

AD3216 Series

Multilayer Chip Antenna

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.
- ❖ Wide bandwidth
- ❖ HF & RoHS compliant

Applications

2.4 / 6.1GHz wireless communication system



Specifications

Part Number	Frequency Range (MHz)	Peak Gain (dBi typ.)	Average Gain (dBi typ.)	VSWR	Impedance
AD3216 -A2461QA	2400~2500	1.9 (YZ-Total)	-1.2 (YZ-Total)	3.0 max.@25 °C 4.0 max.@105 °C	50
	4900~5850	1.1 (YZ-Total)	-2.0 (YZ-Total)	3.5 max.@25 °C 4.0 max.@105 °C	50
	5850~7200	3.0 (XZ-Total)	-1.1 (XZ-Total)	3.5 max.@25 °C 4.0 max.@105 °C	50

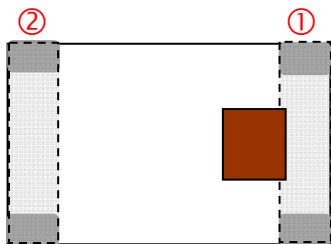
Q'ty/Reel (pcs) : 3,000pcs
 Operating Temperature Range : -40 ~ +105 °C
 Storage Temperature Range : -40 ~ +85 °C
 Storage Period : 12 months max.
 Power Capacity : 1W max.

Part Number

AD 3216 - A 2461 QA □ /LF
 ① ② ③ ④ ⑤ ⑥ ⑦

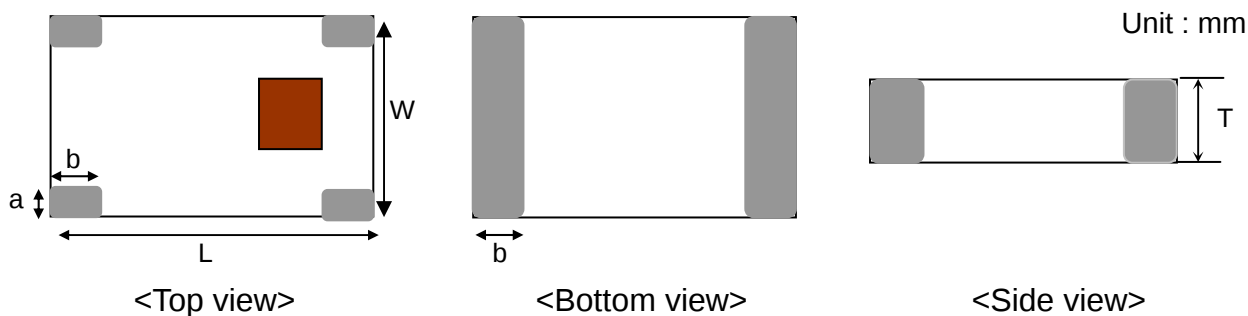
① Type	AD : Dual-band Antenna	② Dimensions (L × W)	3.2× 1.6 mm
③ Material Code	A	④ Frequency Range	2461=2400/6100MHz
⑤ Specification Code	QA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

Terminal Configuration



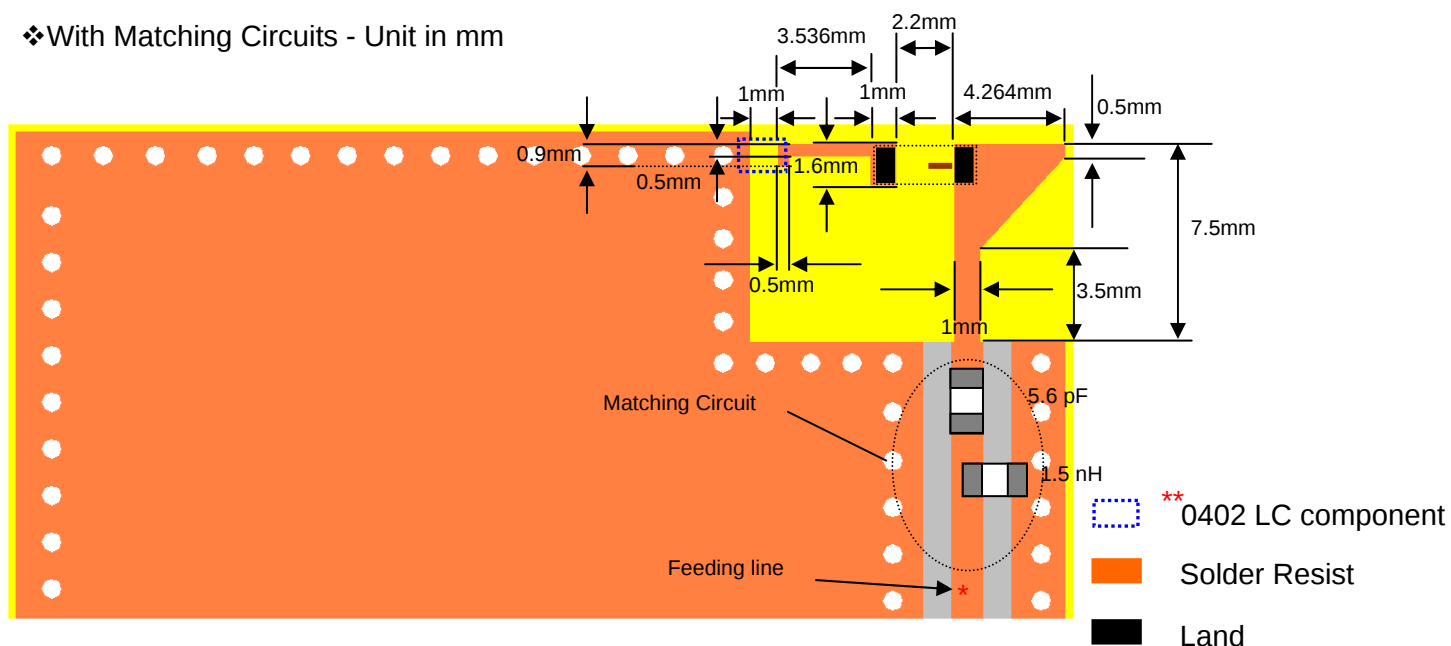
No.	Terminal Name	No.	Terminal Name
①	Feeding Point	②	NC

Dimensions and Recommended PC Board Pattern



Mark	L	W	T	a	b
Dimensions	3.2±0.2	1.6±0.2	0.5±0.1	0.3+0.1 /-0.2	0.5±0.1

❖ With Matching Circuits - Unit in mm

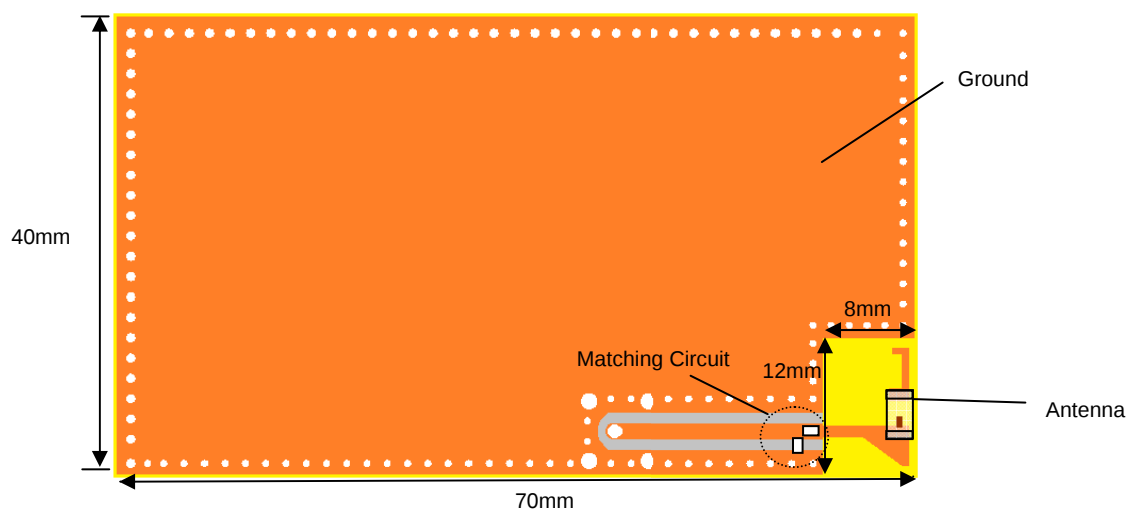


* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

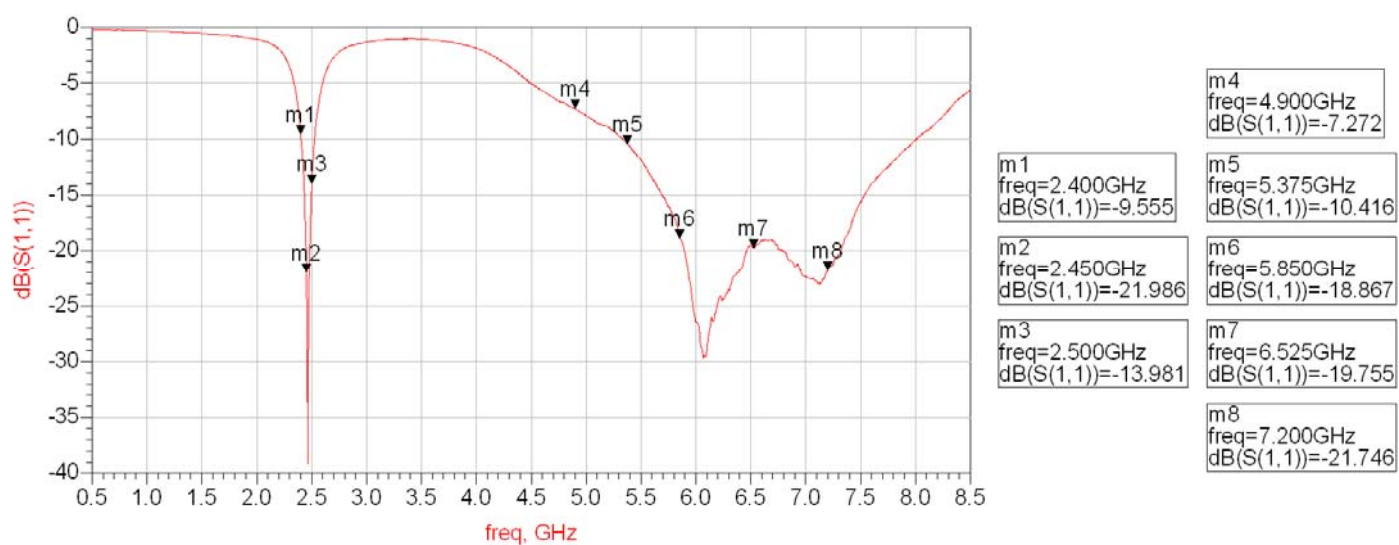
** The 0402 LC component can be used to adjust the low-band frequency.

Typical Electrical Characteristics (T=25°C)

❖ Test Board

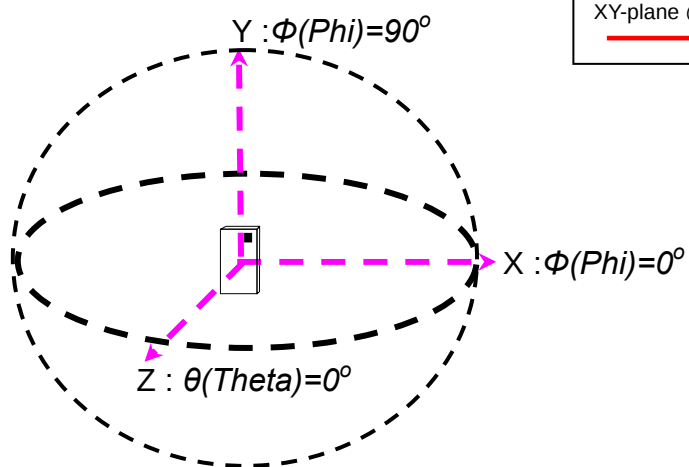


❖ Return Loss

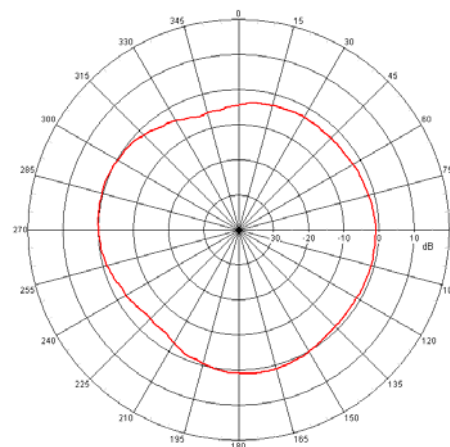


❖ Radiation Patterns @2450 MHz

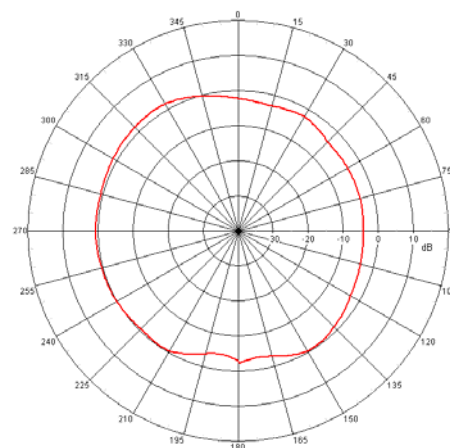
(Antenna Efficiency: 2400 / 2450 / 2500MHz: 63 / 73 / 66%)



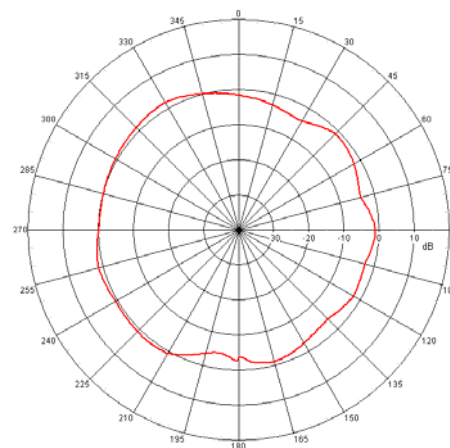
XY-plane @ 2450MHz
Total



XZ-plane @ 2450MHz
Total

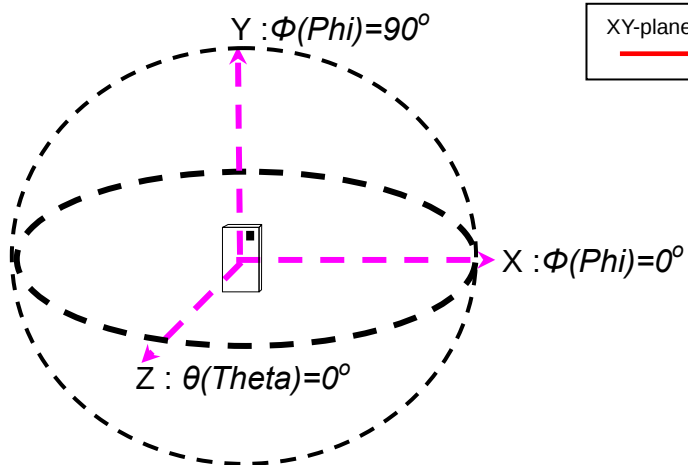


YZ-plane @ 2450MHz
Total

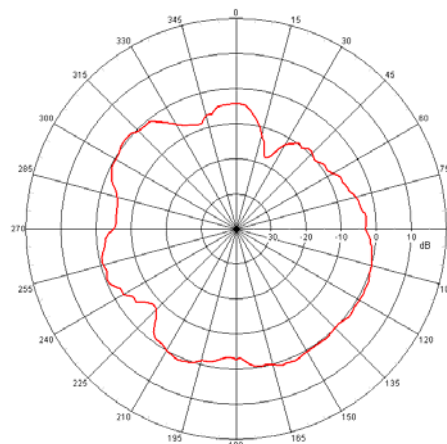


❖ Radiation Patterns @ 5375MHz

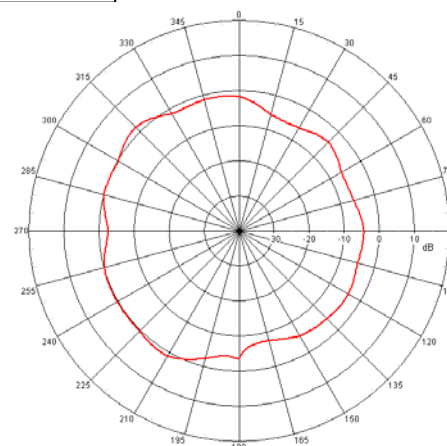
(Antenna Efficiency: 4900 / 5375 / 5850MHz: 61 / 69 / 85%)



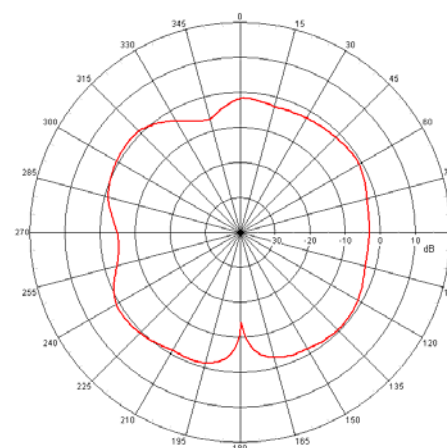
XY-plane @ 5375MHz
— Total



XZ-plane @ 5375MHz
— Total

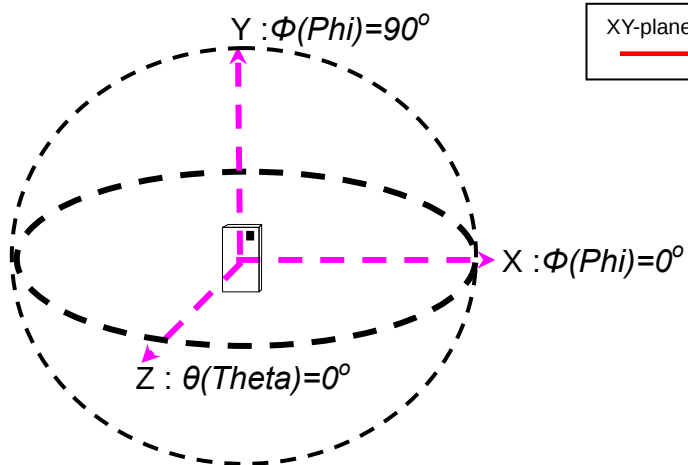


YZ-plane @ 5375MHz
— Total

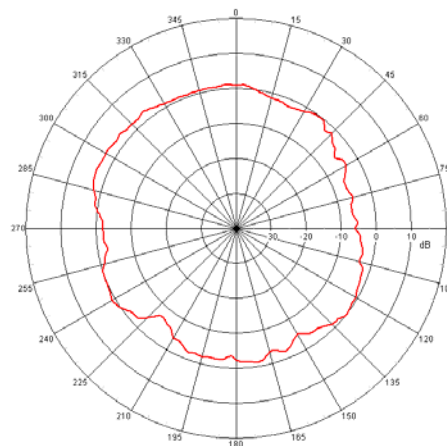


❖ Radiation Patterns @ 6525MHz

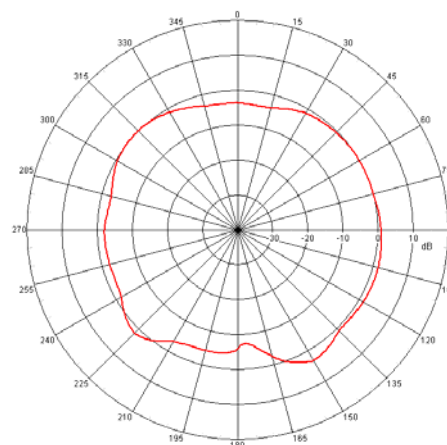
(Antenna Efficiency: 5850 / 6525 / 7200MHz: 85 / 83 / 73%)



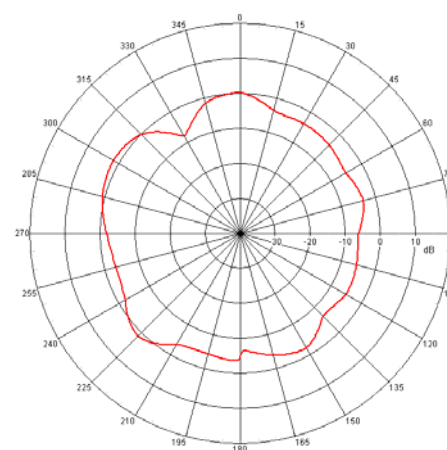
XY-plane @ 6525MHz
— Total



XZ-plane @ 6525MHz
— Total

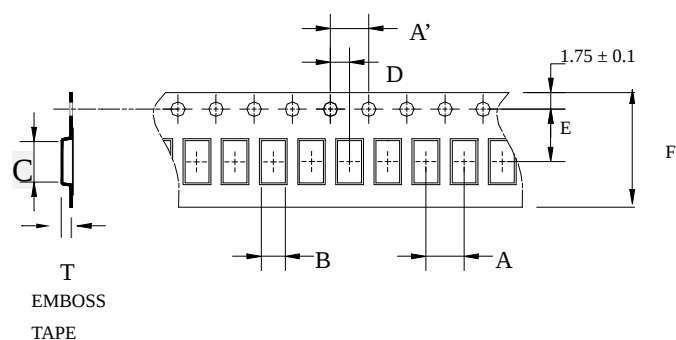


YZ-plane @ 6525MHz
— Total



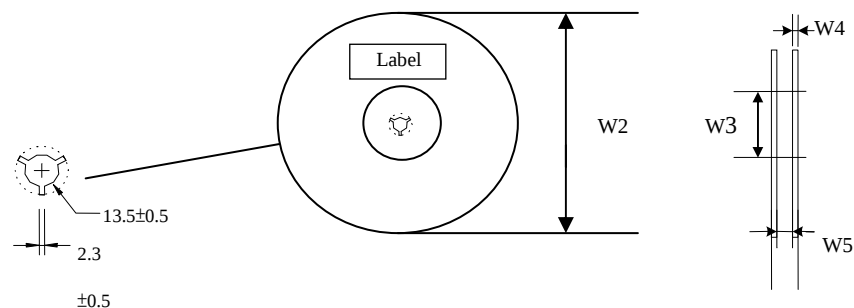
Taping Specifications

❖Tape & Reel Dimensions (Unit: mm) vs. Quantity (pcs)



Type	A	A'	B	C	D	E	F	T	Quantity/per reel	Tape material
3216	4.00± 0.10	4.00± 0.10	1.85± 0.10	3.50± 0.10	2.00± 0.05	3.50± 0.10	8.00± 0.10	0.57± 0.10	3,000pcs	Plastic (Embossed)

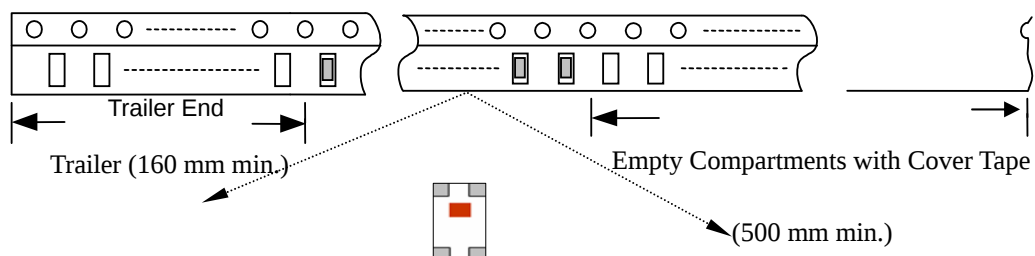
❖Reel Dimensions (Unit: mm)



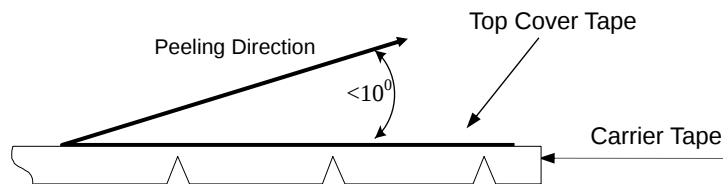
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	W2	W3	W4	W5
3216	178±1	60±1	1.4±0.2	17±0.5

❖Leader and Trailer Tape



❖Peel-off Force



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300 ± 10 mm/min .

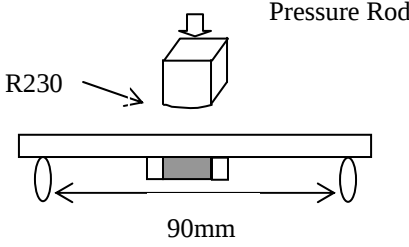
❖Storage Conditions

- (1) Temperature: 5 ~35°C , relative humidity (RH): 45~75%.
- (2) Non-corrosive environment

Notes

❖The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

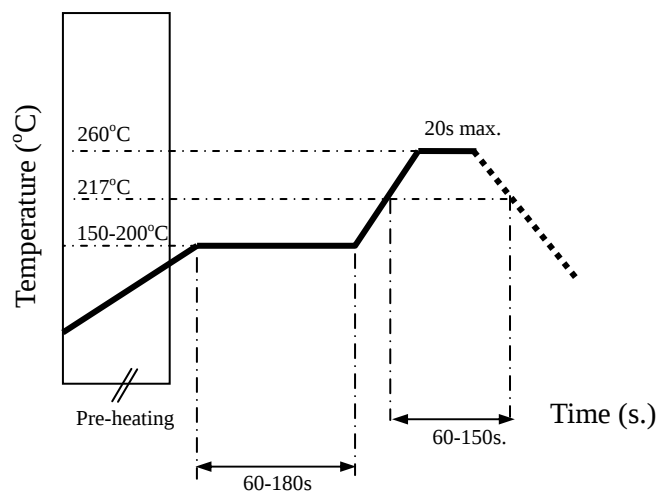
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	- No apparent damage - More than 95% of the terminal electrode shall be covered with new solder	- Preheat: $120 \pm 5^{\circ}\text{C}$ - Solder: $245 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	10N minimum	- Solder specimen onto test jig. - Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction.
Deflection (Substrate Bending)	No apparent damage	- Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile. - Apply a bending force of 2mm deflection 
Heat/Humidity Resistance	- No apparent damage - Fulfill the electrical specification after test	- Temperature: $85 \pm 2^{\circ}\text{C}$ - Humidity: 90% ~ 95% RH - Duration: 1000 ± 48hrs - Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	- No apparent damage - Fulfill the electrical specification after test	- One cycle/step 1 : $125 \pm 5^{\circ}\text{C}$ for 30 min step 2 : $-40 \pm 5^{\circ}\text{C}$ for 30 min - No of cycles : 100 - Recovery: 1-2 hrs
Low Temperature Resistance	- No apparent damage - Fulfill the electrical specification after test	- Temperature: $-40 \pm 5^{\circ}\text{C}$ - Duration: 500 ± 24hrs - Recovery: 1-2hrs

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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