

正基科技股份有限公司

SPECIFICATION

PRODUCT NAME : AP6676PHH

REVISION : 0.6 (WEB)

DATE : May. 22th , 2026

Customer APPROVED	
Company	
Representative Signature	

PREPARED	REVIEW			APPROVED	DCC ISSUE
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正基科技股份有限公司



AP6676PHH Data Sheet

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Revision	Date	Description	Revised By
0.1	2025/12/03	- Preliminary	Ali
0.2	2025/12/30	- Update Pin Definition - Update Package Information - Update Operating temperature	Ali
0.3	2025/12/30	- Update Introduction	Ali
0.4	2026/1/12	- Update Module Dimensions	Ali
0.5	2026/2/05	- Update Module Dimension - Update Pin Definition - Update Recommended Operating Rating	Ali
0.6	2026/05/22	-Delete 802.11a MIMO RX	Sam

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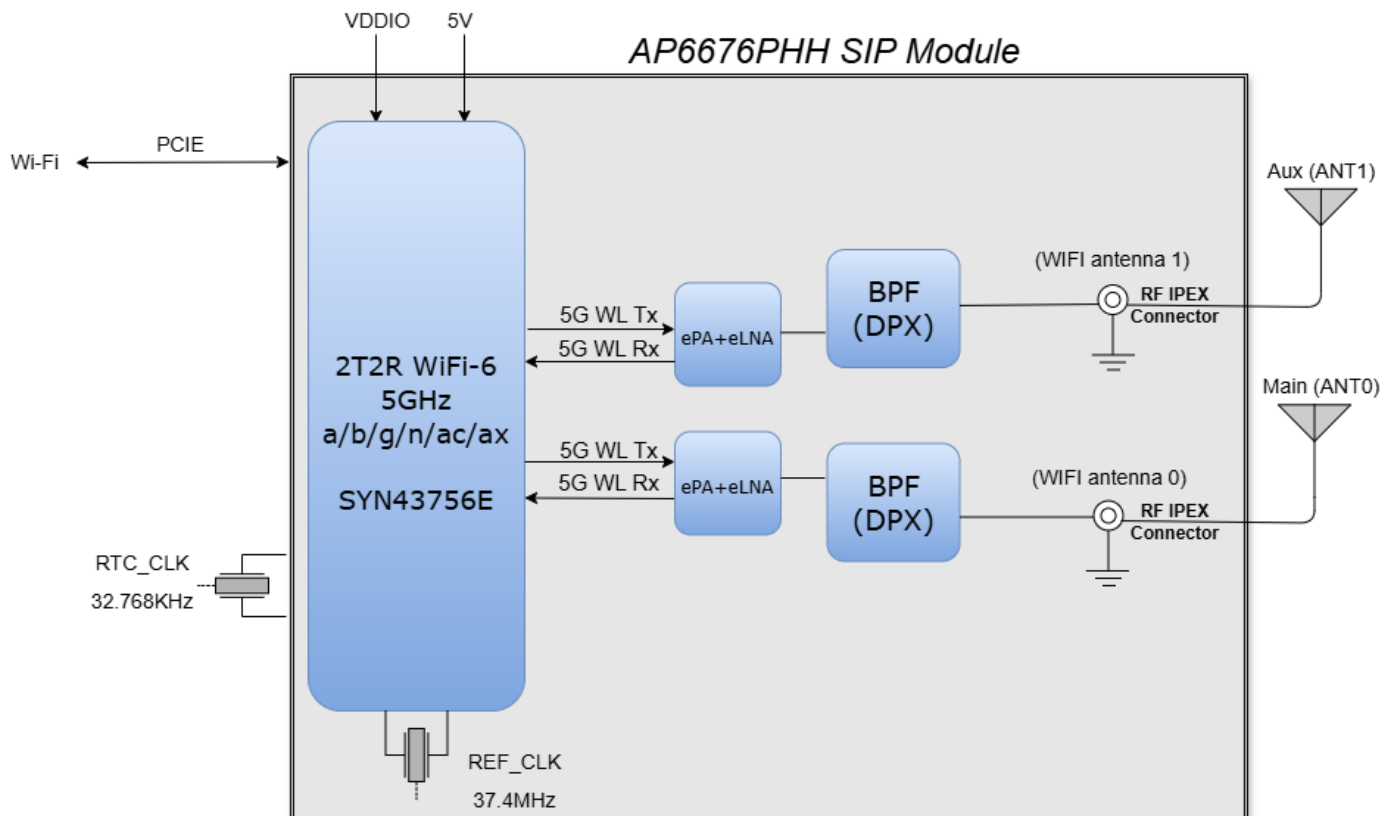
1. Introduction

1.1 Overview

The AMPAK Technology® AP6676PHH is a high-power Wi-Fi module featuring seamless roaming capabilities and advanced security. It supports interoperability with various vendors' 802.11a/b/g/n/ac/ax 2x2 access points using MIMO technology, delivering data rates up to 1200 Mbps with dual-stream 802.11ax for wireless LAN connectivity.

The AP6676PHH integrates a 5 GHz external PA/LNA/RF switch FEM, boosting transmit power up to +25 dBm. An external 5 V power supply is required to drive the FEM. In addition, the module provides a PCIe interface for Wi-Fi connectivity.

This compact module is designed as a complete Wi-Fi solution and is well-suited for applications such as tablets, OTT boxes, and other portable devices.



1.2 Product Features

- Lead Free design which is compliant with RoHS/REACH/HF requirements.
- TX and RX low-density parity check (LDPC) support for improved range and power efficiency.
- IEEE 802.11ax compliant.
- Dual-stream spatial multiplexing up to 1200 Mbps data rate.
- 20, 40, 80 MHz channels with optional SGI. (1024 QAM modulation)
- Full IEEE 802.11a/n/ac legacy compatibility with enhanced performance.
- Supports PCI express revision 3.0 and power management running at Gen1 speeds.

General Specification

2.1 General Specification

Model Name	AP6676PHH
P duct Description	2T2R 802.11 ax/ac/a/b/g/n Wi-Fi 6 Module
Dimension	L x W: 27x 27(typical) mm H: 2.6(Maximum) mm
WiFi Interface	Support PCIe v3.0 compliant and runs at Gen1 speeds.
Operating temperature	-30°C to 85°C
Storage temperature	-40°C to 125°C
Humidity	Operating Humidity 10% to 95% Non-Condensing

Note: The optimal RF performance specified in the data sheet, however, is guaranteed only -10 °C to +55 °C and 5V < VBATFEM without derating performance.

2.2 DC Characteristics

2.2.1 Absolute Maximum Ratings

Symbol	Description	Min.	Max.	Unit
VBAT	IC Input supply Voltage	-0.5	5.25	V
VDDIO	Digital I/O Voltage	-0.5	2.07	V
VBATFEM	FEM Input supply Voltage	-0.5	5.5	V

Extreme caution must be exercised to prevent electrostatic discharge (ESD) damage.

Symbol	Condition	ESD Rating	Unit
ESD_HAND_HBM	Human body model contact discharge per JEDEC EID/JESD22-A114	2	kV
ESD_HAND_CDM	Charged device model contact discharge per JEDEC EIA/JESD22-C101	250	V

Note: All pins except O_PAD_BT_13DBMOP, which passed at 250V.

2.2.2 Recommended Operating Rating

The module requires three power supplies: VBAT and VBATFEM and VDDIO.

Voltage rails	Min.	Typ.	Max.	Unit
VBAT	3.6	4.8	5	V
VBATFEM	4.8	5	5.5	V
VDDIO	1.68	1.8	1.98	V

VBAT current consumption 1000mA(Peak), when VBAT = 4.8V

VBATFEM current consumption 1500mA(Peak), when VBATFEM = 5V

The module requires two power supplies: other Digital I/O Pins.

For VDDIO=1.8V	Min.	Max.	Unit
VIH	$0.65 \times VDDIO$	N/A	V
VIL	N/A	$0.4 \times VDDIO$	V
VOH output@2mA	$VDDIO - 0.4$	N/A	V
VOL output@2mA	N/A	0.4	V

2. Wi-Fi RF Specification(TBD)

2.1 5GHz RF Specification

Conditions : VBAT=4.8V ;VBATFEM =5V ; VDDIO=1.8V ; Temp:25°C

Feature		Description			
WLAN Standard		IEEE 802.11a/n/ac/ax & Wi-Fi 6 compliant			
Frequency Range		5.15~5.35GHz 、 5.47~5.725GHz 、 5.745~5.825GHz (5GHz UNII Band)			
Number of Channels		5.15~5.35GHz ： Ch36 ~ Ch64 5.47~5.725GHz ： Ch100 ~ Ch144 5.745~5.825GHz ： Ch149 ~ Ch165			
Modulation		802.11a ： OFDM /64-QAM 、 16-QAM 、 QPSK 、 BPSK 802.11n ： OFDM /64-QAM 、 16-QAM 、 QPSK 、 BPSK 802.11ac ： OFDM /256-QAM 、 OFDM /64-QAM 、 16-QAM 、 QPSK 、 BPSK 802.11ax ： OFDM/ 1024-QAM 、 OFDM /256-QAM 、 OFDM /64-QAM 、 16-QAM 、 QPSK 、 BPSK			
Output Power , tolerance ± 2 dB					
The transmit EVM quality & spectrum mask are compliant with IEEE 802.11 standard					
802.11a	Frequency (MHz)	6~9Mbps	12~18Mbps	24Mbps	36Mbps
	5150~5350	25	25	25	25
	5470~5725	25	25	25	25
	5745~5825	25	25	25	25
	Frequency (MHz)	48Mbps	54Mbps		
	5150~5350	23	23		
	5470~5725	23	23		
	5745~5825	23	23		
802.11n 20MHz	Frequency (MHz)	MCS0~2	MCS3	MCS4	MCS5
	5150~5350	24.5	24.5	24	23
	5470~5725	24.5	24.5	24	23
	5745~5825	24.5	24.5	24	23
	Frequency (MHz)	MCS6	MCS7		
	5150~5350	23	22		
	5470~5725	23	22		
	5745~5825	23	22		

802.11n 40MHz	Frequency (MHz)	MCS0~2	MCS3	MCS4	MCS5
	5150~5350	23.5	23.5	23	22
	5470~5725	23.5	23.5	23	22
	5745~5825	23.5	23.5	23	22
	Frequency (MHz)	MCS6	MCS7		
	5150~5350	22	21		
	5470~5725	22	21		
	5745~5825	22	21		
802.11ac 20MHz	Frequency (MHz)	MCS0~2	MCS3	MCS4	MCS5
	5150~5350	24.5	24.5	24	23
	5470~5725	24.5	24.5	24	23
	5745~5825	24.5	24.5	24	23
	Frequency (MHz)	MCS6	MCS7	MCS8	
	5150~5350	23	22	21	
	5470~5725	23	22	21	
	5745~5825	23	22	21	
802.11ac 40MHz	Frequency (MHz)	MCS0~2	MCS3	MCS4	MCS5
	5150~5350	23.5	23.5	23	22
	5470~5725	23.5	23.5	23	22
	5745~5825	23.5	23.5	23	22
	Frequency (MHz)	MCS6	MCS7	MCS8	MCS9
	5150~5350	22	21	20	19
	5470~5725	22	21	20	19
	5745~5825	22	21	20	19
802.11ac 80MHz	Frequency (MHz)	MCS0~2	MCS3	MCS4	MCS5
	5150~5350	23.5	23.5	23	22
	5470~5725	23.5	23.5	23	22
	5745~5825	23.5	23.5	23	22
	Frequency (MHz)	MCS6	MCS7	MCS8	MCS9
	5150~5350	22	21	20	19
	5470~5725	22	21	20	19
	5745~5825	22	21	20	19

802.11ax 20MHz	Frequency (MHz)	HE0~2	HE3	HE4	HE5
	5150~5350	24.5	24.5	24	23
	5470~5725	24.5	24.5	24	23
	5745~5825	24.5	24.5	24	23
	Frequency (MHz)	HE6	HE7	HE8	HE9
	5150~5350	23	22	21	20
	5470~5725	23	22	21	20
	5745~5825	23	22	21	20
	Frequency (MHz)	HE10	HE11		
	5150~5350	19	19		
	5470~5725	19	19		
	5745~5825	19	19		
802.11ax 40MHz	Frequency (MHz)	HE0~2	HE3	HE4	HE5
	5150~5350	23.5	23.5	23	22
	5470~5725	23.5	23.5	23	22
	5745~5825	23.5	23.5	23	22
	Frequency (MHz)	HE6	HE7	HE8	HE9
	5150~5350	22	21	20	19
	5470~5725	22	21	20	19
	5745~5825	22	21	20	19
	Frequency (MHz)	HE10	HE11		
	5150~5350	18	18		
	5470~5725	18	18		
	5745~5825	18	18		
802.11ax 80MHz	Frequency (MHz)	HE0~2	HE3	HE4	HE5
	5150~5350	23.5	23.5	23	22
	5470~5725	23.5	23.5	23	22
	5745~5825	23.5	23.5	23	22
	Frequency (MHz)	HE6	HE7	HE8	HE9
	5150~5350	22	21	20	19
	5470~5725	22	21	20	19
	5745~5825	22	21	20	19
	Frequency (MHz)	HE10	HE11		
	5150~5350	18	18		
	5470~5725	18	18		
	5745~5825	18	18		

Note: The specifications of RF output power are subject to change to fulfill the safety regulation and requirements in end-user product.

Sensitivity, tolerance ± 2 dB
OFDM modulation PER $\leq 10\%$

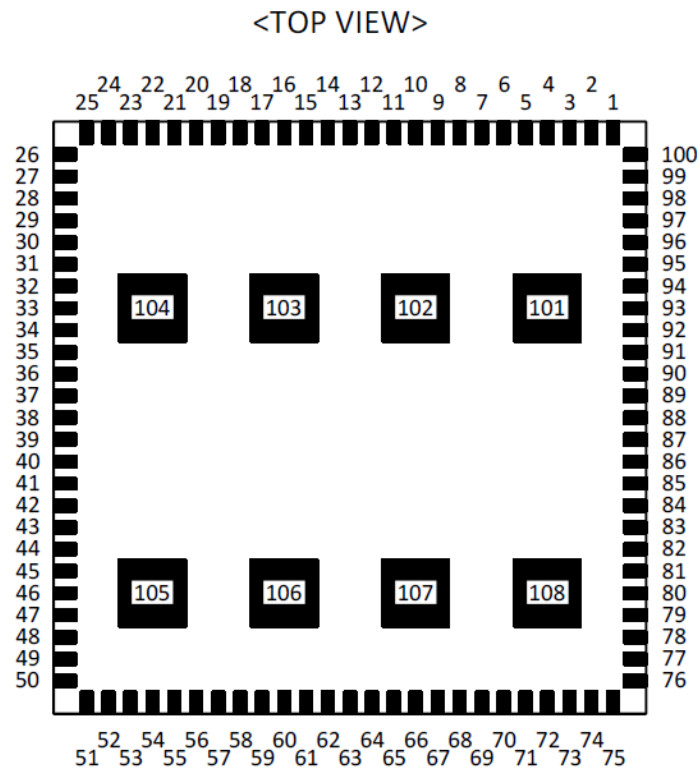
802.11a SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	6Mbps	-95	24Mbps	-87
	9Mbps	-93	36Mbps	-84
	12Mbps	-91	48Mbps	-80
	18Mbps	-89	54Mbps	-78
802.11n_20MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-95	MCS4	-84
	MCS1	-93	MCS5	-80
	MCS2	-90	MCS6	-78
	MCS3	-87	MCS7	-76
802.11n_20MHz MIMO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-98	MCS5	-88
	MCS1	-96	MCS6	-83
	MCS2	-93	MCS7	-81
	MCS3	-90	MCS8	-96
	MCS4	-91	MCS15	-78
802.11n_40MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-93	MCS4	-81
	MCS1	-91	MCS5	-78
	MCS2	-89	MCS6	-76
	MCS3	-85	MCS7	-74
802.11n_40MHz MIMO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-96	MCS5	-82
	MCS1	-94	MCS6	-79
	MCS2	-92	MCS7	-77
	MCS3	-88	MCS8	-93
	MCS4	-84	MCS15	-74

802.11ac_20MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-95	MCS5	-80
	MCS1	-93	MCS6	-78
	MCS2	-90	MCS7	-76
	MCS3	-87	MCS8	-73
	MCS4	-84		
802.11ac_20MHz MIMO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0,NSS=1	-95	MCS6,NSS=1	-78
	MCS1,NSS=1	-93	MCS7,NSS=1	-76
	MCS2,NSS=1	-92	MCS8,NSS=1	-75
	MCS3,NSS=1	-87	MCS0,NSS=2	-93
	MCS4,NSS=1	-84	MCS8,NSS=2	-70
	MCS5,NSS=1	-79		
802.11ac_40MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-93	MCS5	-79
	MCS1	-91	MCS6	-77
	MCS2	-89	MCS7	-74
	MCS3	-86	MCS8	-71
	MCS4	-83	MCS9	-69
802.11ac_40MHz MIMO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0,NSS=1	-95	MCS6,NSS=1	-77
	MCS1,NSS=1	-92	MCS7,NSS=1	-75
	MCS2,NSS=1	-90	MCS8,NSS=1	-74
	MCS3,NSS=1	-86	MCS9,NSS=1	-72.5
	MCS4,NSS=1	-83	MCS0,NSS=2	-93
	MCS5,NSS=1	-79	MCS9,NSS=2	-69
802.11ac_80MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0	-90	MCS5	-76
	MCS1	-88	MCS6	-74
	MCS2	-86	MCS7	-72
	MCS3	-83	MCS8	-68
	MCS4	-79	MCS9	-66

802.11ac_80MHz MIMO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	MCS0,NSS=1	-92	MCS6,NSS=1	-76
	MCS1,NSS=1	-90	MCS7,NSS=1	-74
	MCS2,NSS=1	-88	MCS8,NSS=1	-70
	MCS3,NSS=1	-85	MCS9,NSS=1	-68
	MCS4,NSS=1	-81	MCS0,NSS=2	-90
	MCS5,NSS=1	-78	MCS9,NSS=2	-66
802.11ax_20MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	HE0	-95	HE6	-78
	HE1	-93	HE7	-76
	HE2	-90	HE8	-73
	HE3	-87	HE9	-71
	HE4	-84	HE10	-66
	HE5	-80	HE11	-63
802.11ax_40MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	HE0	-93	HE6	-77
	HE1	-91	HE7	-74
	HE2	-89	HE8	-71
	HE3	-86	HE9	-69
	HE4	-83	HE10	-65
	HE5	-79	HE11	-61
802.11ax_80MHz SISO	Data Rate	Spec.(dBm)	Data Rate	Spec.(dBm)
	HE0	-90	HE6	-74
	HE1	-88	HE7	-72
	HE2	-86	HE8	-68
	HE3	-83	HE9	-66
	HE4	-79	HE10	-62
	HE5	-76	HE11	-58
Maximum Input Level	802.11a/n/ac/ax : -30 dBm			

3. Pin Definition

5.1 Pin Outline



5.2 Pin Assignment

NO	Name	Type	Description
1	GND	—	Ground connections
2	GND	—	Ground connections
3	GND	—	Ground connections
4	GND	—	Ground connections
5	GND	—	Ground connections
6	GND	—	Ground connections
7	GND	—	Ground connections
8	GND	—	Ground connections
9	NC	—	No connect; Floating
10	GND	—	Ground connections
11	GND	—	Ground connections
12	GND	—	Ground connections
13	GND	—	Ground connections
14	GND	—	Ground connections
15	GND	—	Ground connections

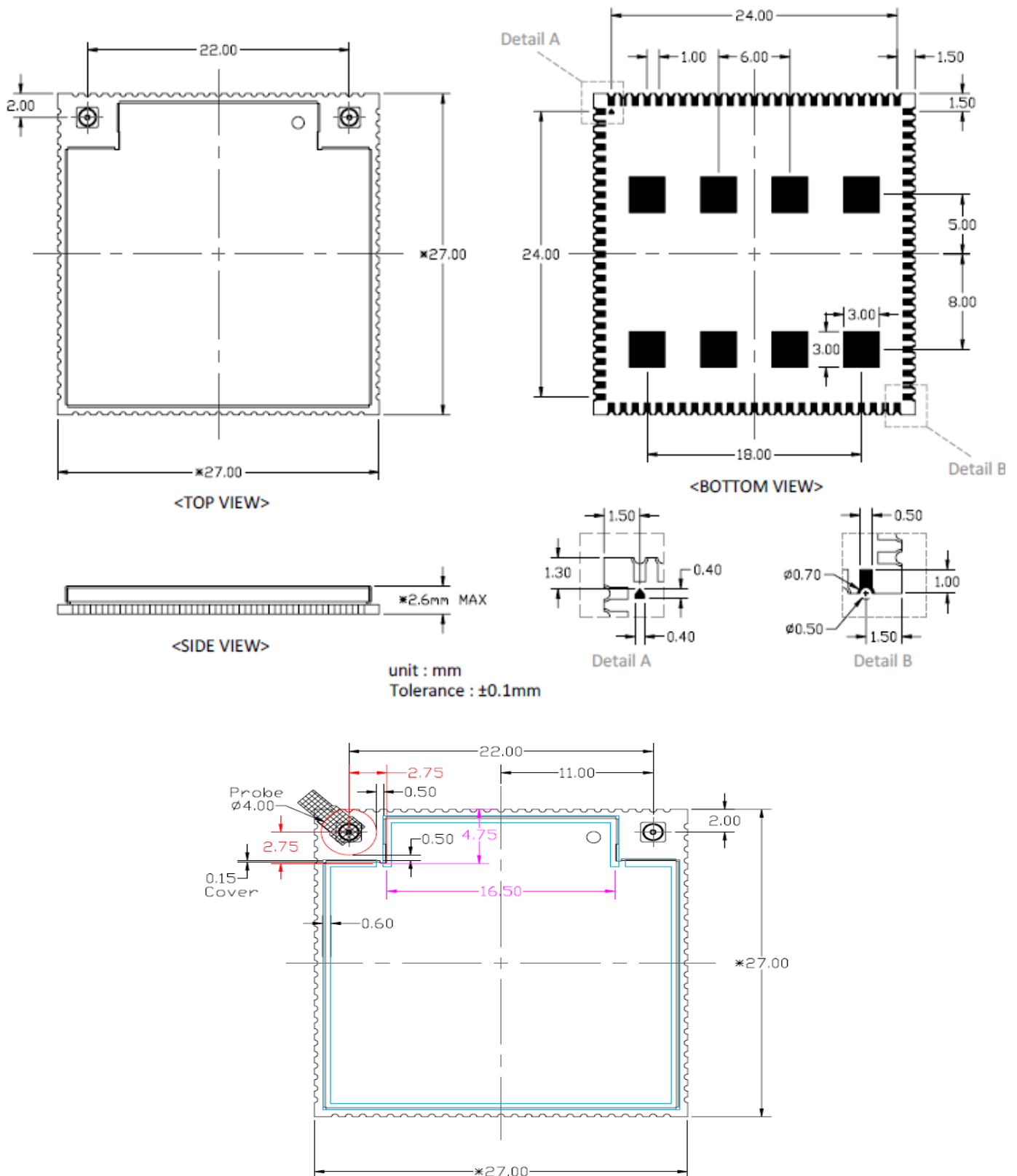
16	GND	—	Ground connections
17	NC	—	No connect; Floating
18	GND	—	Ground connections
19	GND	—	Ground connections
20	GND	—	Ground connections
21	GND	—	Ground connections
22	GND	—	Ground connections
23	GND	—	Ground connections
24	GND	—	Ground connections
25	GND	—	Ground connections
26	GND	—	Ground connections
27	GND	—	Ground connections
28	GND	—	Ground connections
29	WL_GPIO_15	—	Pull Down (10k ohm)
30	WL_GPIO_3	I/O	WL_GPIO_3(WLAN GPIO default NC)
31	GND	—	Ground connections
32	VBATFEM_C0	P	CORE0 FEM power voltage source input
33	VBATFEM_C0	P	CORE0 FEM power voltage source input
34	GND	—	Ground connections
35	VBATFEM_C1	P	CORE1 FEM power voltage source input
36	VBATFEM_C1	P	CORE1 FEM power voltage source input
37	GND	—	Ground connections
38	GND	—	Ground connections
39	VDDIO	P	I/O 1.8 Voltage supply input
40	GND	—	Ground connections
41	GND	—	Ground connections
42	GND	—	Ground connections
43	GND	—	Ground connections
44	GND	—	Ground connections
45	GND	—	Ground connections
46	VBAT	P	VBAT power voltage source input
47	VBAT	P	VBAT power voltage source input
48	GND	—	Ground connections
49	NC	—	No connect; Floating
50	WL_REG_ON	I	Low asserting reset for WiFi core
51	NC	—	No connect; Floating
52	GND	—	Ground connections
53	NC	—	No connect; Floating

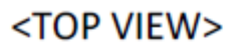
54	NC	—	No connect; Floating
55	NC	—	No connect; Floating
56	NC	—	No connect; Floating
57	NC	—	No connect; Floating
58	GND	—	Ground connections
59	GND	—	Ground connections
60	GND	—	Ground connections
61	PCIE_RCLK_N	I	PCI Express differential clock input-Negative
62	PCIE_RCLK_P	I	PCI Express differential clock input-Positive
63	GND	—	Ground connections
64	PCIE_RDP	I	PCI Express receive data-Positive
65	PCIE_RDN	I	PCI Express receive data-Negative
66	GND	—	Ground connections
67	PCIE_TDN	O	PCI Express transmit data-Negative
68	PCIE_TDP	O	PCI Express transmit data-Positive
69	GND	—	Ground connections
70	PCIE_PME_L	OD	PCIe power management event output
71	PCIE_CLKREQ_L	OD	PCIe clock request
72	PCIE_PREST_L	I	PCIe host indication to reset the device
73	GND	—	Ground connections
74	NC	—	No connect; Floating
75	NC	—	No connect; Floating
76	NC	—	No connect; Floating
77	NC	—	No connect; Floating
78	GND	—	Ground connections
79	LPO_IN	I	External Low Power Clock input (32.768KHz)
80	GND	—	Ground connections
81	GND	—	Ground connections
82	NC	—	No connect; Floating
83	GND	—	Ground connections
84	NC	—	No connect; Floating
85	NC	—	No connect; Floating
86	NC	—	No connect; Floating
87	NC	—	No connect; Floating
88	NC	—	No connect; Floating
89	NC	—	No connect; Floating
90	WL_GPIO_5	I/O	WL_GPIO_5(WLAN GPIO default NC)
91	WL_GPIO_11	I/O	WL_GPIO_11(DBG UART Tx)

92	WL_GPIO_10	I/O	WL_GPIO_10(DBG UART Rx)
93	WL_GPIO_0	I/O	WL_GPIO_0(WL_HOST_WAKE)
94	LHL_GPIO1	I/O	LHL_GPIO1(GPIO default NC)
95	WL_GPIO_1	I/O	WL_GPIO_1(WLAN GPIO default NC)
96	WL_GPIO_8	I/O	WL_GPIO_8(WLAN GPIO default NC)
97	WL_GPIO_9	I/O	WL_GPIO_9(WLAN GPIO default NC)
98	GND	—	Ground connections
99	GND	—	Ground connections
100	GND	—	Ground connections
101	GND	—	Ground connections
102	GND	—	Ground connections
103	GND	—	Ground connections
104	GND	—	Ground connections
105	GND	—	Ground connections
106	GND	—	Ground connections
107	GND	—	Ground connections
108	GND	—	Ground connections

4. Dimensions

6.1 Module Dimensions





- (錫膏層設計通常建議和焊墊尺寸相同)

5. External clock reference

External LPO signal characteristics

Parameter	Specification	Units
Nominal input frequency	32.768	kHz
Frequency accuracy	+/-25	ppm
Duty cycle	30 - 70	%
Input signal amplitude	1.8±0.09	V
Signal type	Square-wave or sine-wave	-
Input impedance	>100k	Ω
	<5	pF
Clock jitter (integrated over 300Hz – 15KHz)	<1	Hz
Output high voltage	0.7V _{io} - V _{io}	V

6. Host Interface Timing Diagram

8.1 Reset and Startup Control Signal Sequencing

The AP6676PHH has signals that allow the host to control power consumption by enabling or disabling the WLAN, and internal regulator blocks. These signals are described below. Additionally, diagrams are provided to indicate proper sequencing of the signals for various operational states. The timing values indicated are minimum required values; longer delays are also acceptable.

- **WL_REG_ON**: This signal is used by the PMU to power up the WLAN section. When this pin is high, the regulators are enabled and the WLAN section is out of reset. When this pin is low, the WLAN section is in reset. If WL_REG_ON are both low, the regulators are disabled. This pin has an internal 50kΩ pull-down resistor.

NOTE: The VBAT and VDDIO 10% – 90% rise time slopes must be greater than 50 $\mu\text{s}/\text{V}$.

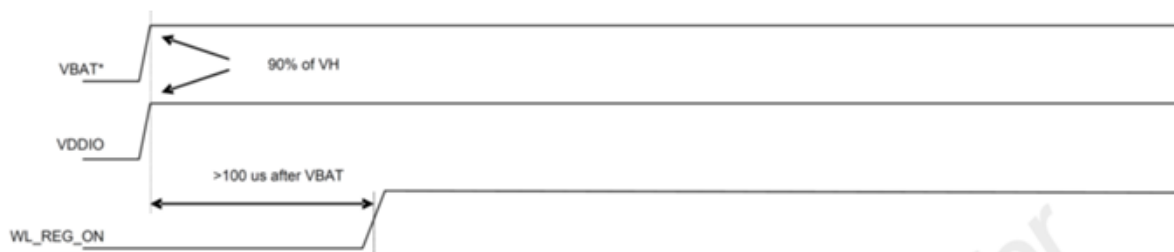
NOTE:. The module main chip has an internal power-on reset (POR) circuit. The device will be held in reset for a maximum of 110 ms after VDDC and VDDIO have both passed the POR threshold. Wait at least 150 ms after VDDC and VDDIO are available before initiating PCIe accesses.



***Notes:**

1. The VBAT and VDDIO 10%–90% rise-time slopes must be greater than 50 microseconds/V.
2. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high.

WLAN=OFF



***Notes:**

1. The VBAT and VDDIO 10%–90% rise-time slopes must be greater than 50 microseconds/V.
2. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high.

WLAN=ON

8.2 PCIe Interface Description

The PCI Express(Pcie) core on the AP6676PHH is a high-performance serial I/O interconnect that is protocol compliant and electrically compatible with the PCI Express Base Specification v3.0 running at Gen1 speeds.

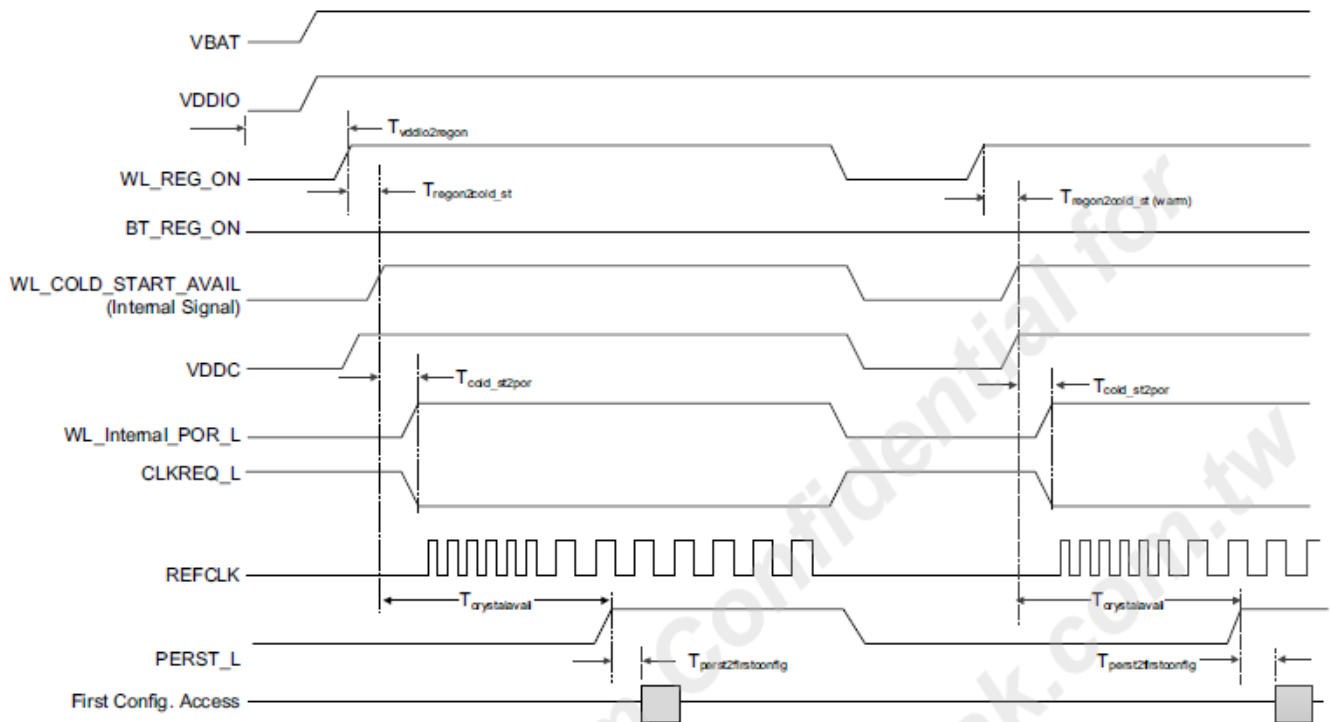
PCI Express Interface Parameters

Parameter	Symbol	Comments	Min.	Typ.	Max.	Unit
General^a						
Baud rate	BPS	—	—	5	—	Gbaud
Reference clock peak-to-peak differential ^b	Vref	LVPECL, AC coupled	0.95	—	—	V
Receiver						
Differential termination	ZRX-DIFF-DC	Differential termination	80	100	120	Ω
DC impedance	ZRX-DC	DC common-mode impedance	40	50	60	Ω
Powered down termination (POS)	ZRX-HIGH-IMP-DC-POS	Power-down or RESET high impedance	100k	—	—	Ω
Powered down termination (NEG)	ZRX-HIGH-IMP-DC-NEG	Power-down or RESET high impedance	1k	—	—	Ω
Input voltage	VRX-DIFFp-p	AC coupled, differential p-p	175	—	—	mV
Jitter tolerance	TRX-EYE	Minimum receiver eye width	0.4	—	—	UI
Differential return loss	RLRX-DIFF	Differential return loss	10	—	—	dB
Common-mode return loss	RLRX-CM	Common-mode return loss	6	—	—	dB
Unexpected electrical idle enter detect threshold integration time	TRX-IDEL-DET-DIFF-ENTERTIME	An unexpected electrical idle must be recognized no longer than this time to signal an unexpected idle condition.	—	—	10	ms
Signal detect threshold	VRX-IDLE-DET-DIFFp-p	Electrical idle detect threshold	65	—	175	mV
Transmitter						
Output voltage	VTX-DIFFp-p	Differential p-p, programmable in 16 steps	0.8	—	1200	mV
Output voltage rise time	VTX-RISE	20% to 80%	0.125 (2.5 GT/s) 0.15 (5 GT/s)	—	—	UI
Output voltage fall time	VTX-FALL	80% to 20%	0.125 (2.5 GT/s) 0.15 (5 GT/s)	—	—	UI
RX detection voltage swing	VTX-RCV-DETECT	The amount of voltage change allowed during receiver detection.	—	—	600	mV

PCI Express Interface Parameters (Continued)

Parameter	Symbol	Comments	Min.	Typ.	Max.	Unit
TX AC peak common-mode voltage (5 GT/s)	VTX-CM-AC-PP	TX AC common mode voltage (5 GT/s)	—	—	100	mV
TX AC peak common-mode voltage (2.5 GT/s)	VTX-CM-AC-P	TX AC common mode voltage (2.5 GT/s)	—	—	20	mV
Absolute delta of DC common-mode voltage during L0 and electrical idle	VTX-CM-DC-ACTIVE-IDLE-DELTA	Absolute delta of DC common-mode voltage during L0 and electrical idle.	0	—	100	mV
Absolute delta of DC common-mode voltage between D+ and D-	VTX-CM-DC-LINE-DELTA	DC offset between D+ and D-	0	—	25	mV
Electrical idle differential peak output voltage	VTX-IDLE-DIFF-AC-p	Peak-to-peak voltage	0	—	20	mV
TX short circuit current	ITX-SHORT	Current limit when TX output is shorted to ground.	—	—	90	mA
DC differential TX termination	ZTX-DIFF-DC	Low impedance defined during signaling (parameter is captured for 5.0 GHz by RLTX-DIFF)	80	—	120	Ω
Differential return loss	RLTX-DIFF	Differential return loss	10 (min) for 0.05: 1.25 GHz	—	—	dB
Common-mode return loss	RLTX-CM	Common-mode return loss	6	—	—	dB
TX eye width	TTX-EYE	Minimum TX eye width	0.75	—	—	UI

PCIe Power-On Timing



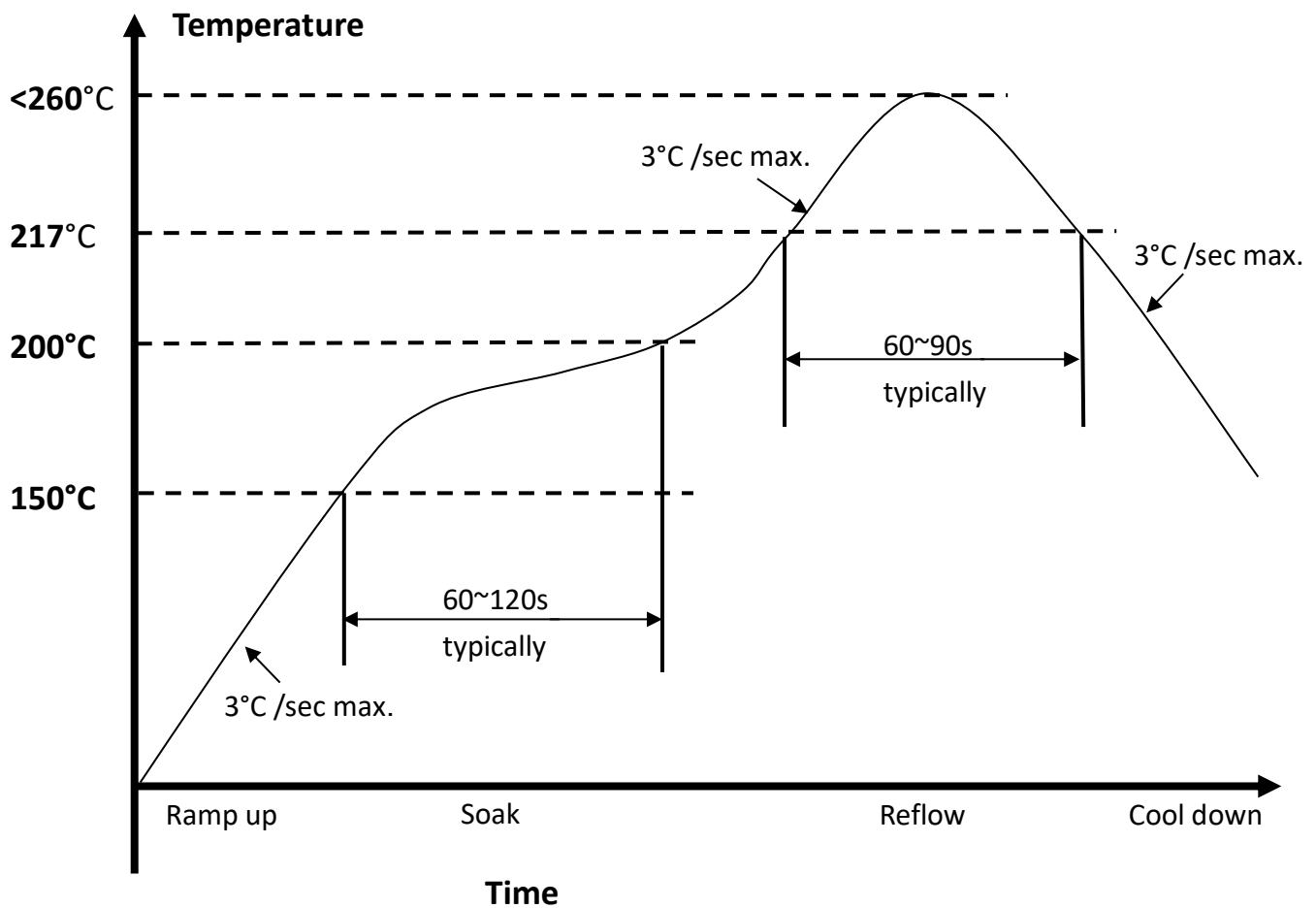
Timing Parameter	Notes	Value ^a	Unit
$T_{vddio2regon}$	—	0.1	ms
$T_{region2cold_st}$	3.4 ms + 162 instruction-level parallelism (ILP) cycles	10.13	ms
T_{cold_st2por}	54 ILP cycles	2.24	ms
$T_{crystalavail}$	509 ILP cycles	21.17	ms
$T_{perst2firstconfig}$	—	6.0	ms
$T_{vddio2firstconfig}$	$T_{vddio2regon} + T_{region2cold_st} + T_{crystalavail} + T_{perst2firstconfig}$	37.4 ^b	ms
$T_{region2cold_st (warm)}$	162 ILP cycles	6.73	ms

a. The time values assume an ILP tolerance of $\pm 30\%$.

b. With VDDIO as a reference, 37.4 ms is the minimum system wait time before issuing the first configuration access.

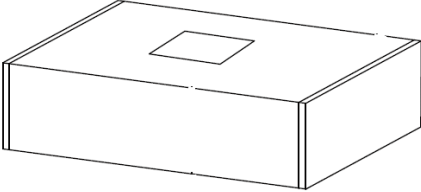
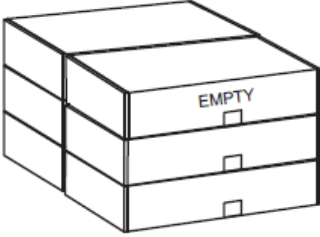


7. Recommended Reflow Profile



1. Referred to IPC/JEDEC standard
2. Peak Temperature : <260°C
3. Cycle of Reflow : 2 times max.
4. Adding Nitrogen (N₂) to implement 2000ppm or less of oxygen concentration during reflow process is recommended.
5. If the shelf time is exceeded, be sure baking step to remove the moisture from the component

8. Package Information

Items	Photo	Description
1		IC Tray (Schematic diagram)
2		Inner box (Box) Quantity:50pcs/box
3	(1T)PKG S/N: XPKGYMMDDnnnnn PO: NA (P)Model Name: XXXXXXXXXXX (XXXX) (1P)P/N: XXX-XXX-XXXXR 51P P/N: XXX-XXX-XXXXR (L)Lot Code: XXXXXXXX (D)Date Code: YYYY/YY (Q)Quantity: QQQQ Product size: 40x44.2mm MSL:NA Made in XXXXXX RoHS H/F 	Inner box (Box) label The label content includes barcode
4		6 inner boxes per outer box (Carton) Quantity: 300pcs/outer box (Carton)
5		Outer box (Carton) Quantity: 300pcs/outer box (Carton)

6	AMPAK Technology Inc. (1T)Carton No.: XXXYYMMDDXXXXXX PO: XXXXXXXXXX (P)Model Name: XXXXXXXXXX (XXXX) (1P)P/N: XXX-XXX-XXXXR 51P P/N: XXX-XXX-XXXXR (LD)Lot D/C: XPKGYMMDDnnnnn XXXXXXX YYWW QQQQ XPKGYMMDDnnnnn XXXXXXX YYWW QQQQ XPKGYMMDDnnnnn XXXXXXX YYWW QQQQ XPKGYMMDDnnnnn XXXXXXX YYWW QQQQ (Q)Quantity: QQQQ Manufacture: YYYY/MM/DD Product size: 40x44.2mm MSL:NA Made in XXXXX RoHS H/F	Outer box (Carton) label The label content includes barcode
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