

# Dual-Band Wi-Fi LTCC RF Diplexer



**ADID-R-0015**

Request Samples



Check Inventory



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

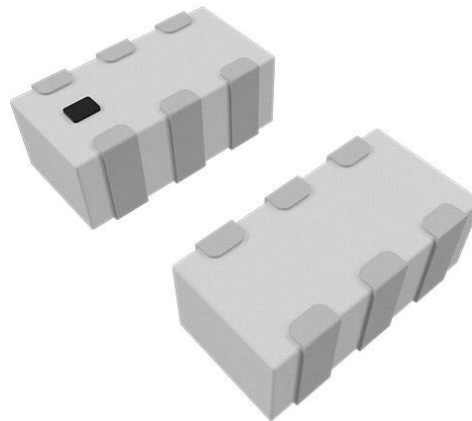
## Features

- Supporting 2400~2500 / 4900~5950 MHz Simultaneously
- Small Form Factor 1.6 x 0.8 x 0.6 mm
- Low Insertion Loss 0.4 dB
- High Isolation Between Bands
- Temperature Stability Across Wide Temperature Bands
- High-Power Handling up to 3W
- RoHS Compliant

## Applications

- Wi-Fi Modules
- AR/VR Headsets
- Wi-Fi Access Point and Mesh Wi-Fi Systems
- Smart Plugs, Lights, and Doorbells
- Smart TVs and Streaming Devices
- Laptops and PCs

## Product Image



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## Electrical Specifications

Parameters	Specification		Units	Notes
Passband	2400-2500	4900-5950	MHz	
Insertion Loss	0.4	0.65	dB	@25°C
	0.6	0.85		@-40°C ~ +85°C
Isolation	37	39	dB	
VSWR	< 2.0		-	
Attenuation (min.)	35	-	dB	4800~5000MHz
	25	-		7200~7500MHz
	-	30		2400~2500MHz
	-	12		8100MHz
	-	20		10300~11700MHz
	-	20		15450~16200MHz
Isolation (min.)	30	30	dB	
Power Capacity	3		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 ~ +85°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-0015	Dual-Band Wi-Fi LTCC RF Diplexer
ADID-R-0015-EVB	Dual-Band Wi-Fi LTCC RF Diplexer EVB

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

# Dual-Band Wi-Fi LTCC RF Diplexer



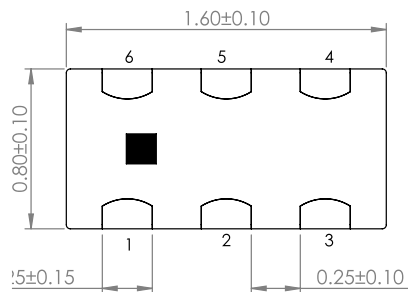
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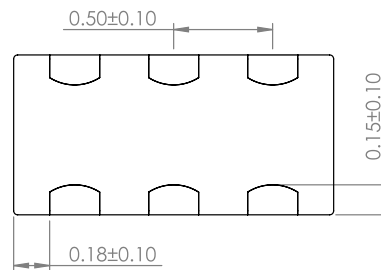
## Package Dimensions & PCB Footprint



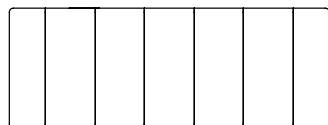
**TOP VIEW**



**SIDE VIEW**

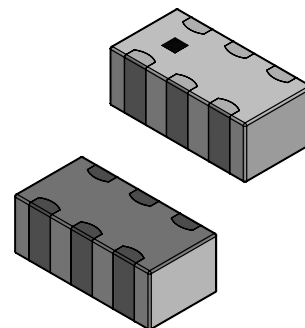


**BOTTOM VIEW**



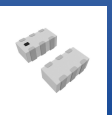
**FRONT VIEW**

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



Unit: mm

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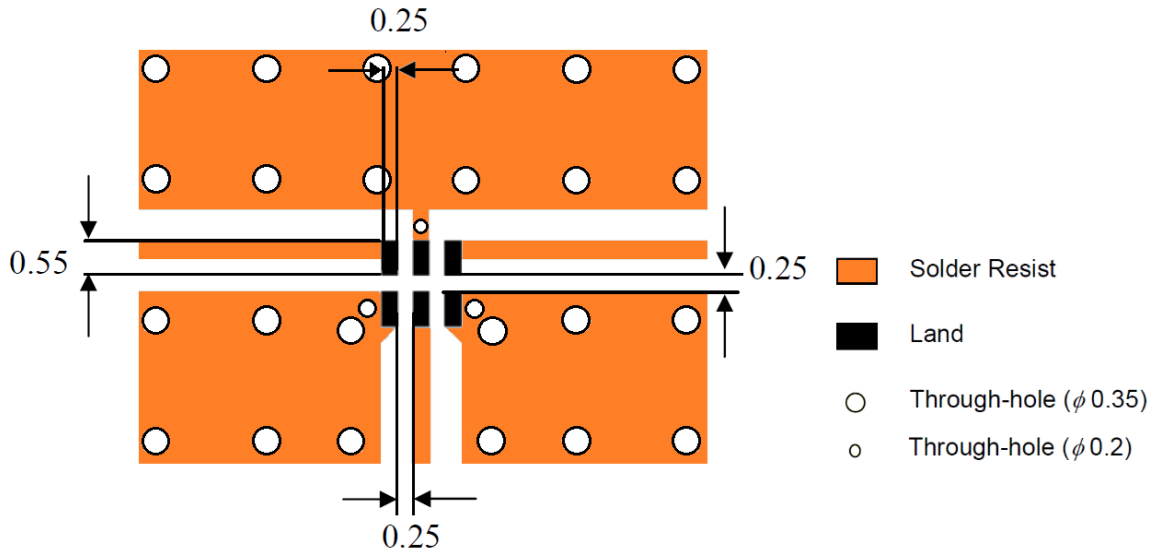
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## Recommended Footprint (PCB Layout)



*Unit: mm*

Note: Line width to be designed to match 50Ω 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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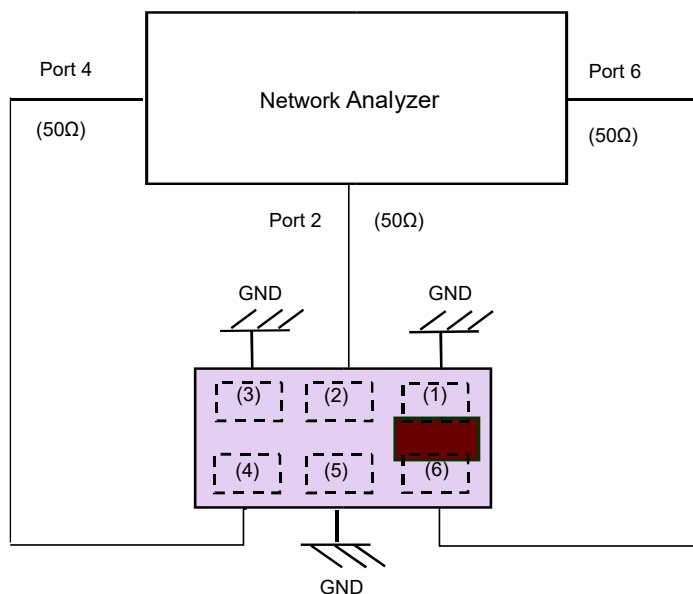


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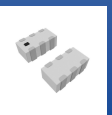
**1.6 x 0.8 x 0.6 mm**  
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## Measurement Setup



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

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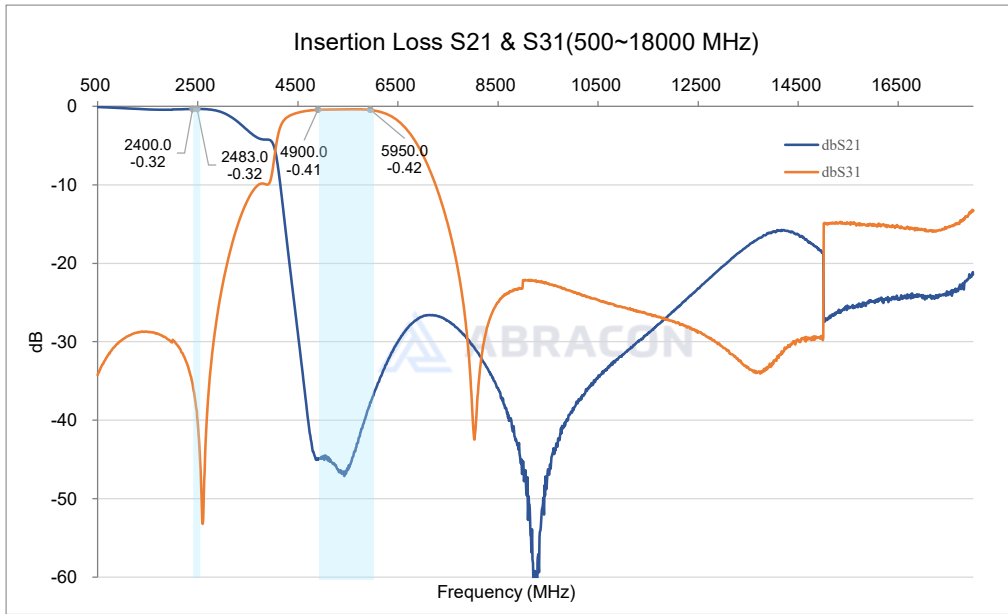
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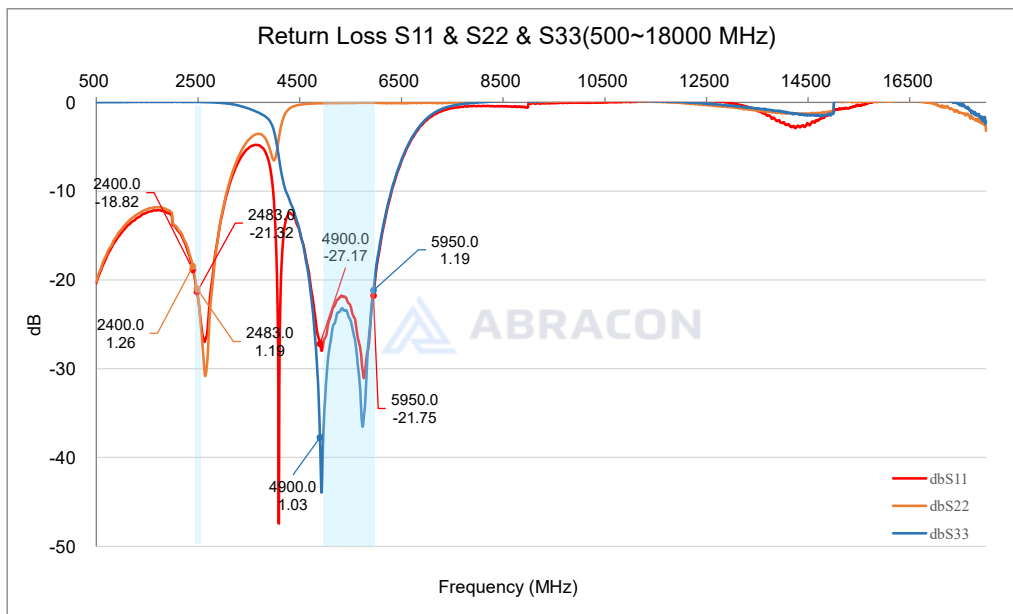
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## Frequency Characteristics

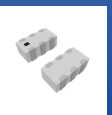
Insertion Loss (S21 & S31) 500 – 18000 MHz



Return Loss (S11 & S22 & S33) 500 – 18000 MHz



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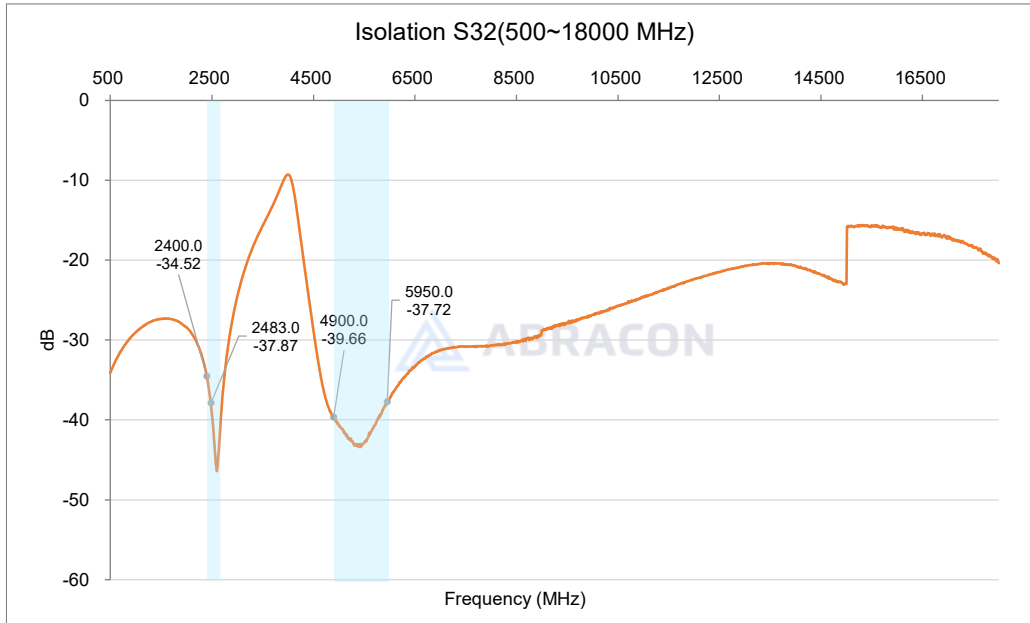


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Isolation (S32) 500 – 18000 MHz





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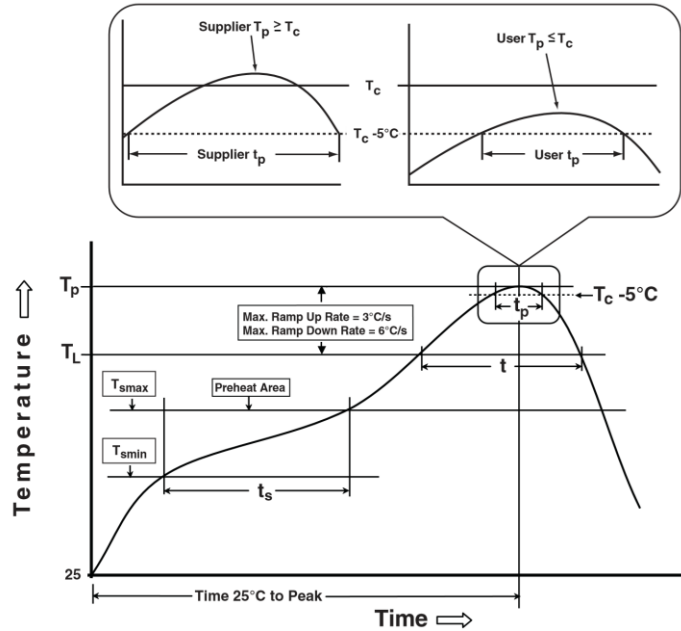
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## Reflow Profile [JEDEC J-STD-020]

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 – 90 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 ( $T_p$ )*	<b>See Table 1</b>	<b>See Table 2</b>
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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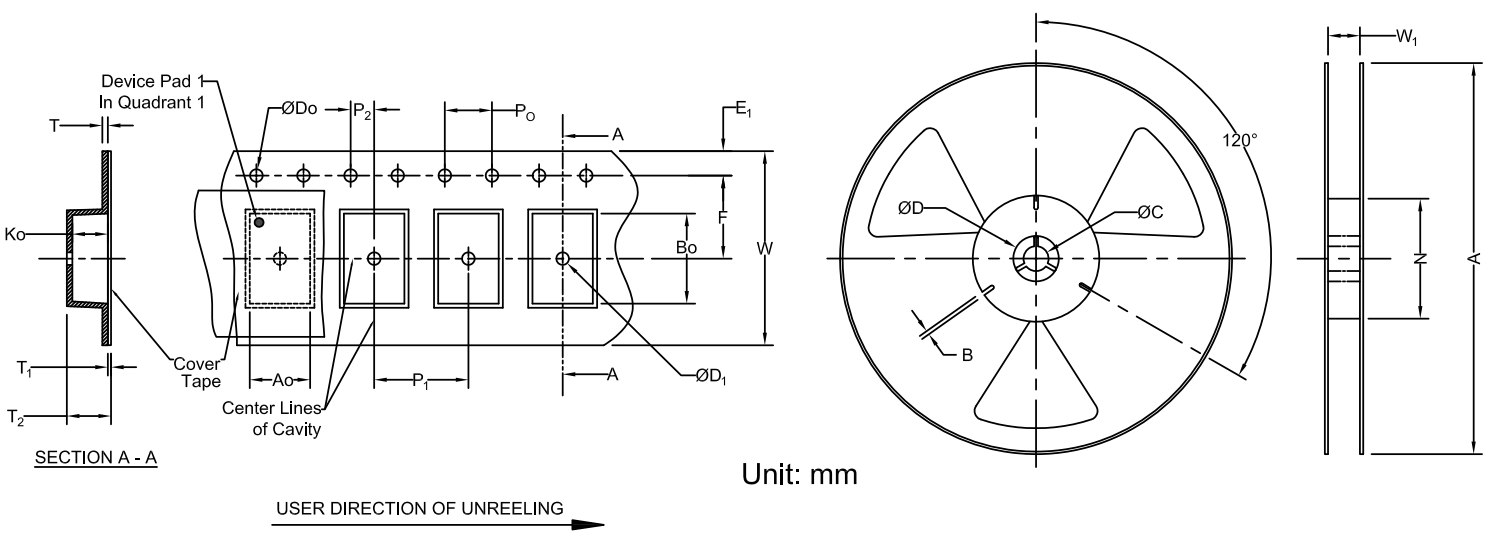


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## Packaging

### Tape & Reel

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



Unit: mm

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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