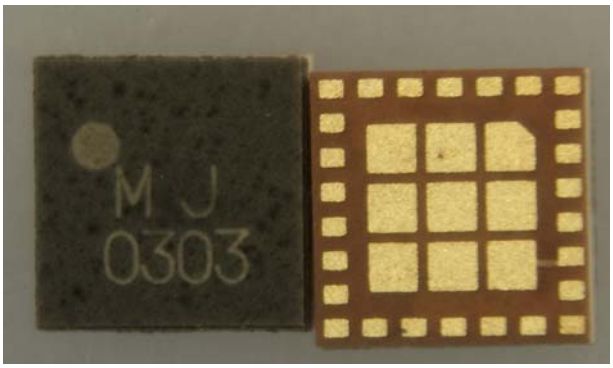
ACX
Advanced Ceramic X

TP 3535 Series

Multilayer Chip Triplexer Module

Features

- ❖ Monolithic structure including one low-pass, and two band-pass filters, and one SAW chip with loss pole at adjacent passband.
- ❖ Small, low profile SMD
- ❖ RoHS compliant.



Applications

- ❖ LTE mobile communication.

Specifications

(at +25℃)

Part Number	Passband (MHz)	Insertion Loss (dB)	Return Loss (dB)	Attenuation (dB)
TP3535 -B0825MJ	698 ~ 960	0.65 max.	10 min.	25 min. @ 1559 ~ 1610 MHz 25 min.@ 1648 ~ 1698 MHz 25 min. @ 1710 ~ 2200 MHz 25 min.@ 2300 ~ 2745 MHz 30 min. @ 3246 ~ 3800 MHz 35 min. @ 5000 ~ 6000 MHz
	1427 ~ 1511	2.1 typ.	10 min.	35 min. @ 698 ~ 960 MHz 12 min. @ 2300 ~ 2400 MHz 12 min. @ 2400 ~ 2700 MHz 29 min. @ 3400 ~ 3820 MHz 35 min. @ 5000 ~ 6000 MHz
	1710 ~ 2100	1.5 max.		
	2100 ~ 2170	1.8 max.		
	2200	2.3 typ.		
	2300 ~ 2400	2.25 max.	10 min.	28 min. @ 698 ~ 960 MHz 13 min. @ 1710 ~ 2100 MHz 12 min. @ 2100 ~ 2200 MHz 18 min. @ 3400 ~ 3800 MHz 30 min. @ 5000 ~ 6000 MHz
	2496 ~ 2690	1.75 max.		

(at -40 ~ +85℃)

Part Number	Passband (MHz)	Insertion Loss (dB)	Return Loss (dB)	Attenuation (dB)
TP3535 -B0825MJ	698 ~ 960	0.75 max.	10 min.	24 min. @ 1559 ~ 1610 MHz 24 min.@ 1648 ~ 1698 MHz 24 min. @ 1710 ~ 2200 MHz 24 min.@ 2300 ~ 2745 MHz 29 min. @ 3246 ~ 3800 MHz 34 min. @ 5000 ~ 6000 MHz
	1427 ~ 1511	2.3 typ.	10 min.	34 min. @ 698 ~ 960 MHz 11 min. @ 2300 ~ 2400 MHz 11 min. @ 2400 ~ 2700 MHz 28 min. @ 3400 ~ 3820 MHz 34 min. @ 5000 ~ 6000 MHz
	1710 ~ 2100	1.75 max.		
	2100 ~ 2170	2.05 max.		
	2200	2.5 typ.		
	2300 ~ 2400	2.3 max.	10 min.	27 min. @ 698 ~ 960 MHz 12 min. @ 1710 ~ 2100 MHz 11 min. @ 2100 ~ 2200 MHz 17 min. @ 3400 ~ 3800 MHz 29 min. @ 5000 ~ 6000 MHz
	2496 ~ 2690	2.0 max.		

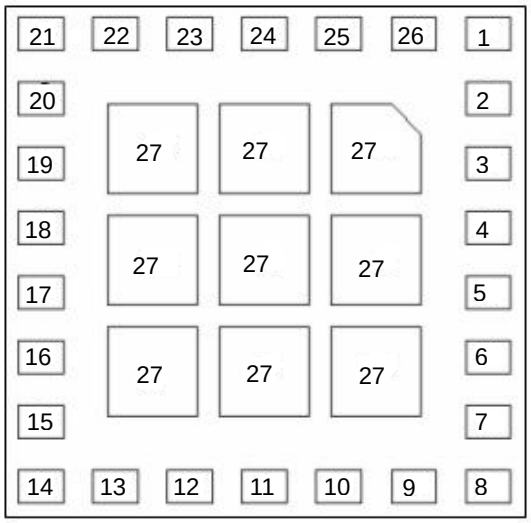
Q'ty/Reel (pcs) : 1,000
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Storage Period : 12 months max.
Power Capacity : 3W max.
Moisture Sensitivity Level : MSL-3

Part Number

TP	3535	-	B	0825	MJ	□	/LF
①	②		③	④	⑤	⑥	⑦

① Type	TP : Triplexer	② Dimensions (L × W)	3.5 × 3.5 mm
③ Material Code	B	④ Frequency Range	0825= 830MHz /2000MHz /2500MHz
⑤ Specification Code	MJ	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

Terminal Configuration



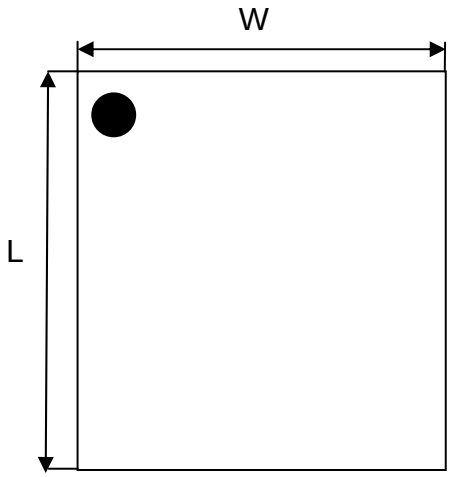
< **Bottom View** >

No.	Terminal Name	No.	Terminal Name
(1)	GND	(19)	LB
(2)	GND	(20)	GND
(3)	GND	(21)	GND
(4)	GND*	(22)	GND*
(5)	GND	(23)	GND
(6)	GND	(24)	GND
(7)	GND*	(25)	GND
(8)	GND	(26)	ANT
(9)	GND	(27)	GND
(10)	GND*		
(11)	GND		
(12)	GND		
(13)	HB		
(14)	GND		
(15)	GND		
(16)	MB		
(17)	GND		
	GND		

(*) NC available as well

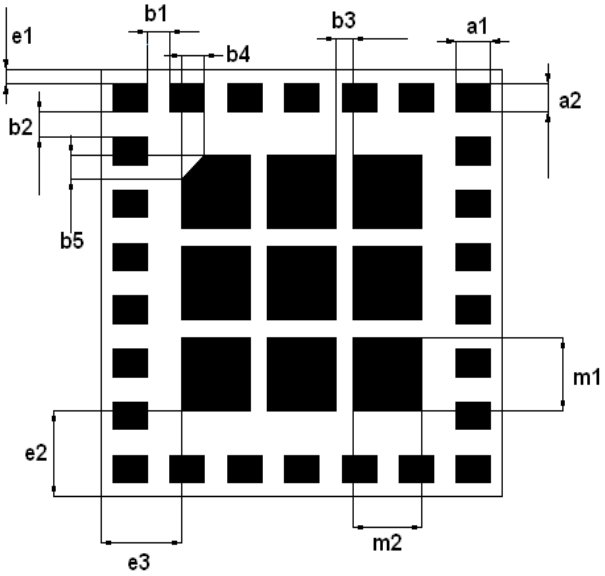
Dimensions and Recommended PC Board Pattern

Unit : mm



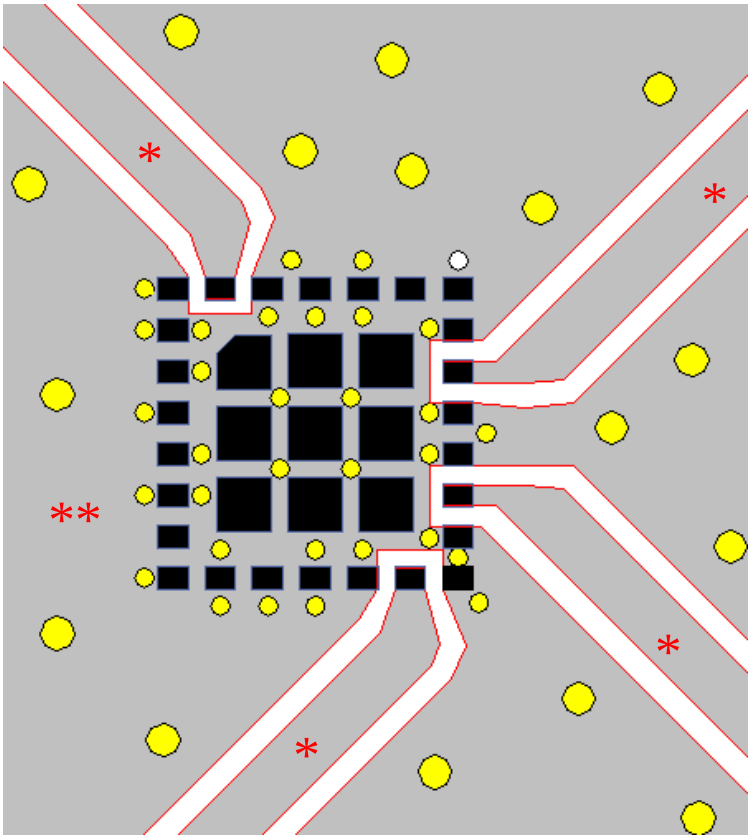
< Top View >

< Side View >



< Top Through View >

Mark	Dimensions	Mark	Dimensions	Mark	Dimensions
L	3.5 ± 0.2	b2	0.21 ± 0.1	e3	0.7 ± 0.1
W	3.5 ± 0.2	b3	0.15 ± 0.1	m1	0.6 ± 0.1
T	1.0 typ. / 1.1 max.	b4	0.2 ± 0.1	m2	0.6 ± 0.1
a1	0.3 ± 0.1	b5	0.2 ± 0.1		
a2	0.225 ± 0.1	e1	0.115 +0.2/ -0.1		
b1	0.2 ± 0.1	e2	0.7 ± 0.1		



Solder Resist

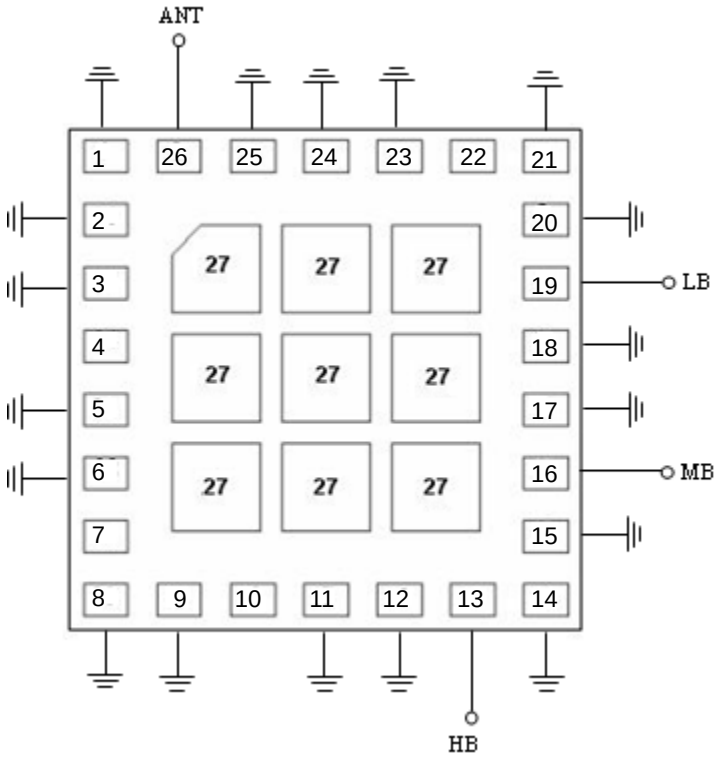
Land

Through-hole (ϕ 0.204/0.356)

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

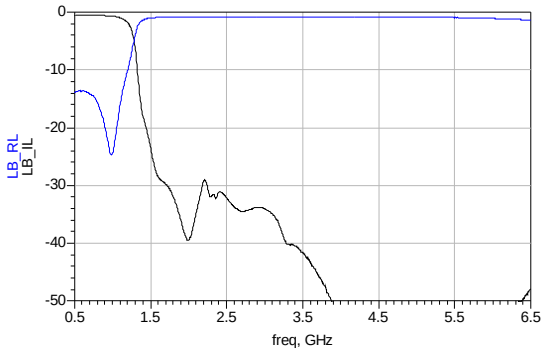
** Please refer to the recommend GND pattern for correct electrical characteristic.

Measuring Diagram

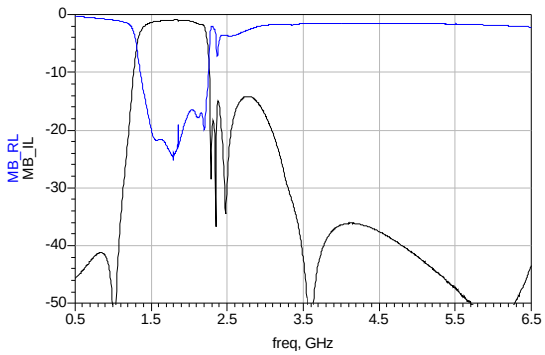


Electrical Characteristics(T=25℃)

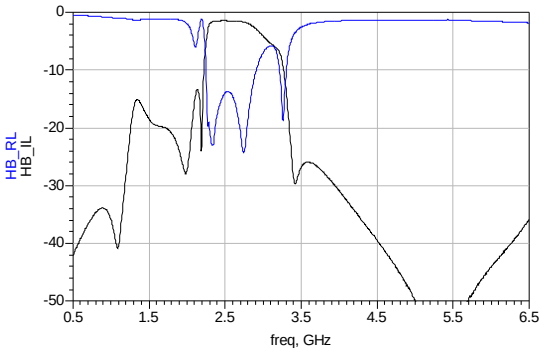
Low-Band



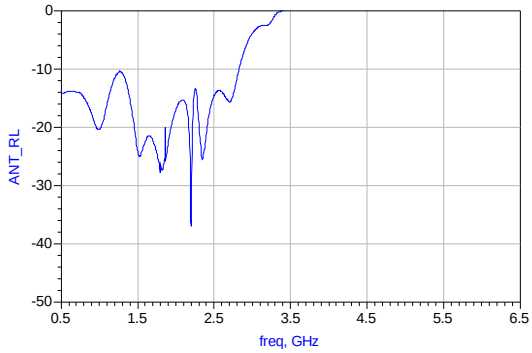
Middle-Band



High-Band



ANT-Return-Loss

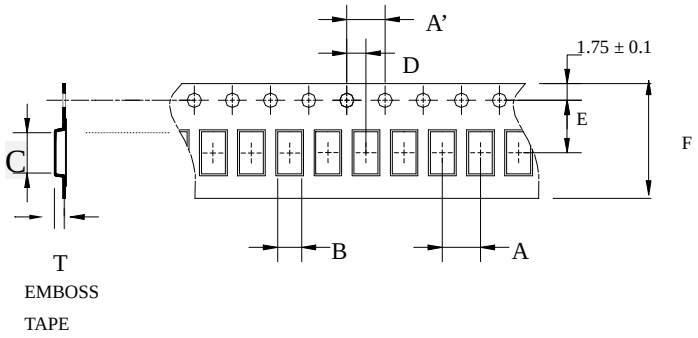


Notes

- ❖ 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.

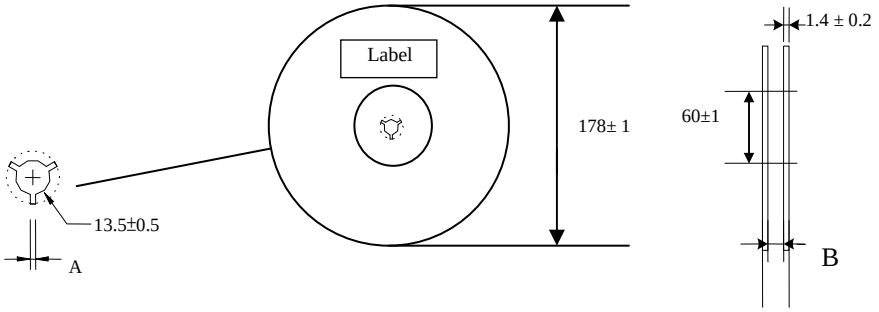
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
3535	8.0± 0.1	4.0± 0.1	3.75± 0.1	3.75± 0.1	2.0± 0.05	5.5± 0.1	12.0± 0.15	1.05± 0.10	1,000pcs	ESD

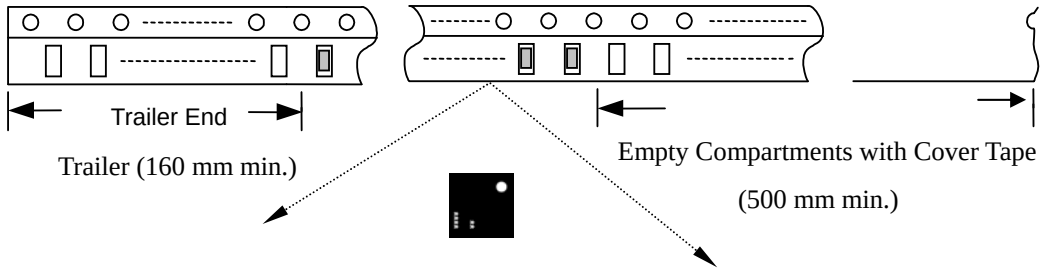
❖Reel Dimensions (Unit: mm)



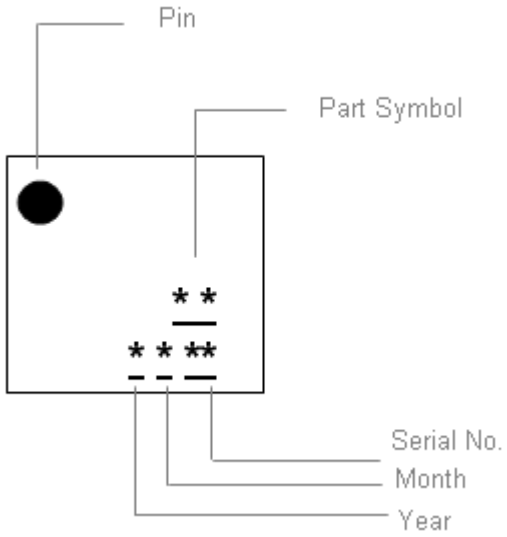
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	A	B
3535	2.5±0.5	13.2±0.5

❖Leader and Trailer Tape



❖**Marking**



❖**Product lot code**

Year：

Year	2019	2020	2021
Code	9	0	1

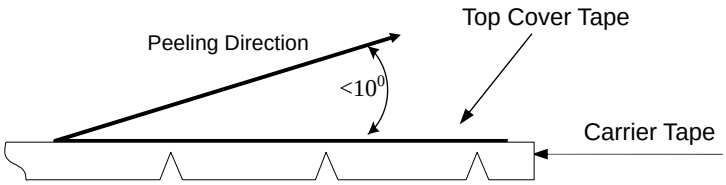
Month：

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: +5 ~35℃, 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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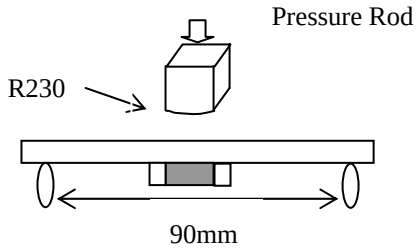
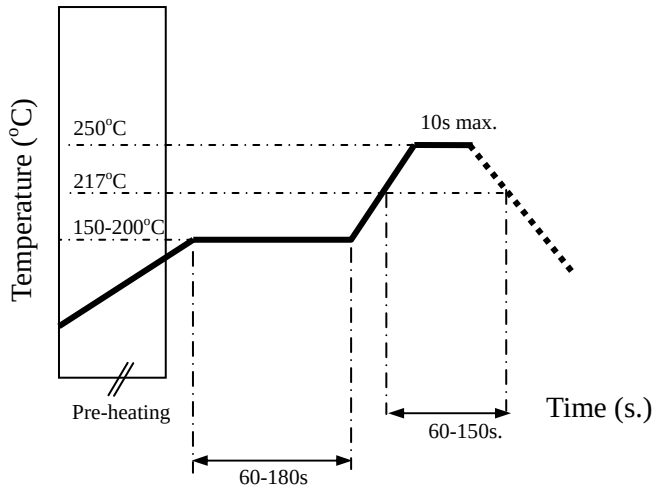
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 95% of the terminal electrode shall be covered with new solder	1. Preheat: 120± 5 °C 2. Solder: 245± 5°C for 5± 1 sec
Soldering strength (Termination Adhesion	1. 9.8N minimum	1. Solder specimen onto test jig. 2. 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)	1. No apparent damage	1. Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile. 2. Apply a bending force of 2mm deflection 3. Time：10sec 
Heat/Humidity resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: 85± 2°C 2. Humidity: 90% ~ 95% RH 3. Duration: 1000±48hrs 4. Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	1. No apparent damage 2. Fulfill the electrical specification after test	1. One cycle/step 1：125 ± 5°C for 30 min step 2：- 40 ± 5°C for 30 min 2. No of cycles：100 3. Recovery:1-2 hrs
Low Temperature Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: -40± 5 °C 2. Duration: 500 ±24hrs 3. Recovery: 1-2hrs

Soldering Conditions

❖**Typical Soldering Profile for Lead-free Process**

Reflow Soldering :



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