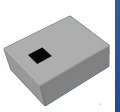


Multi-layer Chip Triplexer



ATRD-R-0004

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2.50 x 2.00 x 0.90 mm

RoHS Compliant

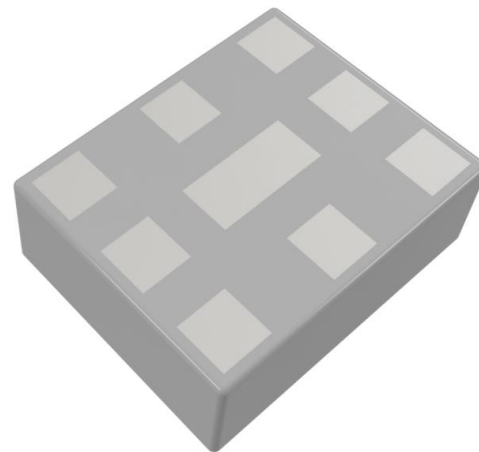
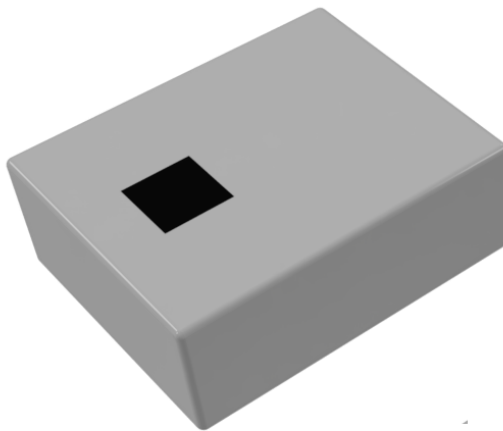
Features

- LTCC Triplexer supporting 698 ~960/ 1452~2170 / 2496~5850 MHz
- Small Form Factor 2.50 x 2.0 x 0.90 mm
- Low Insertion Loss 0.7 dB
- RoHS Compliant

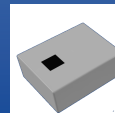
Applications

- Cellular- LTE device
- Wi-Fi - 802.11a/b/g/ac
- Video Streaming and Network Cameras
- VR Head Mount Displays
- Car Infotainment Systems
- Broadband Gateways

Product Image



Multi-layer Chip Triplexer



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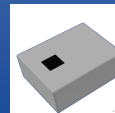
2.50 x 2.00 x 0.90 mm

RoHS Compliant

Electrical Specifications

Parameters	Specification			Units	Notes
Application	Low Band	Middle Band	High Band		
Frequency range	698~960	1452~2170	2496~5850	MHz	
Insertion Loss (Max)	0.70 dB max. at 698~960	2.30 dB max. at 1452~1496 1.50 dB max. at 1710~2170	1.84 dB max. at 2496~2690 1.20 dB max. at 3400~3800 0.50 dB max. at 4900~5850	dB	@25°C
Insertion Loss (Max)	0.85 dB max. at 698~960	2.50 dB max. at 1452~1496 1.70 dB max. at 1710~2170	2.04 dB max. at 2496~2690 1.40 dB max. at 3400~3800 0.70 dB max. at 4900~5850	dB	@40°C +85°C
Attenuation (Absolute value)	12 dB Min. at 1452~1496 15 dB Min. at 1565~1606 20 dB Min. at 1710~2170 20 dB Min. at 2496~2690 20 dB Min. at 3400~3800 20 dB Min. at 4900~5850	23 dB Min. at 698~960 18 dB Min. at 2496~2690 20 dB Min. at 3400~3800 20 dB Min. at 4900~5850	23 dB Min. at 698~960 30 dB Min. at 1452~1496 20 dB Min. at 1710~2170	dB	
Return Loss (dB)	9.54 dB min. at 698~960	6.49 dB min. at 1452~1496 9.54 dB min. at 1710~2170	9.54 dB min. at 2496~2690 7.71 dB min. at 3400~3800 9.54 dB min. at 4900~5850	dB	

Multi-layer Chip Triplexer



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2.50 x 2.00 x 0.90 mm

RoHS Compliant

Parameters	Specification	Units	Notes
Isolation	25 dB min. at 698~960 (LB-MB) 10 dB min. at 1452~1496 (LB-MB) 18 dB min. at 1710~2170 (LB-MB) 20 dB min. at 698~960 (LB-HB) 25 dB min. at 2496~2690 (LB-HB) 18 dB min. at 2496~2690 (MB-HB) 28 dB min. at 1452~1496 (MB-HB) 18 dB min. at 1710~2170 (MB-HB)	dB	
Power Capacity	2.0 max.	W	
Characteristic Impedance	50	ohm	

Mechanical Specifications

Parameters	Specifications
Filter Dimension	2.50 x 2.00 x 0.90 mm
Mounting Type	SMD Mount

Environmental Specifications

Parameters	Specifications
Operating Temperature	-40°C ~ +85°C
Storage Temperature	-10°C ~ +40°C

Ordering Information

Part Identification

ATRD-R-0004□



Packaging
Blank: Bulk
T: Tape & Reel

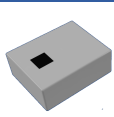


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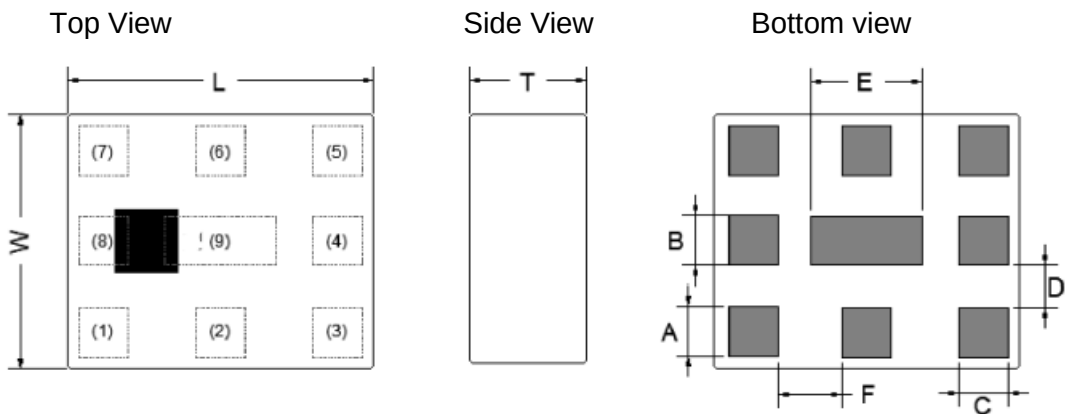
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2.50 x 2.00 x 0.90 mm
RoHS Compliant

Package Dimensions & PCB Footprint

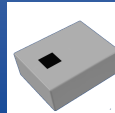
DIMENSIONS: INCHES [mm]



MARK	L	W	T	A	B	C	D	E	F
Dimensions	2.50	2.00	0.90	0.40	0.40	0.40	0.30	0.90	0.55
(mm)	±0.15	±0.15	±0.10	±0.10	±0.10	±0.10	±0.10	±0.15	±0.15

Pin #	Function
1	High Freq. Port
2	GND
3	Middle Freq. Port
4	GND
5	Low Freq. Port
6	GND
7	Common Port
8	GND
9	GND

Multi-layer Chip Triplexer



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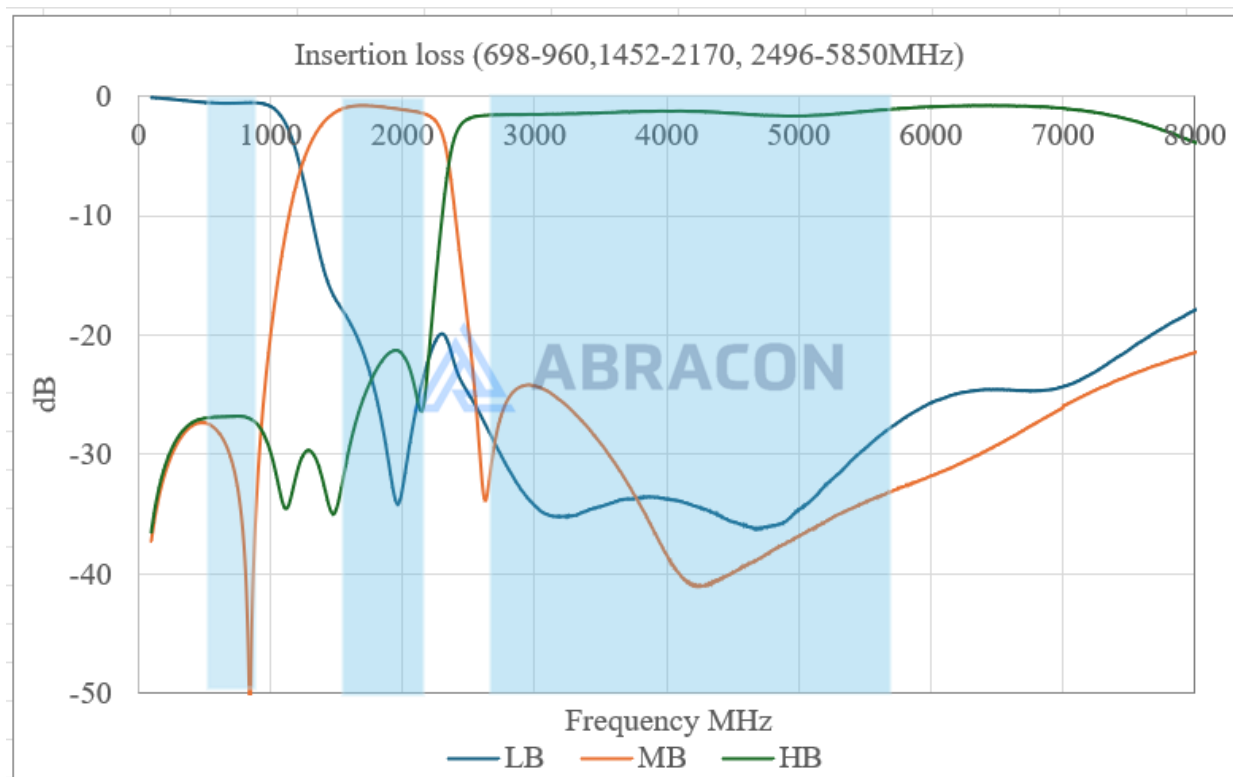


2.50 x 2.00 x 0.90 mm

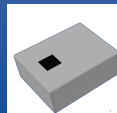
RoHS Compliant

Frequency Characteristics

Insertion Loss (698-960, 1452-2170, 2496- 5850MHz)



Multi-layer Chip Triplexer



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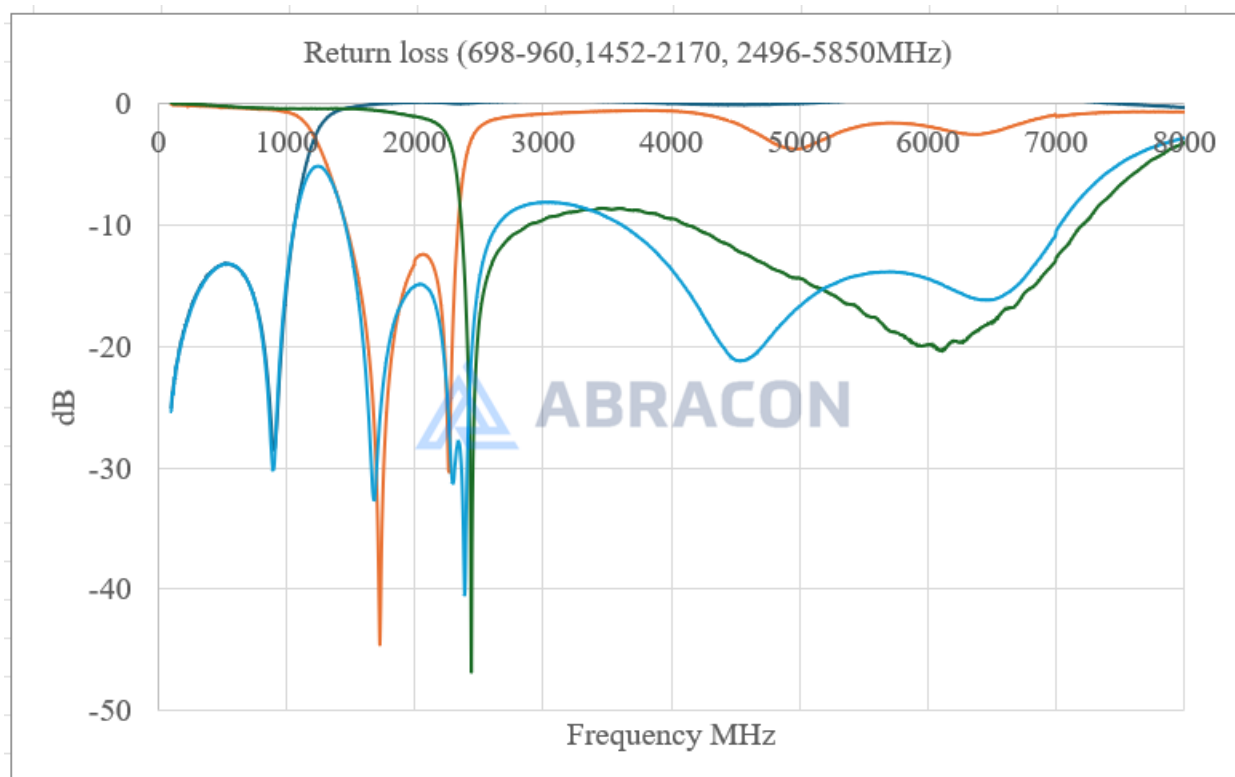
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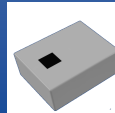
2.50 x 2.00 x 0.90 mm

RoHS Compliant

Return Loss dB (698-960, 1452-2170, 2496- 5850MHz)



Multi-layer Chip Triplexer



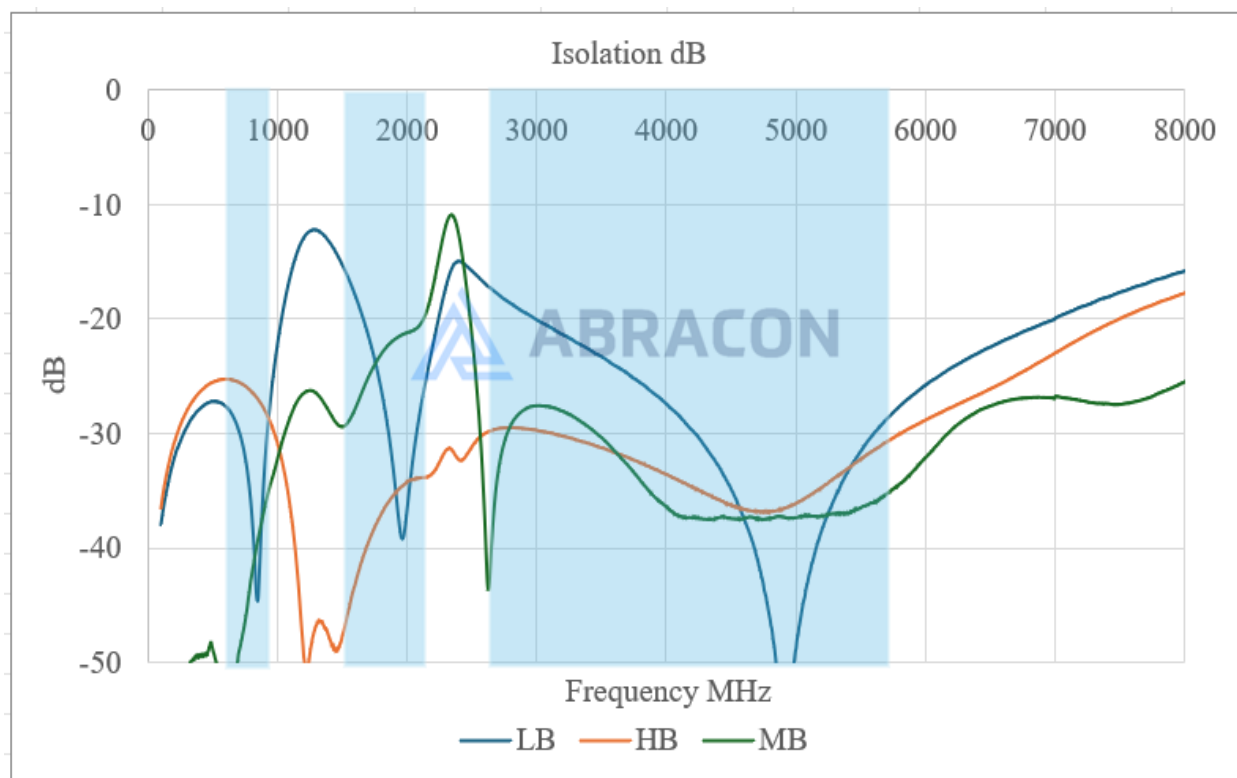
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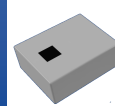
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2.50 x 2.00 x 0.90 mm
RoHS Compliant

Isolation (dB) 698-960, 1452-2170, 2496- 5850MHz



Multi-layer Chip Triplexer



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2.50 x 2.00 x 0.90 mm

RoHS Compliant

Reflow Profile

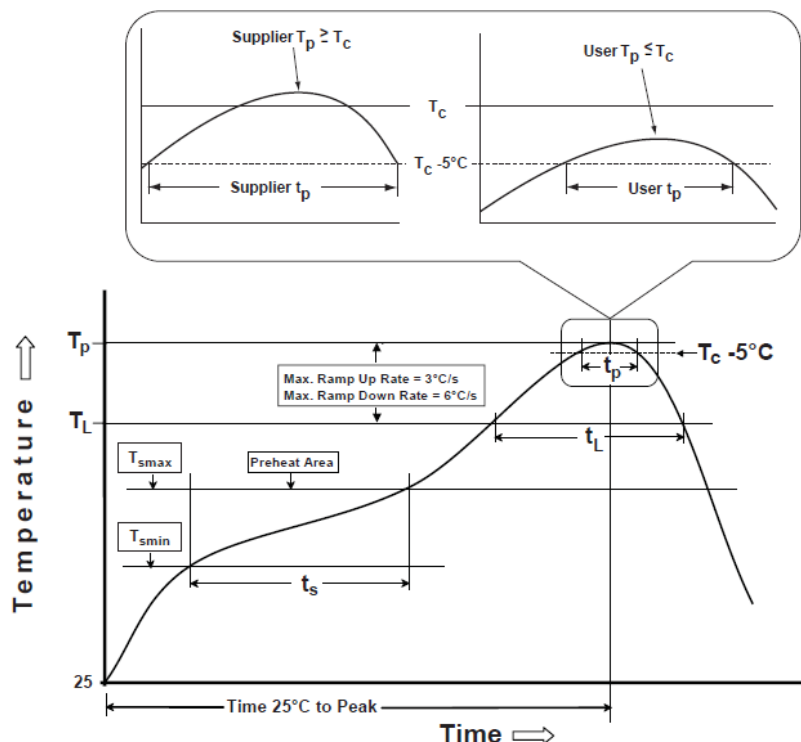


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process

Classification Temperatures (T_c)

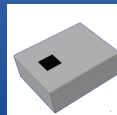
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60 - 150 sec.	60 - 150 sec.
Peak package body temperature (T_p)*	see Table 1	see Table 2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20 sec.	30 sec.
Ramp-down rate (T_p to T_{smax})	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) is defined as supplier minimum and a user maximum.

Multi-layer Chip Triplexer



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RoHS Compliant

Packaging

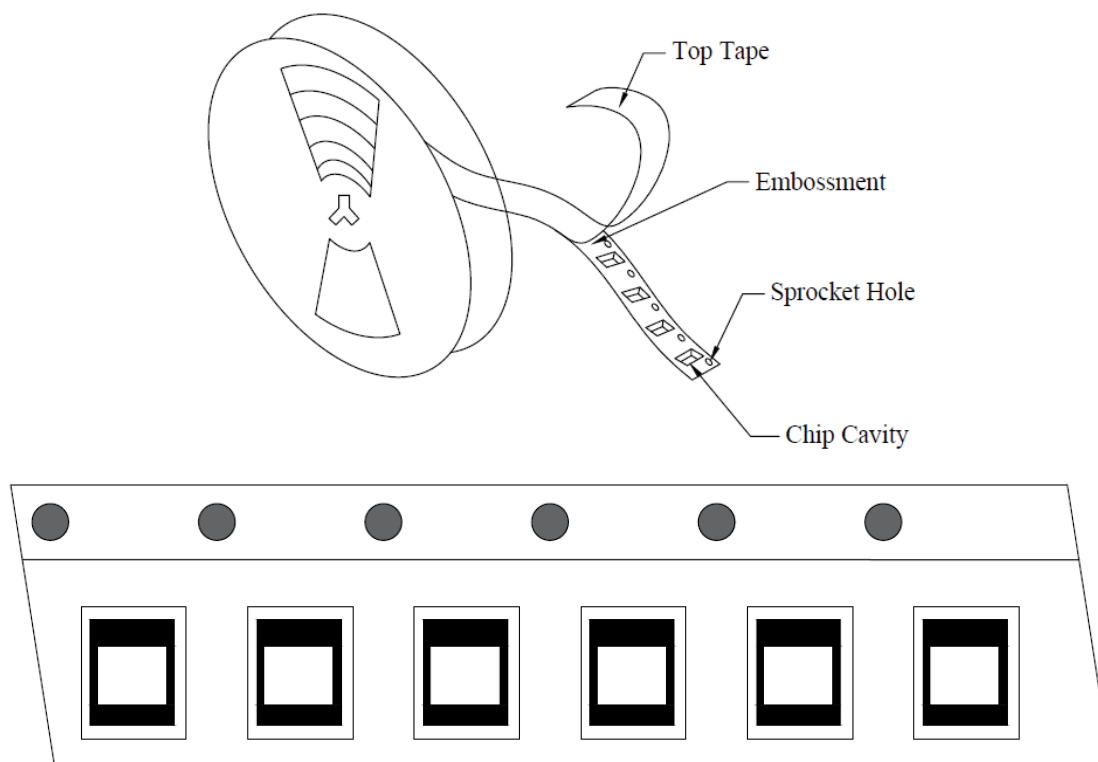
Tape Carrier Packaging:

Tape carrier packaging quantity please see the following table:

Type	2520[1008]
Tape	Embossed Tape
Quantity	3K

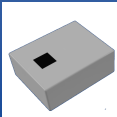
Taping Drawings (Unit: mm)

Embossed Tape



Remark: The sprocket holes are to the right as the tape is pulled toward the user.

Multi-layer Chip Triplexer



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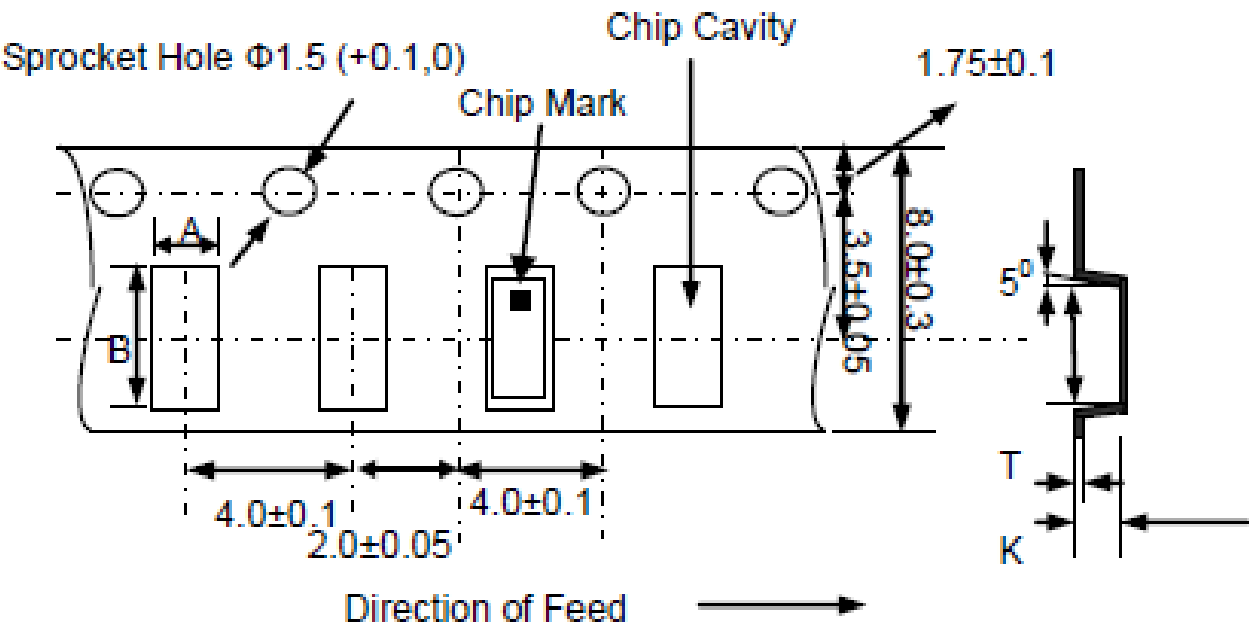


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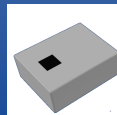
2.50 x 2.00 x 0.90 mm
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Taping Dimensions (Unit: mm)



Chip Thickness	A	B	K max	T max
0.90 ± 0.10	2.3 ± 0.10	2.80 ± 0.10	1.25	0.27

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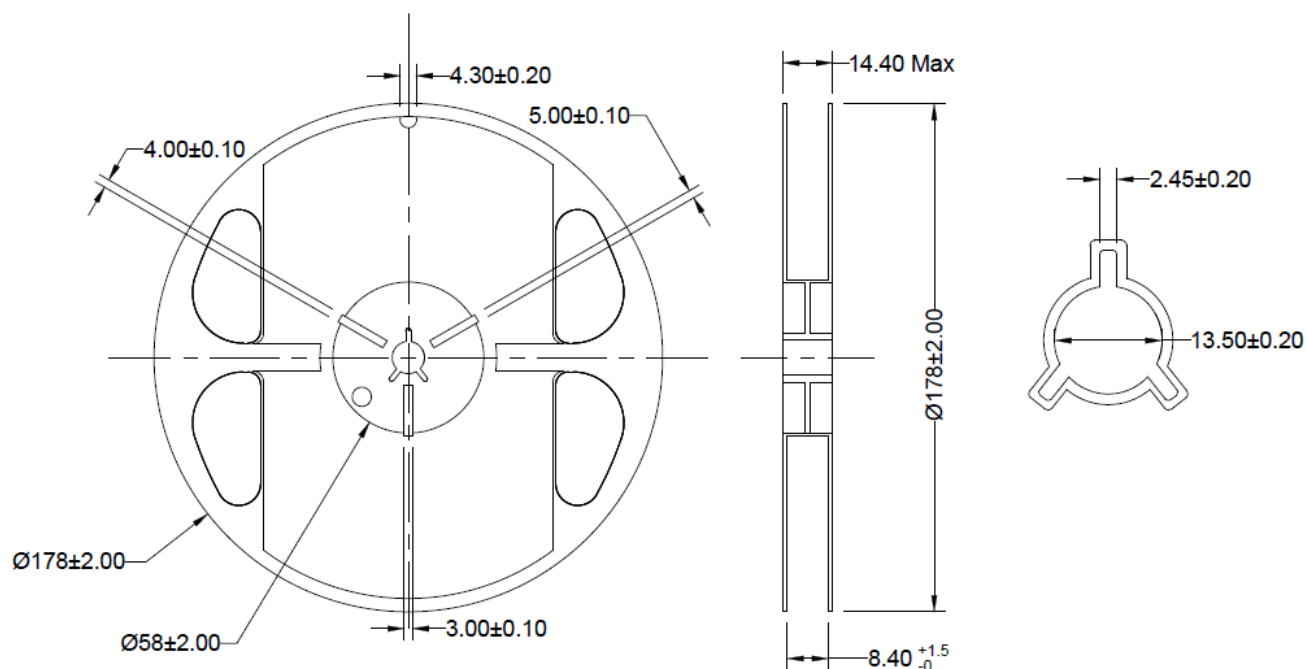
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2.50 x 2.00 x 0.90 mm

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Reel Dimensions (Unit: mm)



Unit: mm

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