

DM3030 Series

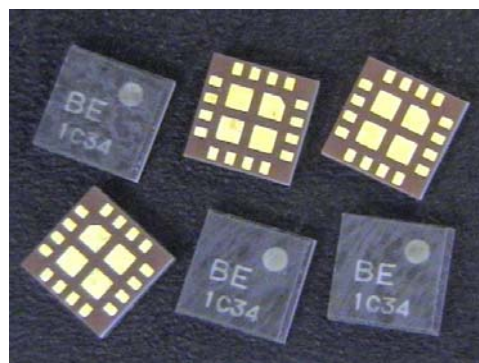
Multilayer Chip Diplexer Module

Features

- ❖ Combined function of Tx/Rx switch, and two diplexers
- ❖ Small, low profile SMD
- ❖ RoHS compliant

Applications

- ❖ WLAN a/b/g Modules



Part Number

DM 3030 - W 2455 BE □
 ① ② ③ ④ ⑤ ⑥

① Type	DM : Diplexer Module	② Dimensions (L x W)	3.0 x 3.0 mm
③ Material Code	W	④ Frequency Range	2455=2400MHz /5500MHz
⑤ Specification Code	BE	⑥ Packaging	T: Tape & Reel B: Bulk

Electrical Specifications

<Transmit / Receive – 802.11b/g>

Tx mode	Frequency Range (MHz)	fo	2400~2500MHz
	Insertion Loss (dB)	TxG - ANT	1.5 max.
	Attenuation (dB)	TxG - ANT	48.0 min. @ 2 x fo MHz
			30.0 min. @ 3 x fo MHz
	Return Loss (dB)	TxG & ANT	14.0 min.
	Isolation (dB)	RxA - TxG	38.0 min. @ 4.8 ~ 5.0GHz
			32.0 min. @ 7.2 ~ 7.5GHz
		TxA - TxG	20.0 min. @ 4.8 ~ 5.0GHz
			20.0 min. @ 7.2 ~ 7.5GHz
		RxG - TxG	20.0 min. @ 4.8 ~ 5.0GHz
20.0 min. @ 7.2 ~ 7.5GHz			
RxG - TxG	20.0 min. @ 2.4 ~ 2.5GHz		
ANT - RxG	19.0 min. @ 2.4 ~ 2.5GHz		
Rx mode	Frequency Range (MHz)	fo	2400~2500MHz
	Insertion Loss (dB)	ANT - RxG	1.5 max.
	Return Loss (dB)	RxG & ANT	11.0 min.

<Transmit / Receive – 802.11a>

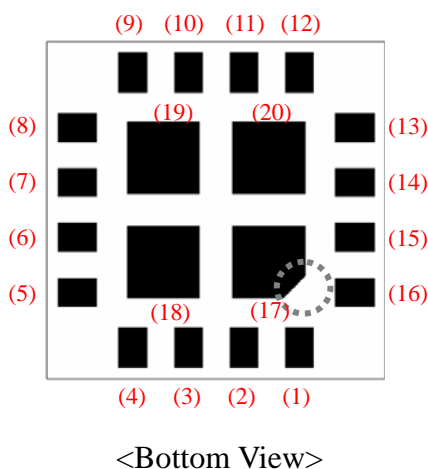
Tx mode	Frequency Range (MHz)	fo	4900~5875MHz
	Insertion Loss (dB)	TxA - ANT	2.0 max.
	Attenuation (dB)	TxA - ANT	20.0 min. @ 2 × fo MHz
			15.0 min. @ 3 × fo MHz
	Return Loss (dB)	TxA & ANT	10.0 min.
	Isolation (dB)	RxG - TxA	40.0 min. @ 2.4 ~ 2.5GHz
		TxG - TxA	20.0 min. @ 2.4 ~ 2.5GHz
RxA - TxA		20.0 min. @ 2.4 ~ 2.5GHz	
RxA - TxA		16.0 min. @ 4.9 ~ 5.875GHz	
ANT - RxA		16.0 min. @ 4.9 ~ 5.875GHz	
Rx mode	Frequency Range (MHz)	fo	4900~5875MHz
	Insertion Loss (dB)	ANT - RxA	2.0 max.
	Return Loss (dB)	RxA & ANT	11.0 min.

Operating Temperature Range : -30 ~ +85 °C
 Storage Temperature Range : +5 ~ +35 °C, Humidity 45~75%RH
 Storage Period : 6 months max.
 Q'ty/Reel (pcs) : 2,000

<Control voltage application>

Mode	VRx	VTx
TxG or TxA Active	0~0.3 V	3.0~3.6 V
RxG or RxA Active	3.0~3.6 V	0~0.3 V

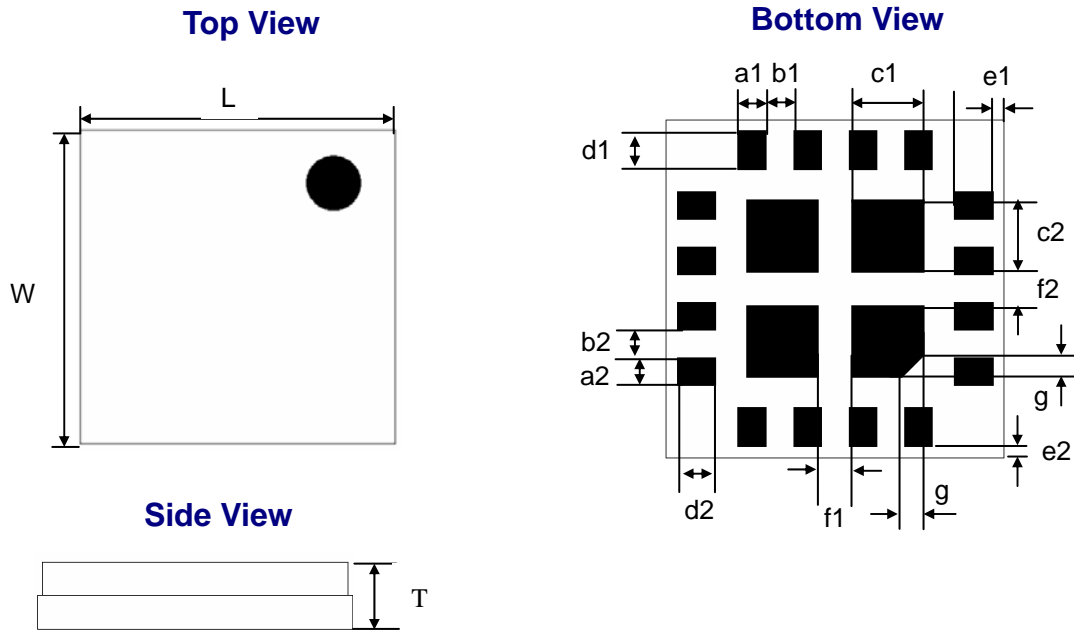
Terminal Configuration



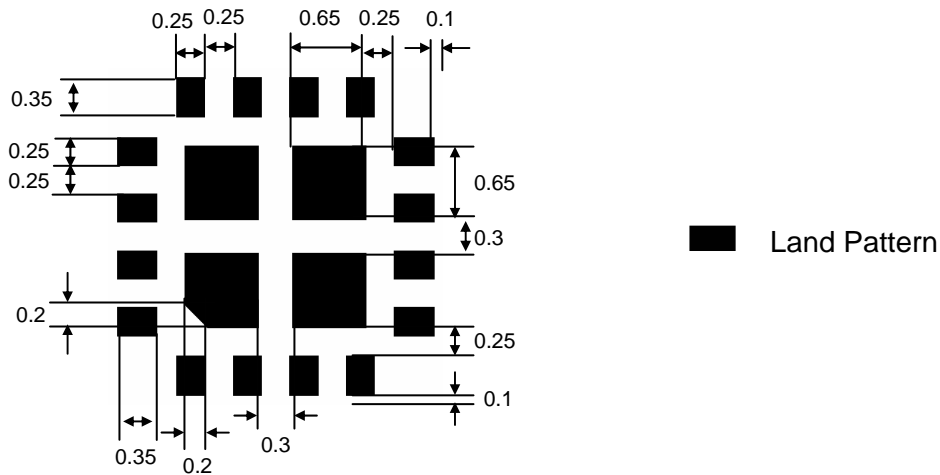
No.	Terminal Name	No.	Terminal Name
(1)	GND	(11)	GND
(2)	RxG	(12)	GND
(3)	RxA	(13)	VRx
(4)	GND	(14)	GND
(5)	TxA	(15)	GND
(6)	GND	(16)	TxG
(7)	GND	(17)	GND
(8)	VTx	(18)	GND
(9)	GND	(19)	GND
(10)	ANT	(20)	GND

Dimensions and Recommended PC Board Pattern

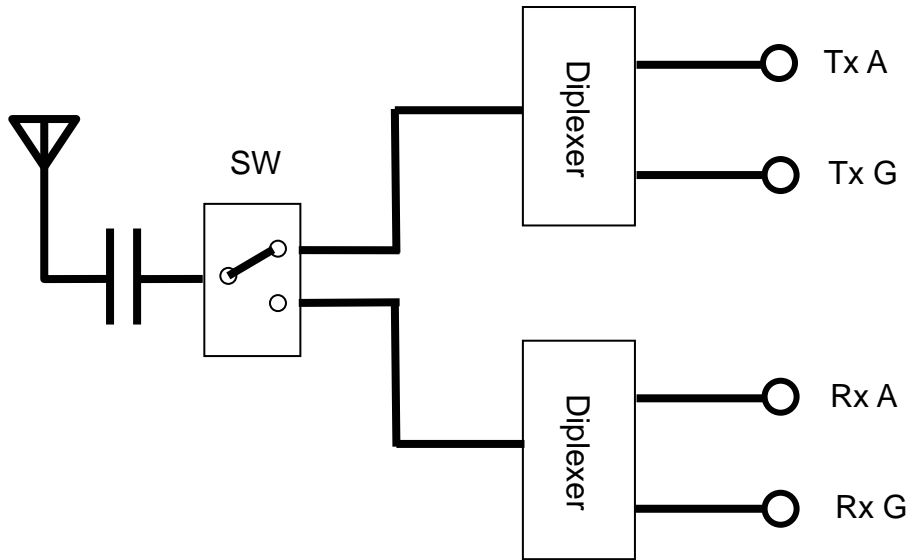
Unit : mm



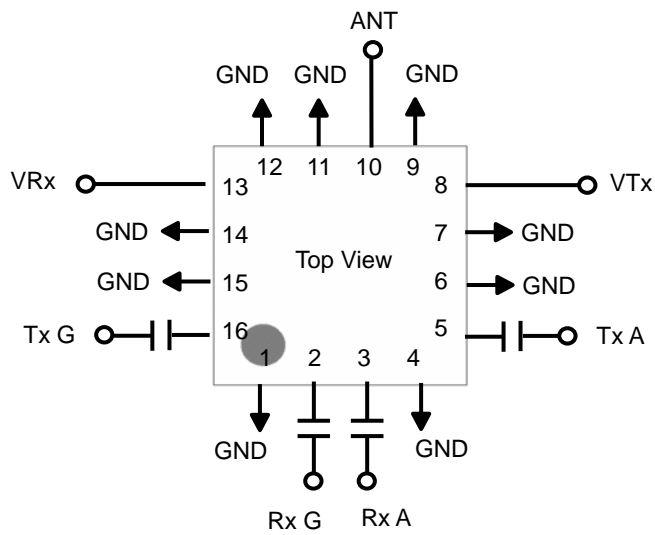
Mark	Dimensions	Mark	Dimensions
L	3.0 ± 0.2	c2	0.65 ± 0.1
W	3.0 ± 0.2	d1	0.35 ± 0.1
T	1.1 max.	d2	0.35 ± 0.1
a1	0.25 ± 0.1	e1	$0.1 + 0.2 / -0.1$
a2	0.25 ± 0.1	e2	$0.1 + 0.2 / -0.1$
b1	0.25 ± 0.1	f1	0.3 ± 0.1
b2	0.25 ± 0.1	f2	0.3 ± 0.1
c1	0.65 ± 0.1	g	0.2 typ.



Circuit Block



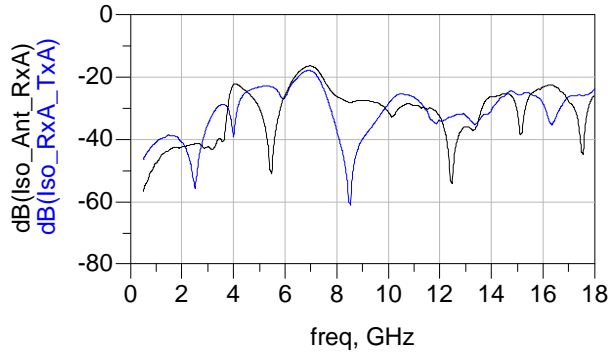
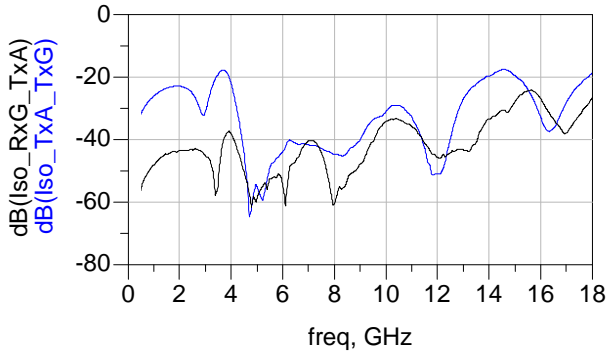
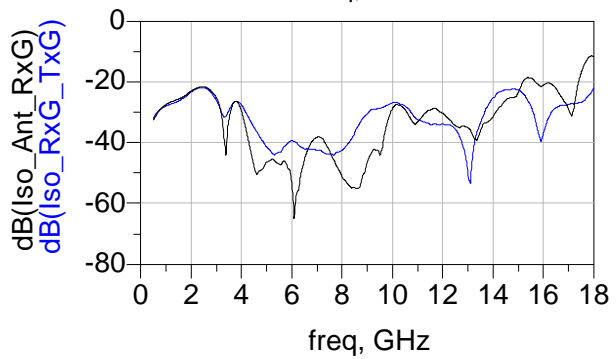
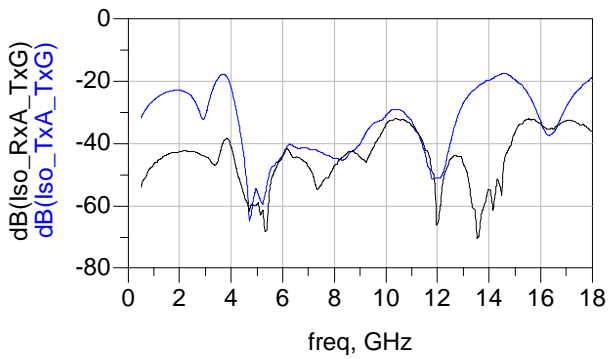
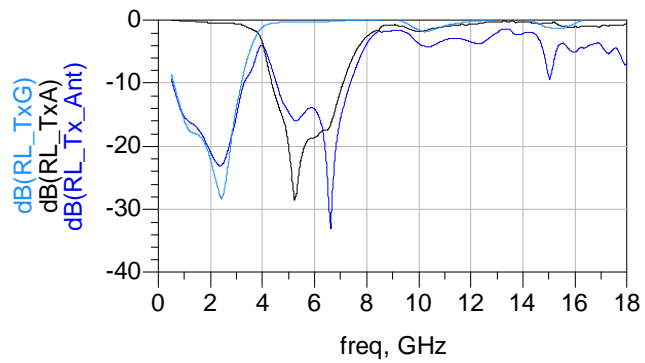
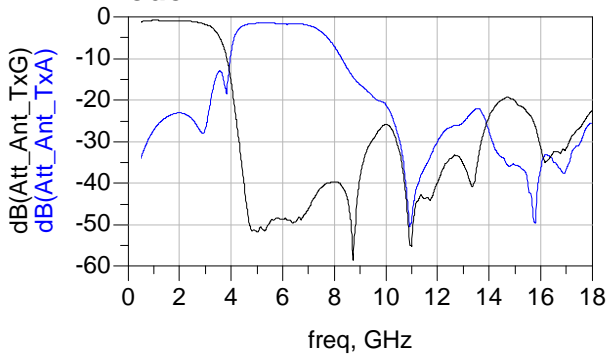
Measuring Diagram



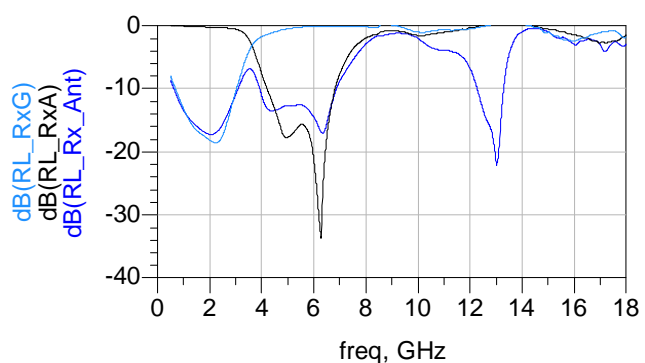
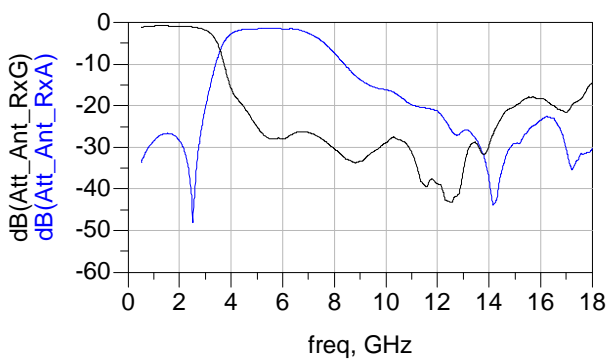
* DC-Blocking capacitance: 15pF

Typical Electrical Characteristics (T=25°C)

Tx Mode



Rx Mode

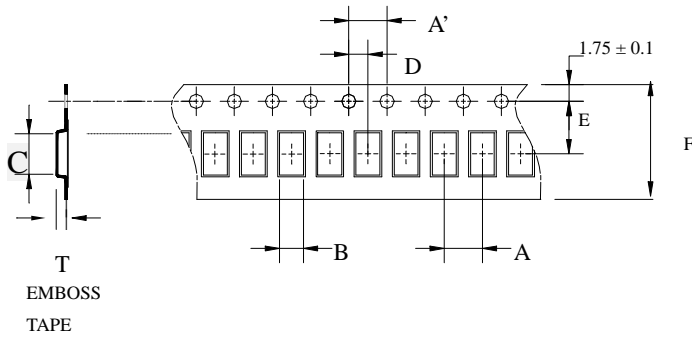


Notes

- ❖ The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.
- ❖ Products should be properly treated at all situations from ESD potential resulting from human, equipments or other possible ESD sources.

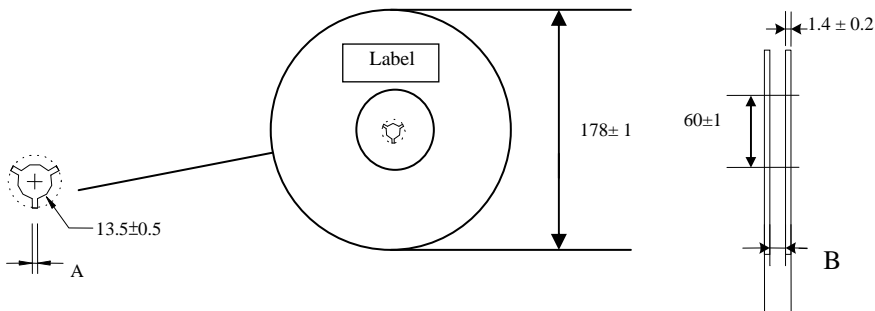
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



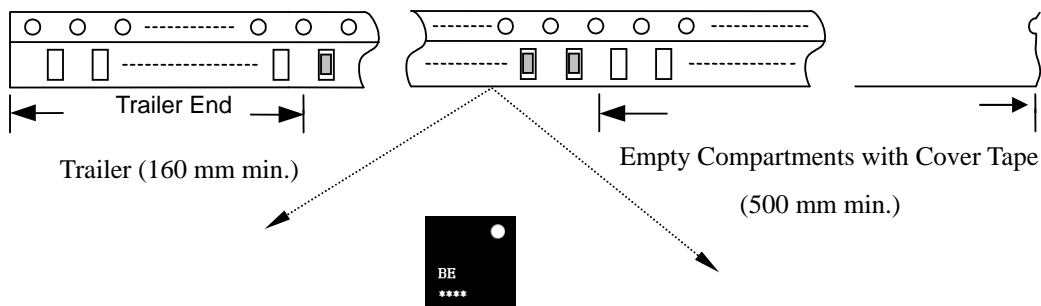
Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
3030	4.0±	4.0±	3.35±	3.35±	2.0±	3.5±	8.0±	1.30±	2,000pcs	Plastic (Embossed)
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.10		

❖Reel Dimensions (Unit: mm)

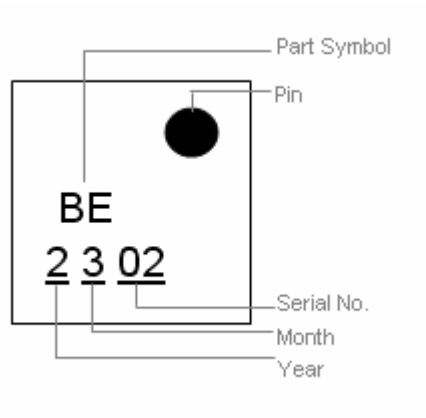


Type	A	B
3030	2.3±0.5	9.0±0.3

❖Leader and Trailer Tape



❖ **Marking**



❖ **Product lot code**

Year :

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Code	1	2	3	4	5	6	7	8	9	0

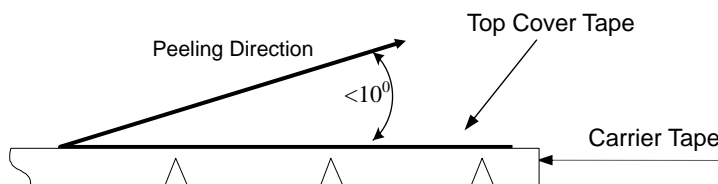
Month :

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Code	1	2	3	4	5	6	7	8	9	A	B	C

Serial No. :

from 01~99.

❖ **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 .

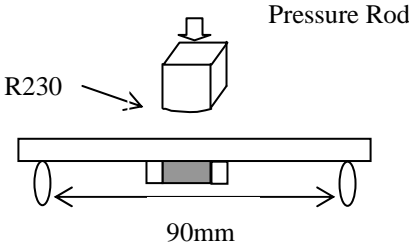
❖ **Storage Conditions**

- (1) Temperature: 15 ~35°C , relative humidity (RH): 45~75%.
- (2) Non-corrosive environment.
- (3) Products should be properly treated at all situations from ESD potential resulting from human, equipments or other possible ESD sources.

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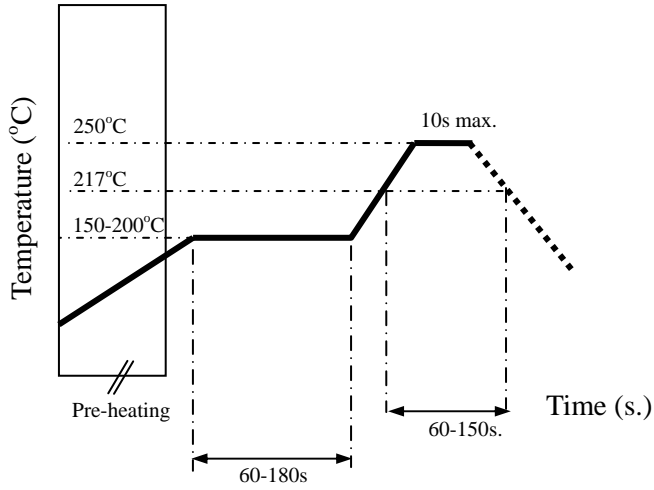
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	<ol style="list-style-type: none"> No apparent damage More than 95% of the terminal electrode shall be covered with new solder 	<ol style="list-style-type: none"> Preheat: $120 \pm 5^{\circ}\text{C}$ Solder: $245 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	<ol style="list-style-type: none"> 9.8N minimum 	<ol style="list-style-type: none"> 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)	<ol style="list-style-type: none"> No apparent damage 	<ol style="list-style-type: none"> Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile. Apply a bending force of 2mm deflection Time : 10sec 
Heat/Humidity resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $85 \pm 2^{\circ}\text{C}$ Humidity: 90% ~ 95% RH Duration: 1000 ± 48hrs Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> 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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Advanced Ceramic X Corp.

16 Tzu Chiang Road, Hsinchu Industrial District Hsinchu Hsien 303, Taiwan

TEL:886-3-5987008 FAX:886-3-5987001

E-mail: acx@acxc.com.tw

<http://www.acxc.com.tw>