

# Mini LTCC RF Diplexer for Bluetooth, Wi-Fi, UWB



**ADID-R-0016**

Request Samples



Check Inventory



**1.6 x 0.8 x 0.6 mm**  
**RoHS Compliant**

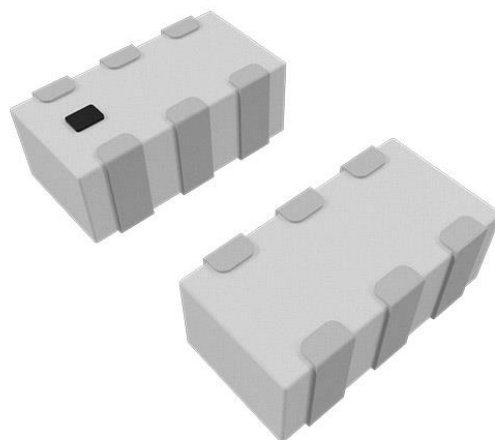
## Features

- Supporting 2400~2500 / 6200~8200 MHz Simultaneously
- Small Form Factor 1.6 x 0.8 x 0.6 mm
- Low Insertion Loss 1.0 dB
- High Isolation Between Bands
- Temperature Stability Across Wide Temperature Bands
- High-Power Handling up to 3W
- RoHS Compliant

## Applications

- Ultra-Wide Band (UWB) Modules
- AR/VR Headsets
- Indoor Positioning
- Real-Time Location Systems (RTLS)
- Ultra-Wide Band Communications
- UWB Radar
- Secure Authentication

## Product Image



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## Electrical Specifications

Parameters	Specification		Units	Notes
Passband	2400-2500	6200-8200 (UWB channels 5-9)	MHz	
Insertion Loss	0.7	1.0	dB	@25°C
	1.0	1.3		@-40°C ~ +85°C
VSWR	< 2.0		-	
Attenuation (min.)	20	-	dB	4800 ~ 5000 MHz
	20	-		6200 ~ 8500 MHz
	-	25		2400 ~ 2500 MHz
	-	22		12400 ~ 16400 MHz
Group Delay			ns	
Group Delay Ripple			ns	
Isolation (min.)	25		dB	2400 ~ 2500 MHz
	22			6200 ~ 8500 MHz
Power Capacity	2.0		W	-

## Mechanical Specifications

Parameters	Specifications
Filter Dimension	1.6 x 0.8 x 0.6 mm
Mounting Type	Surface Mount

## Environmental Specifications

Parameters	Specifications
Operating Temperature	-40°C ~ +105°C
Storage Temperature	-10°C ~ +40°C (70% R.H. max)
Humidity	90% - 95% R.H.



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## Ordering Information

Part Number	Description
ADID-R-0016	Mini LTCC RF Diplexer for Bluetooth, Wi-Fi, UWB
ADID-R-0016-EVB	Mini LTCC RF Diplexer for Bluetooth, Wi-Fi, UWB EVB

Note: Other options not listed may be available upon request via [Abracon online support](#)

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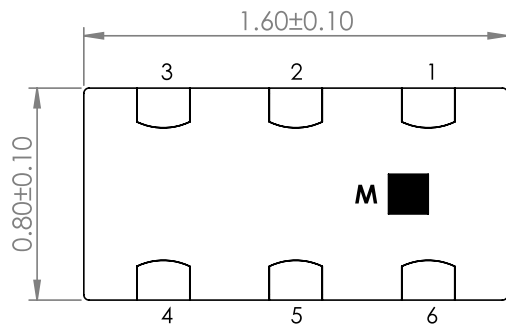


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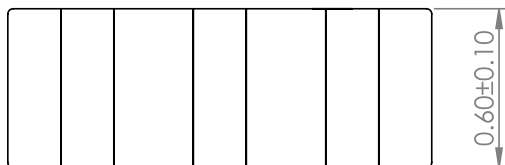
**1.6 x 0.8 x 0.6 mm**  
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## Package Dimensions & PCB Footprint

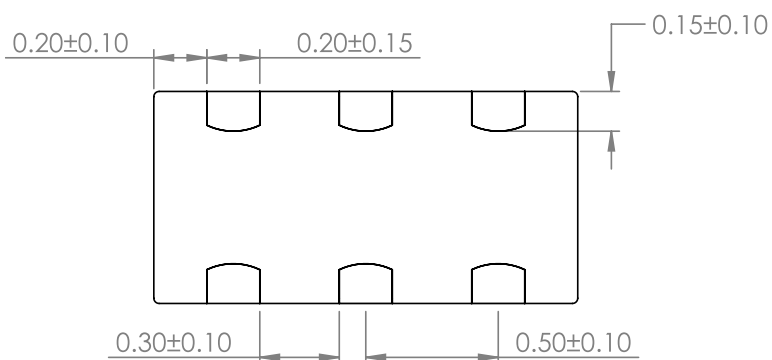


**TOP VIEW**

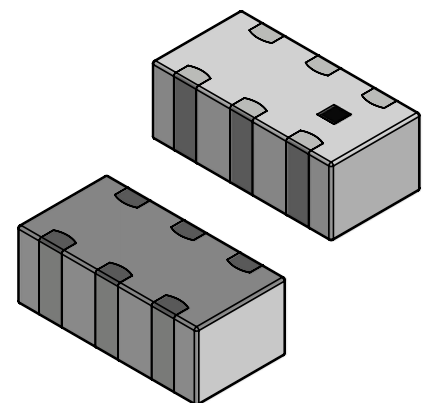
Pin #	Function
1	GND
2	Common Port
3	GND
4	High Band
5	GND
6	Low Band
M	Mark



**FRONT VIEW**



**BOTTOM VIEW**



Unit: mm

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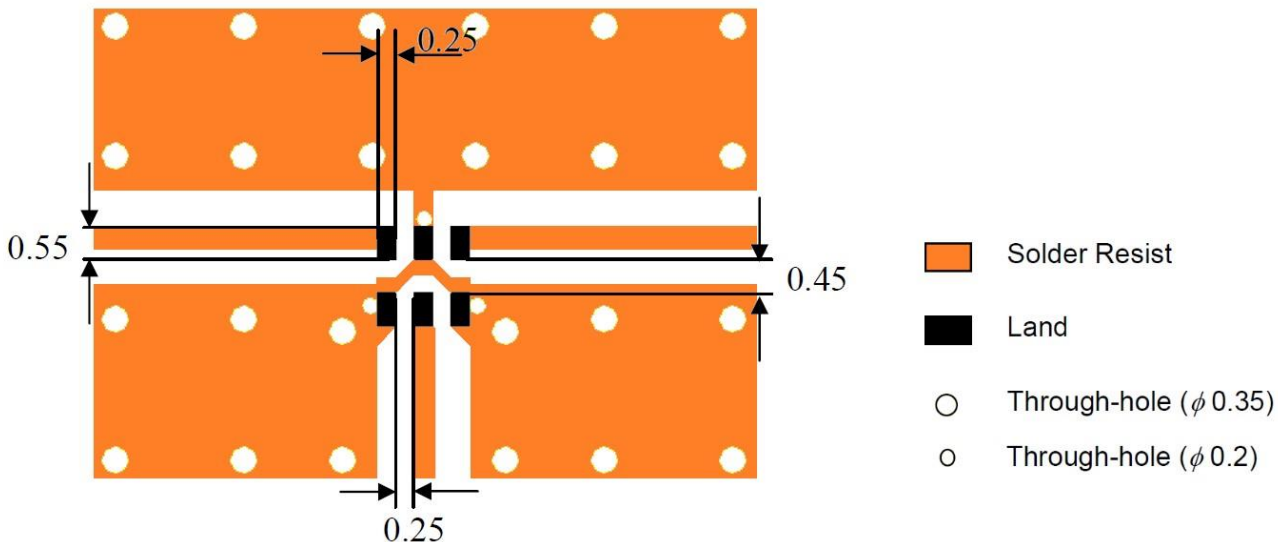
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1.6 x 0.8 x 0.6 mm  
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## Recommended Footprint (PCB Layout)



Unit: mm

Note: Line width to be designed to match 50 $\Omega$  characteristic impedance, depending on PCB material and thickness.

The transmission line is Gound Coplanar Waveguide (GCPW). For technical assistance, please contact [Abracon online support](#) through our online support platform.

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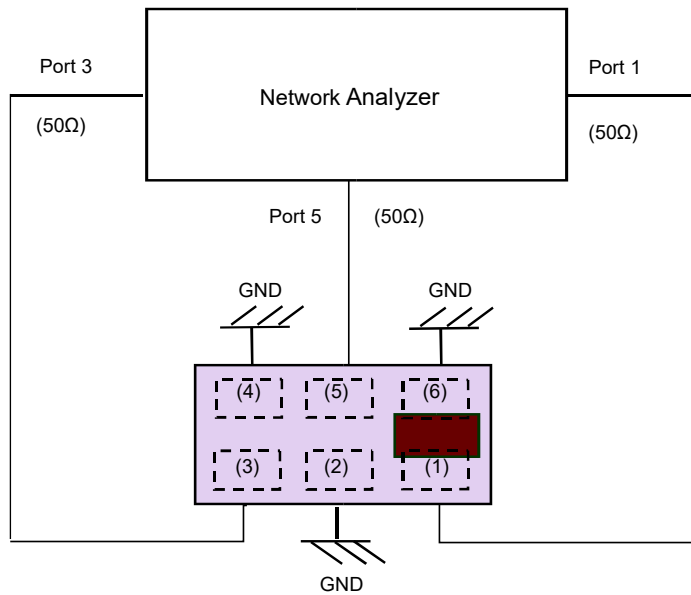


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1.6 x 0.8 x 0.6 mm  
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## Measurement Setup



Pin #	Function
(1)	Lower Freq. Band
(2)	GND
(3)	Higher Freq. Band
(4)	GND
(5)	Common
(6)	GND

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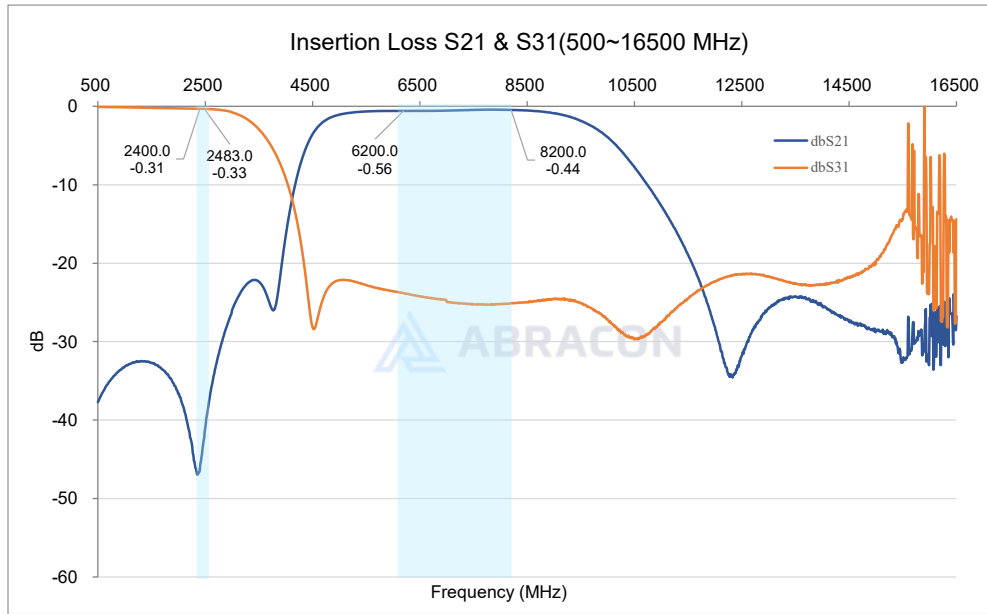
Check Inventory



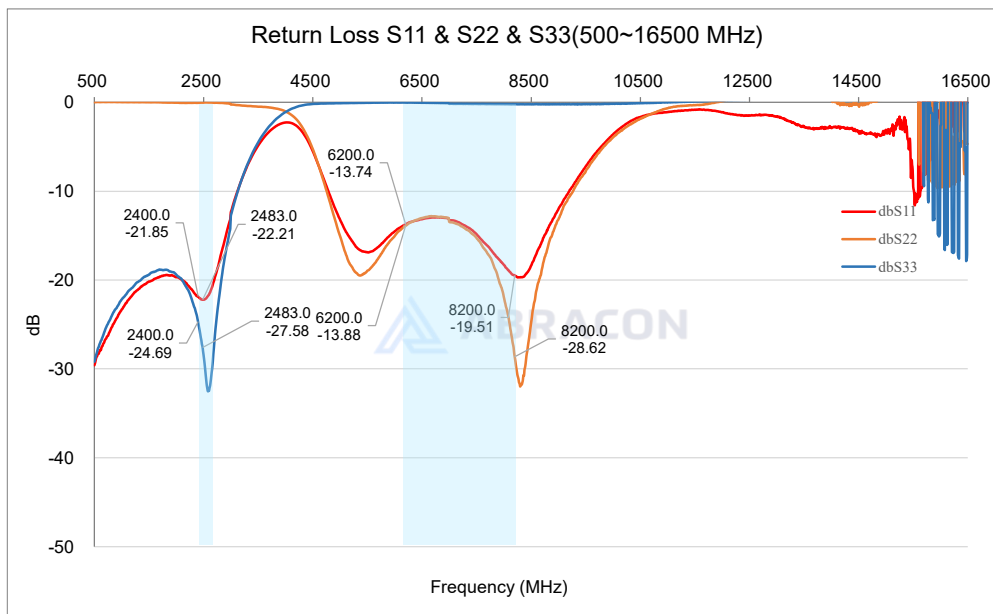
**1.6 x 0.8 x 0.6 mm**  
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## Frequency Characteristics

Insertion Loss (S21 & S31) 500 – 16500 MHz



Return Loss (S11 & S22 & S33) 500 – 16500 MHz

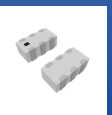


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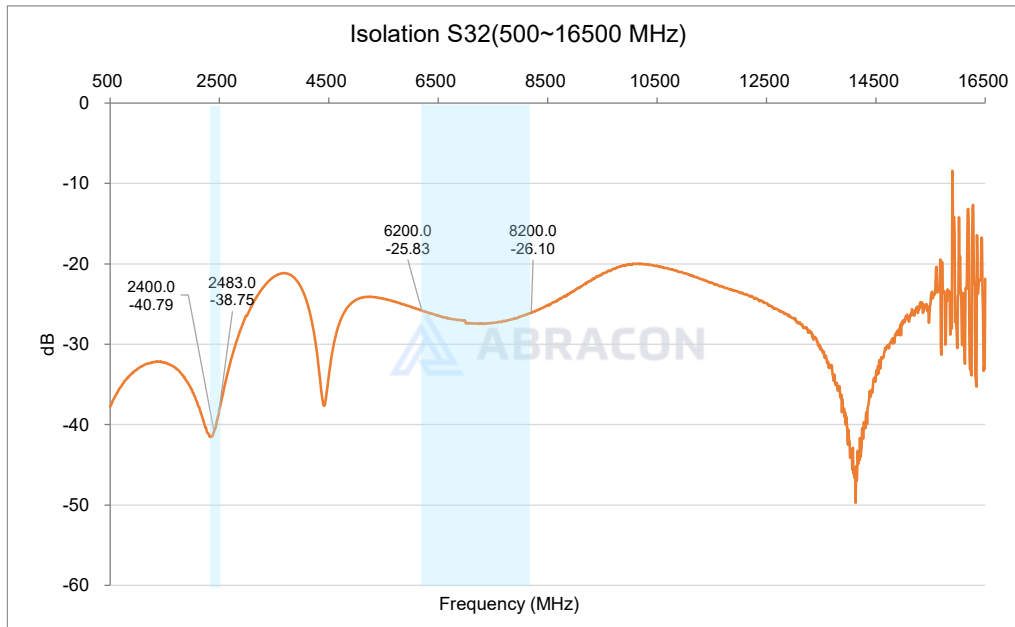


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Isolation (S32) 500 – 16500 MHz





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## Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

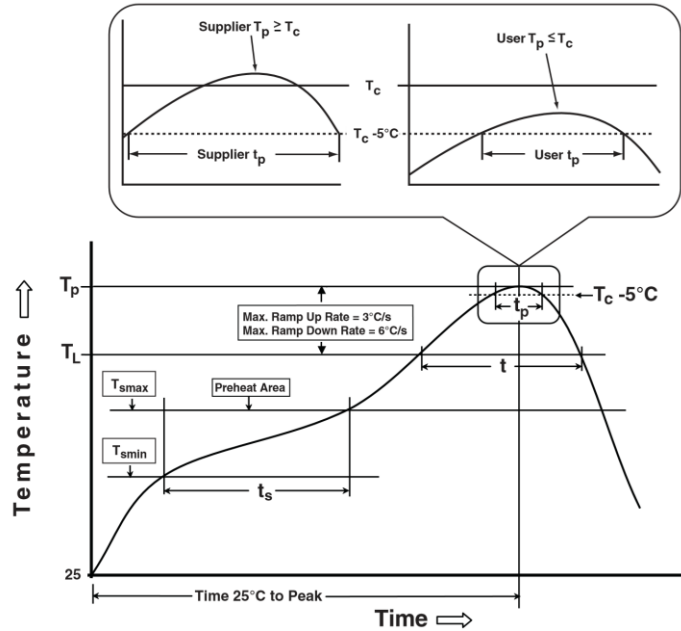


Table 1

SnPb Eutectic Process Classification Temperatures ( $T_c$ )		
Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq 350$
<2.5mm	235°C	220°C
$\geq 2.5\text{mm}$	220°C	220°C

Table 2

Pb-Free Process Classification Temperatures ( $T_c$ )			
Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350-2000	Volume $\text{mm}^3$ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	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 – 90 sec.	60 – 90 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.	10 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 a supplier minimum and a user maximum.



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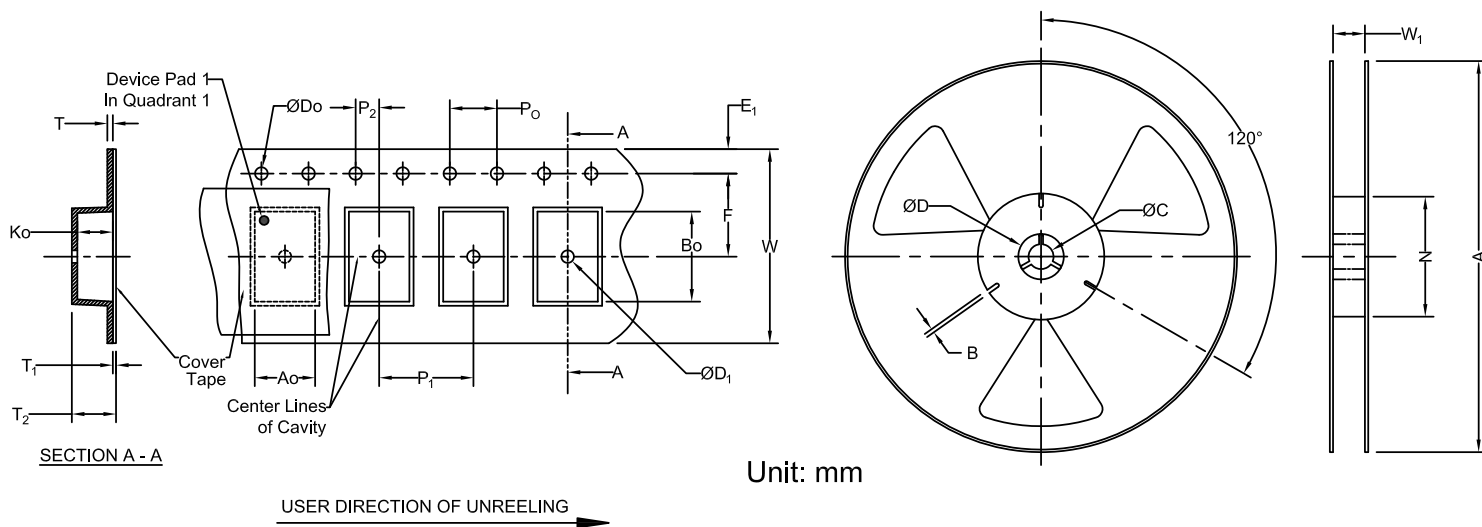


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## Packaging

### Tape & Reel

#### 1. Tape & Reel Dimension 1608(0603)



Carrier Tape Specifications (mm)

Do	E <sub>1</sub>	P <sub>0</sub>	P <sub>2</sub>	T	F	P <sub>1</sub>	W	A <sub>0</sub>	B <sub>0</sub>	Reel Qty
1.5±0.1	1.75±0.10	4.00±0.10	2.00±0.05	0.75±0.10	3.50±0.05	4.00±0.10	8.00±0.30	1.0±0.10	1.8±0.10	4,000

Reel Specifications (mm)

A	N	B	C
Φ178±2.0	Φ58.0±2.0	Φ2.45±0.20	Φ13.5±0.20

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