 14.5mA ; Reset : 0.02mA ; **Current for FM:** FM Rx: 10.5mA
Dimensions	12x 12 x 1.55mm (typical)
Normal Operating Temperature:	-10 ~ +50oC
Functional* Temperature:	-30 ~ +70oC

D. Application

• Mobile handsets, Smart phones
• Personal digital assistants
• Tablet PC, Smart TV-BOX, TV dongle
• Desktop and laptop personal computers
• Automotive systems
• MP3, MP4, PMP
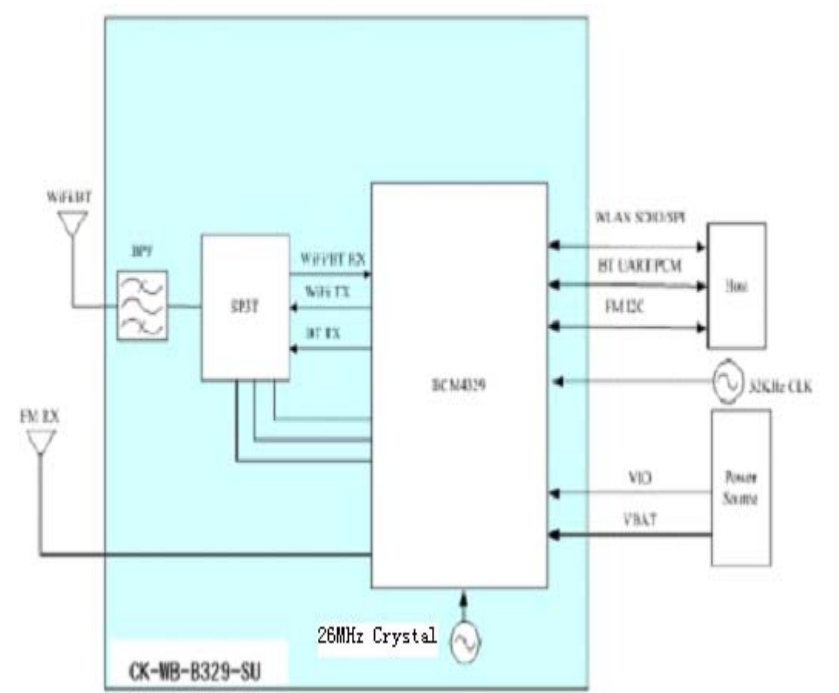• VOIP Phones, etc

E. Functional Block Diagram

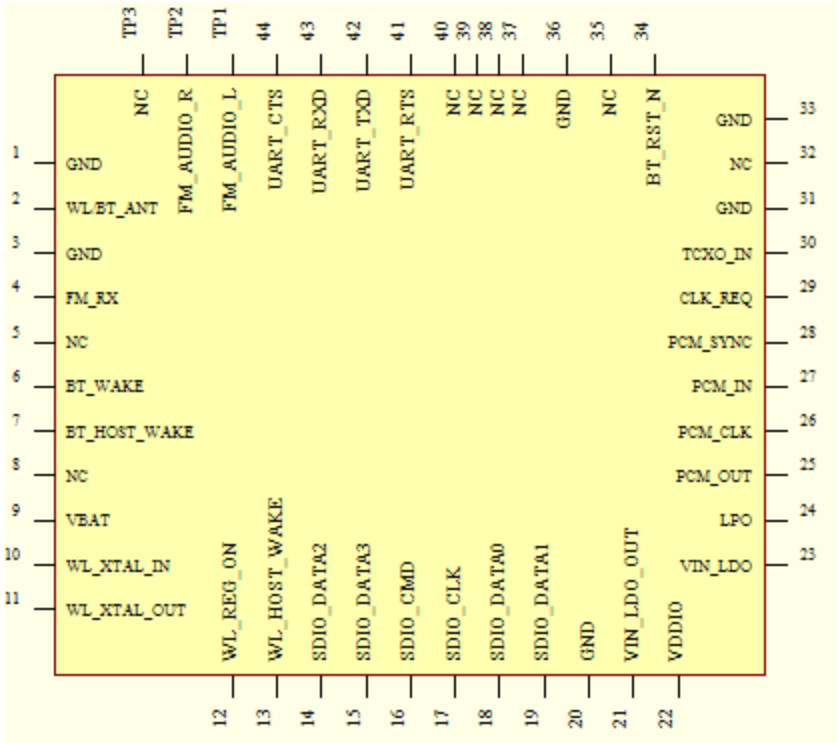**Figure 1: Functional Block Diagram**

F. Pin Configuration

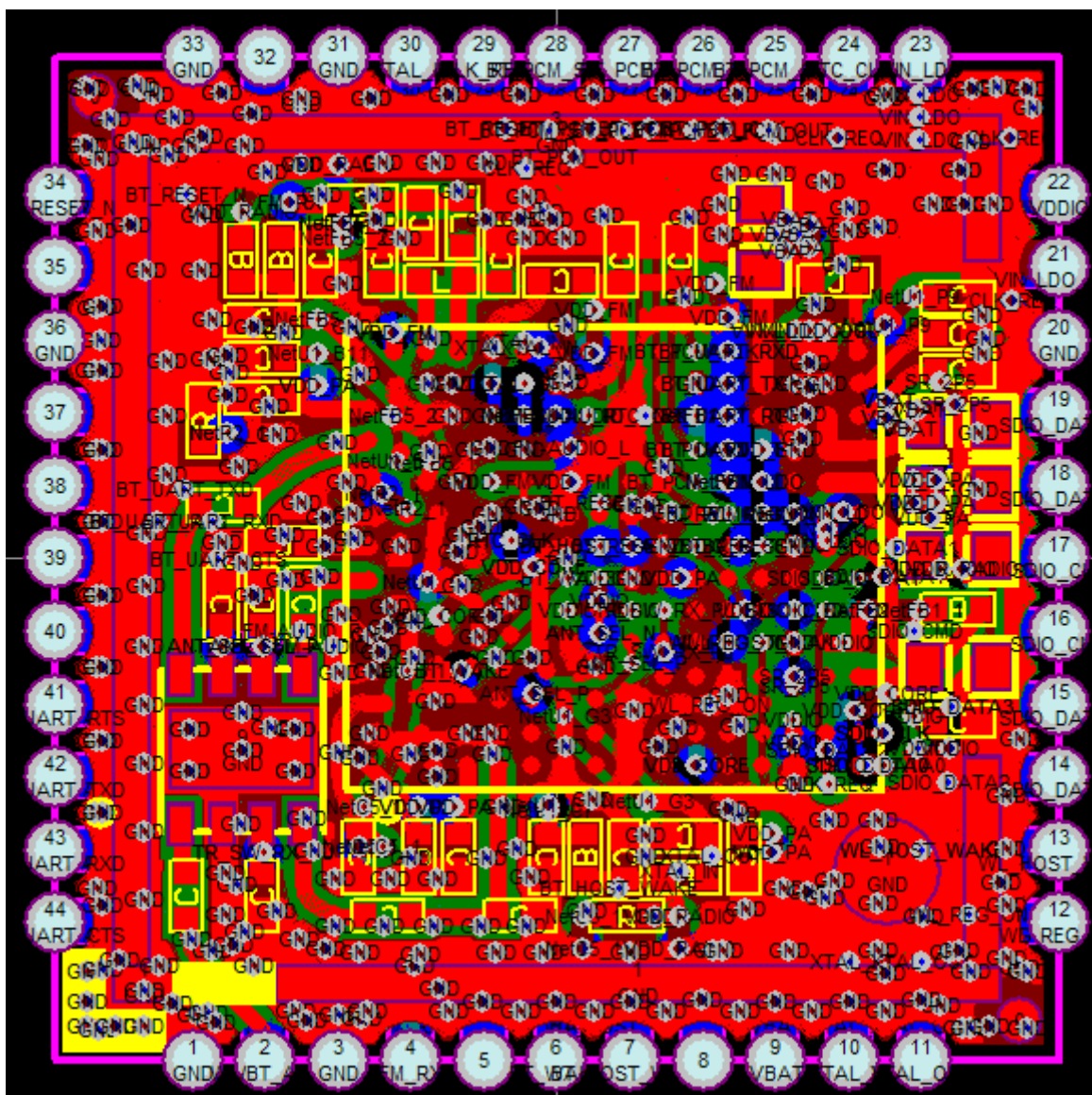**Figure 2: Pin Configuration**

G. Pad Size and Spacing


Figure 3: Foot Print (Top View)

H. Pin Description Table

Pin-Number	Pin-Define	Type	Description
1	GND	GND	Ground
2	WL/BT_ANT	I/O	Wlan adn Bluetooth RF I/O port
3	GND	GND	Ground
4	FM_RX	I	FM radio RF input antenna port
5	NC	NC	NC
6	BT_WAKE	I	HOST wake-up Bluetooth device
7	BT_HOST_WAKE	O	Bluetooth device to wake-up HOST
8	NC	NC	NC
9	V_BAT	Power	Main power voltage source input(3V~4.8V)
10	XTAL_I	I	Crystal input

11	XTAL_O	O	Crystal input
12	WL_REG_ON	I	Internal regulators power enable/disable
13	WL_HOST_WAKE	O	WLAN to wake-up HOST
14	SDIO_DATA_2	I/O	SDIO data line 2
15	SDIO_DATA_3	I/O	SDIO data line 3
16	SDIO_DATA_CMD	I/O	SDIO command line
17	SDIO_DATA_CLK	I/O	SDIO clock line
18	SDIO_DATA_0	I/O	SDIO data line 0
19	SDIO_DATA_1	I/O	SDIO data line 1
20	GND	GND	Ground
21	VIN_LDO_OUT	Power	Internal Buck voltage generation pin
22	VDDIO	Power	I/O Voltage supply input
23	VIN_LDO	Power	Internal Buck voltage generation pin
24	RTC_CLK	I	External Low Power Clock input(32.768KHz)
25	PCM_OUT	I/O	PCM data output
26	PCM_CLK	I/O	PCM Clock
27	PCM_IN	I/O	PCM data input
28	PCM_SYNC	I/O	PCM sync signal
29	CLK_REQ	O	HOST to turn on the reference clock
30	TXCO_IN	I	Reference clock input
31	GND	GND	Ground
32	NC	NC	NC
33	GND	GND	GND
34	BT_RST_N	I	Low asserting reset for Bluetooth core
35	NC	NC	NC
36	GND	GND	GND
37	NC	NC	NC
38	NC	NC	NC
39	NC	NC	NC
40	NC	NC	NC
41	UART_RST_N	O	Bluetooth UART interface
42	UART_TXD	O	Bluetooth UART interface
43	UART_RXD	I	Bluetooth UART interface
44	UART_CTS_N	I	Bluetooth UART interface
TP1	AUDIO_L	O	FM Analog AUDIO left output
TP2	AUDIO_R	O	FM Analog AUDIO right output
TP3	NC	NC	NC

Table 1: Pin Description List

H. Control Signal Timming Diagrams

CONTROL SIGNAL TIMING DIAGRAMS

WLAN: ON, BT: ON

WLAN: OFF, BT: OFF
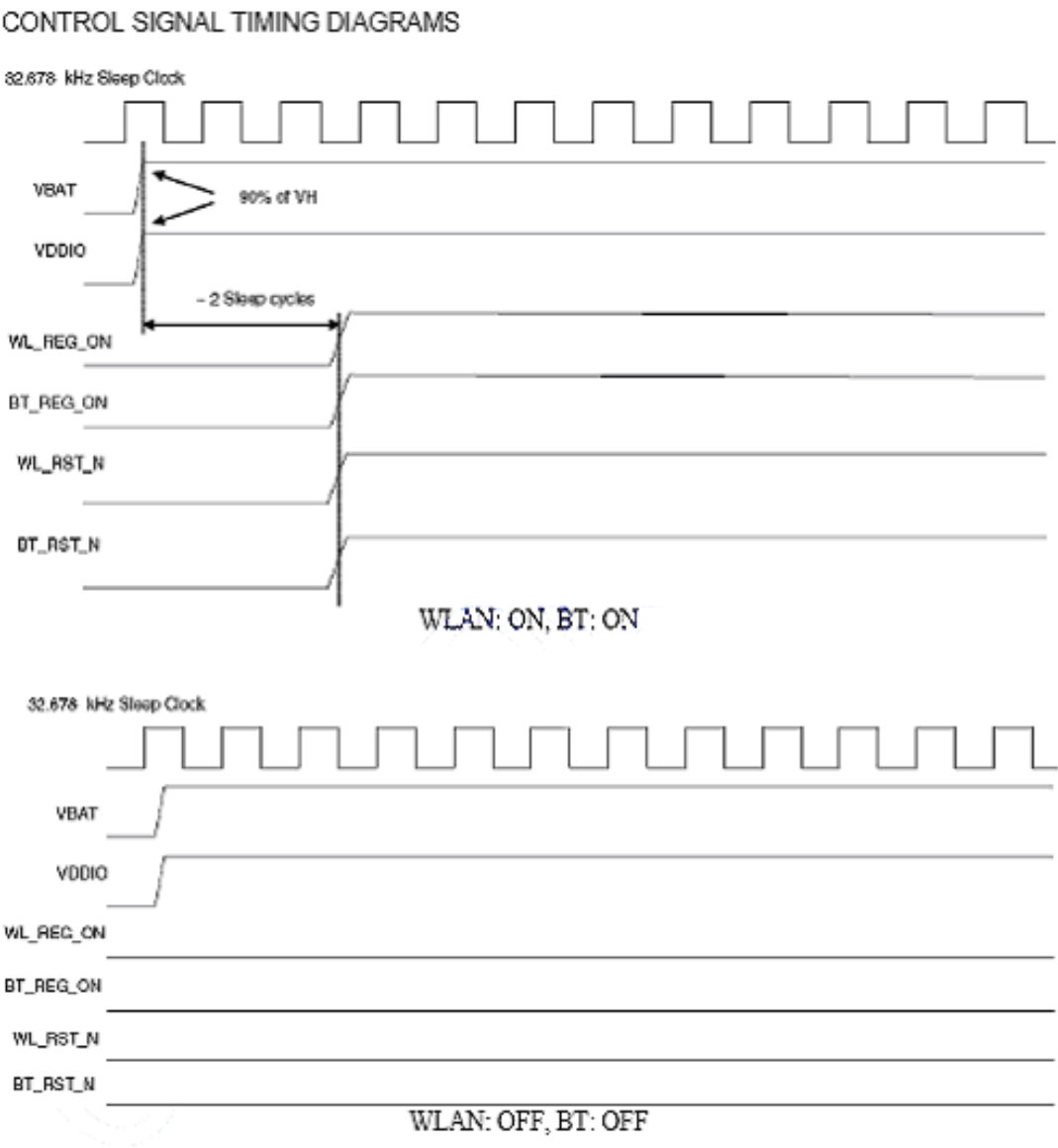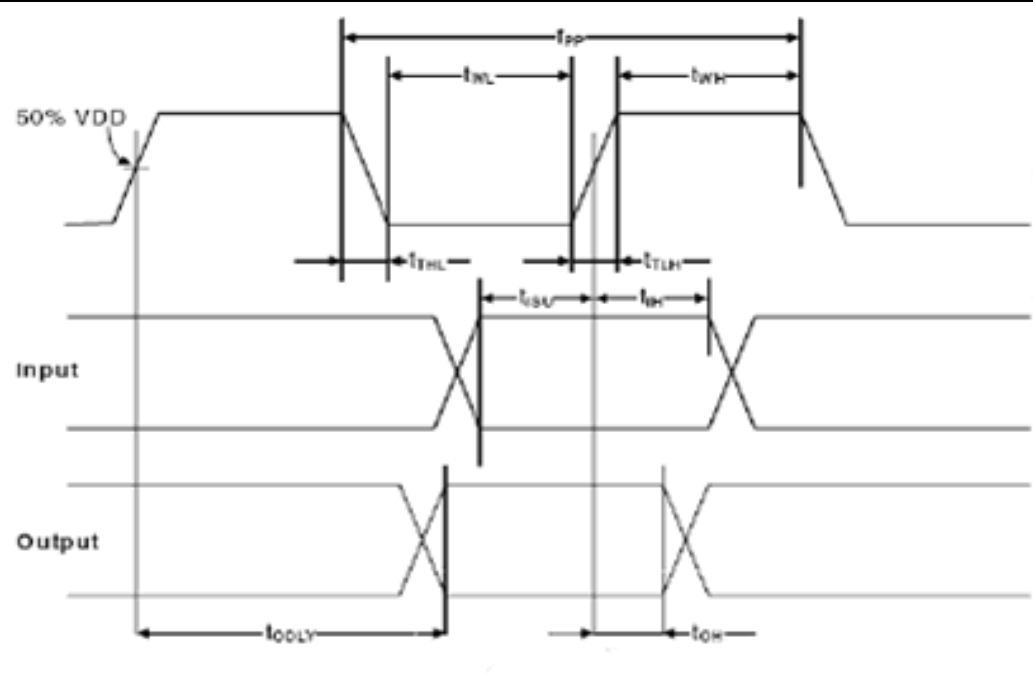
SDIO Bus Timing Parameters (High-Speed Mode)

Parameter	Symbol	Min	Typical	Max	Unit
Clock CLK (all values are referred to min. VIH and max. VIL)					
Frequency--Data Transfer Mode	fPP	0	-	50	MHz
Frequency--Identification Mode	fOD	0	-	400	kHz
Clock Low Time	tWL	7	-	-	ns
Clock High Time	tWH	7	-	-	ns
Clock Rise time	tTLH	-	-	3	ns
Clock Low Time	tTHL	-	-	3	ns
Inputs: CMD, DAT (referenced to CLK)					
Input Setup Time	tISU	6	-	-	ns
Input Hold Time	tIH	2	-	-	ns
Outputs: CMD, DAT (referenced to CLK)					
Output Delay time--Data Transfer Mode	tODLY	-	-	14	ns
Output Hold time	tOH	2.5	-	-	ns
Total System Capacitance (each line)	CL	-	-	40	pF

I. PCM Connect Mode
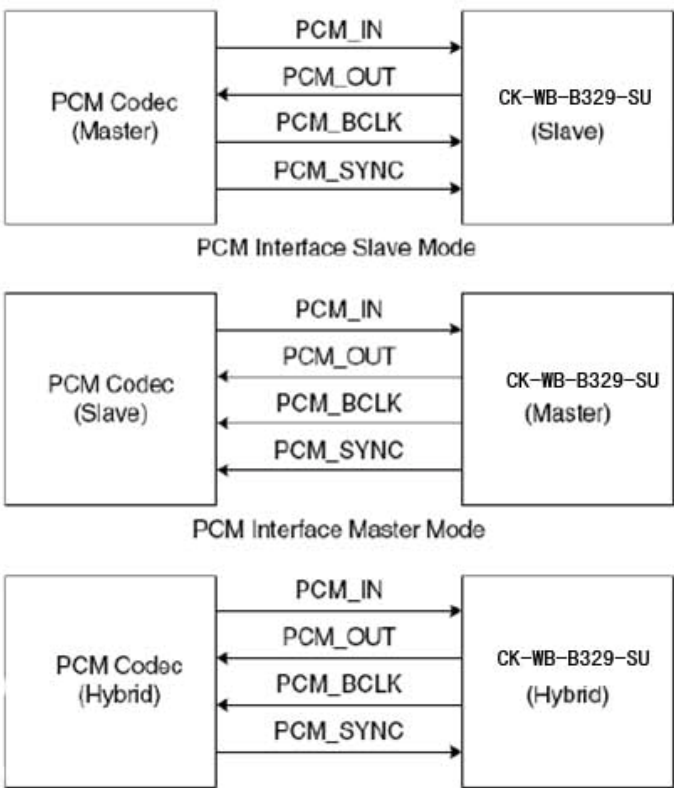
J. Recommanded Reflow Profile
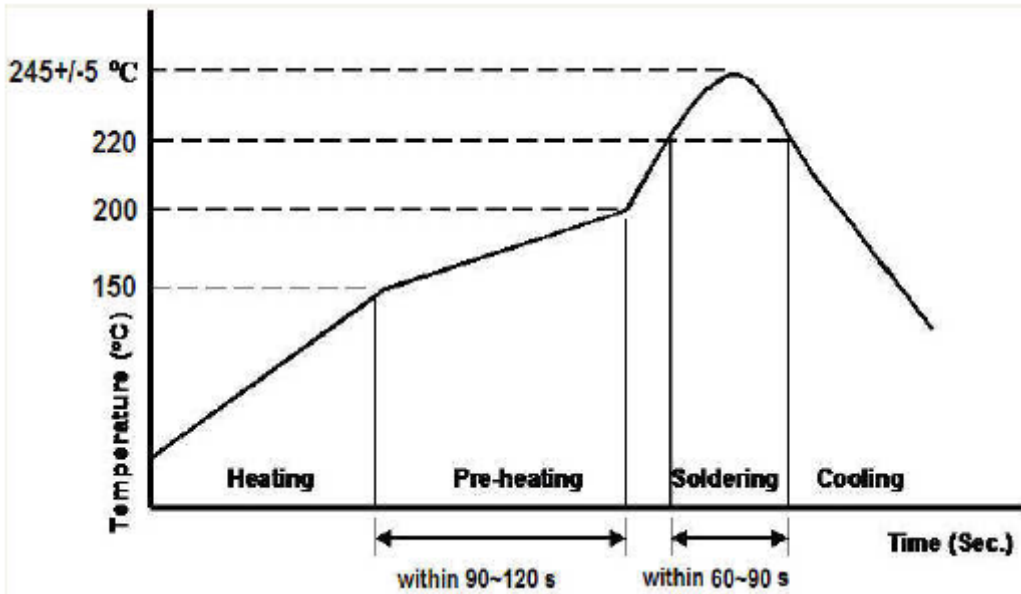
I. Ordering Information

Table 2: Ordering Information			
Part Number	Interface	Operating Temperature Range	MOQ (pcs)
CK-WB-B29-SM	SDIO, UART	-20 °C to 50 °C	2500