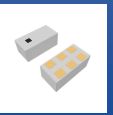# Wi-Fi 6/6E/7 LTCC RF Diplexer

ADID-R-0012

Request Samples ⊘   Check Inventory ⊘
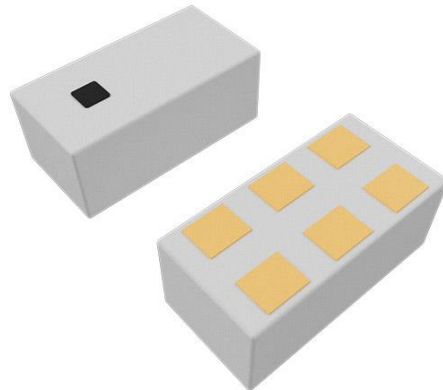
1.6 x 0.8 x 0.65 mm

RoHS Compliant

Features

- Supporting 2400~2500 / 5150~7150 MHz Simultaneously
- Small Form Factor 1.6 x 0.8 x 0.65 mm
- Low Insertion Loss 0.5 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

Wi-Fi 6/6E/7 LTCC RF Diplexer

ADID-R-0012

Request Samples   (>)   Check Inventory   (>)

1.6 x 0.8 x 0.65 mm

RoHS Compliant

Electrical Specifications

Parameters	Specification		Units	Notes
Passband	2400-2500	5150-7150	MHz	
Insertion Loss	0.5	1.0	dB	@25ºC
	0.7	1.3		@-40ºC ~ +85ºC
VSWR	< 2.0		-	
Attenuation (min.)	40	-	dB	4800 ~ 5000 MHz
	30	-		7200 ~ 7500 MHz
	-	45		2400 ~ 2500 MHz
	-	29		10300 ~ 14300 MHz
	-	30		15300 ~ 21450 MHz
Isolation (min.)	40		dB	2400 ~ 2500 MHz
	40			4800 ~ 5000 MHz
	38			5000 ~ 6000 MHz
	30			6000 ~ 7150 MHz
Power Capacity	3		W	-

Mechanical Specifications

Parameters	Specifications
Filter Dimension	1.6 x 0.8 x 0.65 mm
Mounting Type	Surface Mount

Environmental Specifications

Parameters	Specifications
Operating Temperature	-40ºC ~ +85ºC
Storage Temperature	-10ºC ~ +40ºC (70% R.H. max)
Humidity	90% - 95% R.H.

Wi-Fi 6/6E/7 LTCC RF Diplexer

ADID-R-0012

Request Samples ⊙   Check Inventory ⊙

1.6 x 0.8 x 0.65 mm

RoHS Compliant

Ordering Information

Part Number	Description
ADID-R-0012	Wi-Fi 6/6E/7 LTCC RF Diplexer
ADID-R-0012-EVB	Wi-Fi 6/6E/7 LTCC RF Diplexer EVB

Note: Other options not listed may be available upon request via Abracon online support

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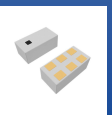
ADID-R-0012

Request Samples ⊚   Check Inventory ⊚

1.6 x 0.8 x 0.65 mm

RoHS Compliant

Package Dimensions & PCB Footprint

1.60±0.10

0.80±0.10

| 1 | 2 | 3 |
| 4 | 5 | 6 |

TOP VIEW

0.65±0.10

SIDE VIEW

0.30±0.10

0.25±0.10

0.20±0.10

0.20±0.10

| 3 | 2 | 1 |
| 4 | 5 | 6 |

BOTTOM VIEW
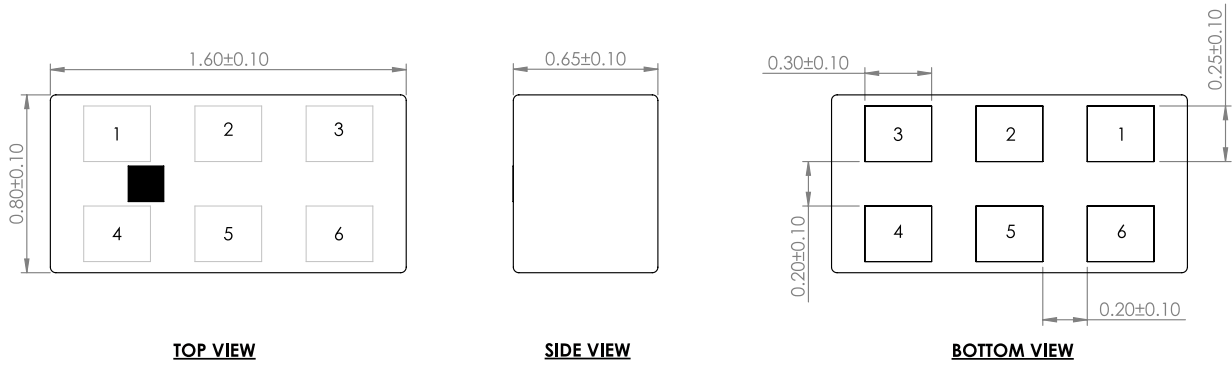
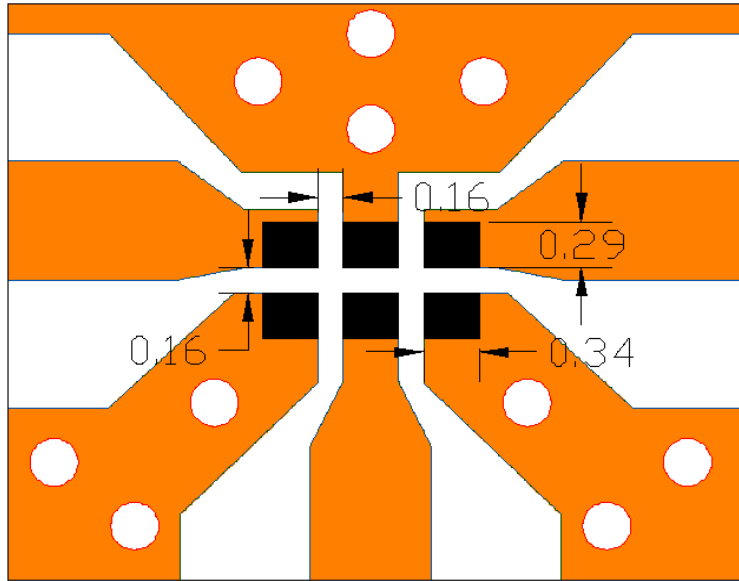| Pin #	Function
1	Low Freq. Port
2	GND
3	High Freq. Port
4	GND
5	Common Port
6	GND
M	MARK
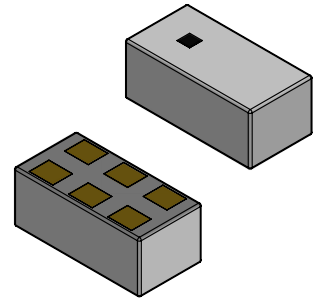
Unit: mm
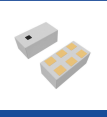
ADID-R-0012

Request Samples ⊘   Check Inventory ⊘

1.6 x 0.8 x 0.65 mm
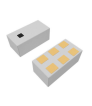
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Recommended Footprint (PCB Layout)

Solder Resist

Land

Through hole: φ=0.2

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.

ADID-R-0012

Request Samples (>)   Check Inventory (>)
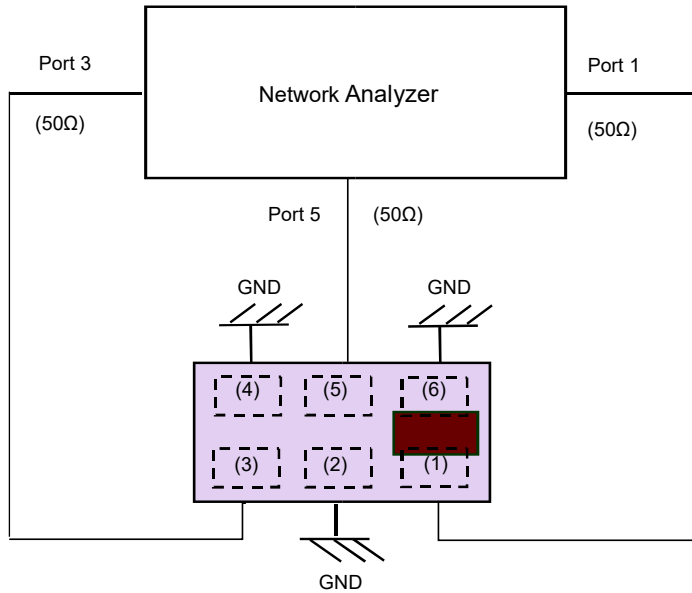
1.6 x 0.8 x 0.65 mm

RoHS Compliant

Measurement Setup

Network Analyzer

Port 3

(50Ω)

Port 1

(50Ω)

Port 5   (50Ω)

GND   GND

(4) (5) (6)

(3) (2) (1)

GND

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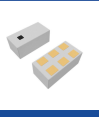
Frequency Characteristics

Insertion Loss (S21 & S31) 500 – 17800 MHz
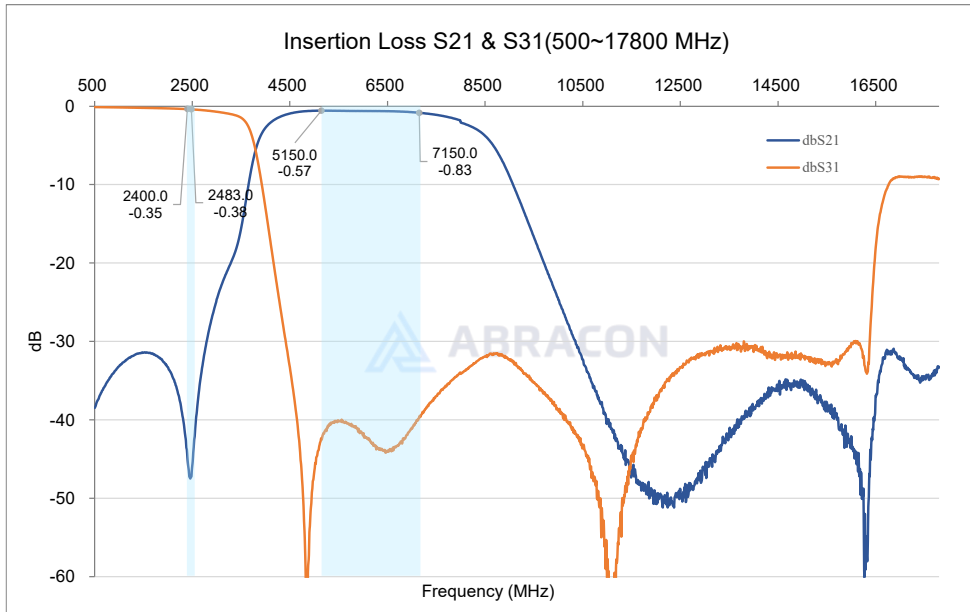
Insertion Loss S21 & S31(500~17800 MHz)

Return Loss (S11 & S22 & S33) 500 – 17800 MHz
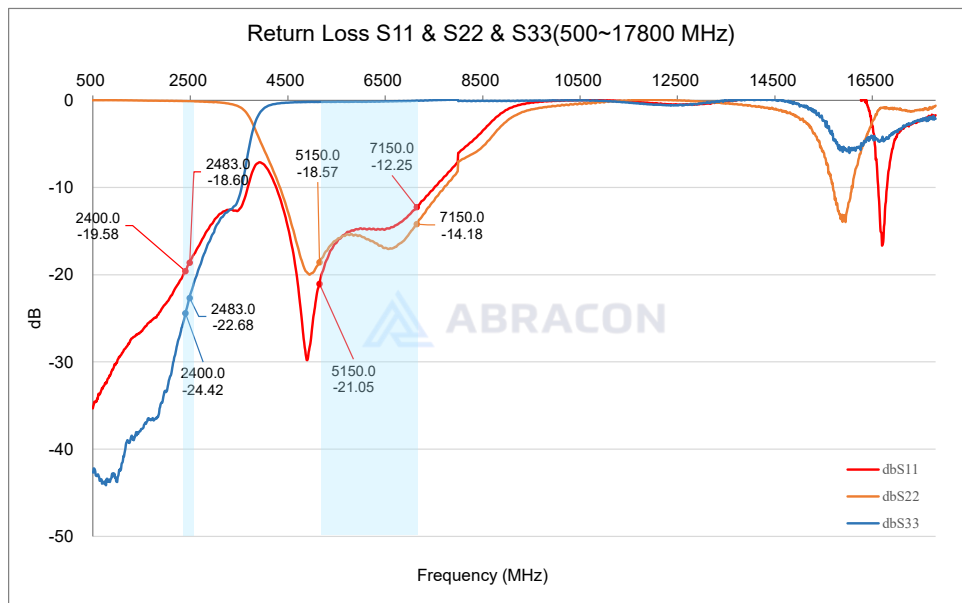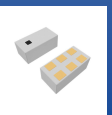
Return Loss S11 & S22 & S33(500~17800 MHz)
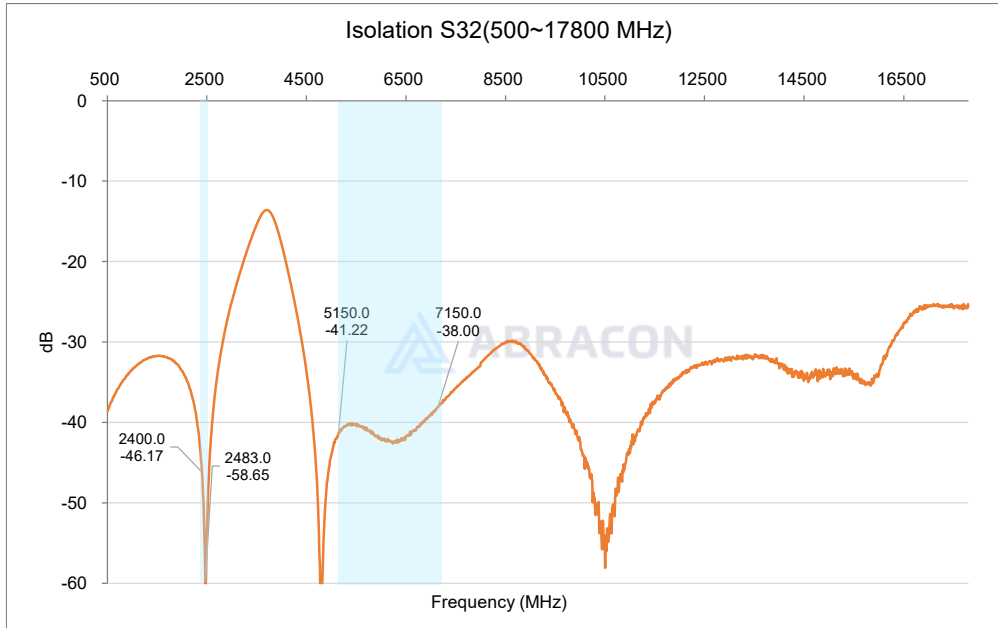
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Wi-Fi 6/6E/7 LTCC RF Diplexer

Isolation (S32) 500 – 17800 MHz

Isolation S32(500~17800 MHz)

2400.0 -46.17
2483.0 -58.65
5150.0 -41.22
7150.0 -38.00

dB

Frequency (MHz)

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1.6 x 0.8 x 0.65 mm

RoHS Compliant

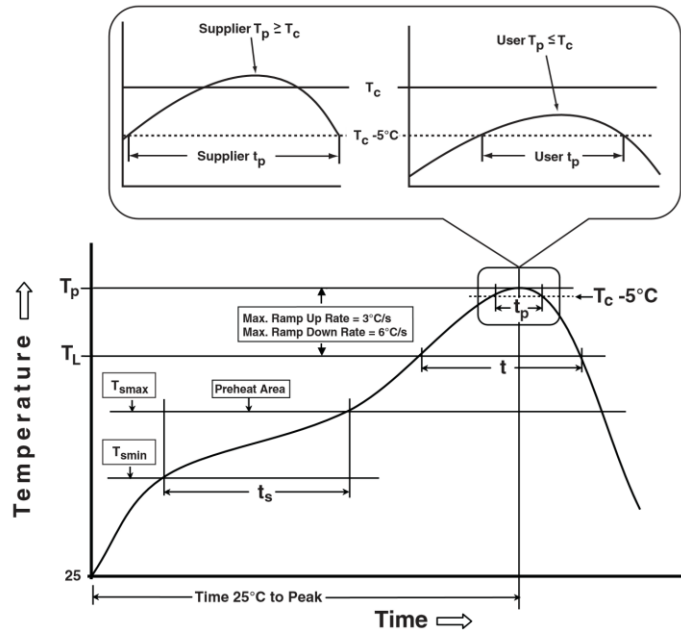## Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

Table 1

SnPb Eutectic Process Classification Temperatures (T_c)		
Package Thickness	Volume mm³ <350	Volume mm³ ≧350
<2.5mm	235℃	220℃
≧2.5mm	220℃	220℃

Table 2

Pb-Free Process Classification Temperatures (T_c)			
Package Thickness	Volume mm³ <350	Volume mm³ 350-2000	Volume mm³ >2000
<1.6mm	260℃	260℃	260℃
1.6mm - 2.5mm	260℃	250℃	245℃
>2.5mm	250℃	245℃	245℃

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100℃	150℃
Temperature maximum (T_{smax})	150℃	200℃
Time (T_{smin} to T_{smax}) (t_s)	60 – 120 sec.	60 – 90 sec.
Average ramp-up rate (T_{smax} to T_p)	3℃/sec. max	3℃/sec. max
Liquidous temperature (T_L)	183℃	217℃
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℃ of the specified classification temperature (T_c)	20 sec.	10 sec.
Ramp-down rate (T_p to T_{smax})	6℃/sec. max	6℃/sec. max
Time 25℃ 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.
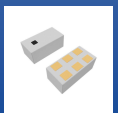
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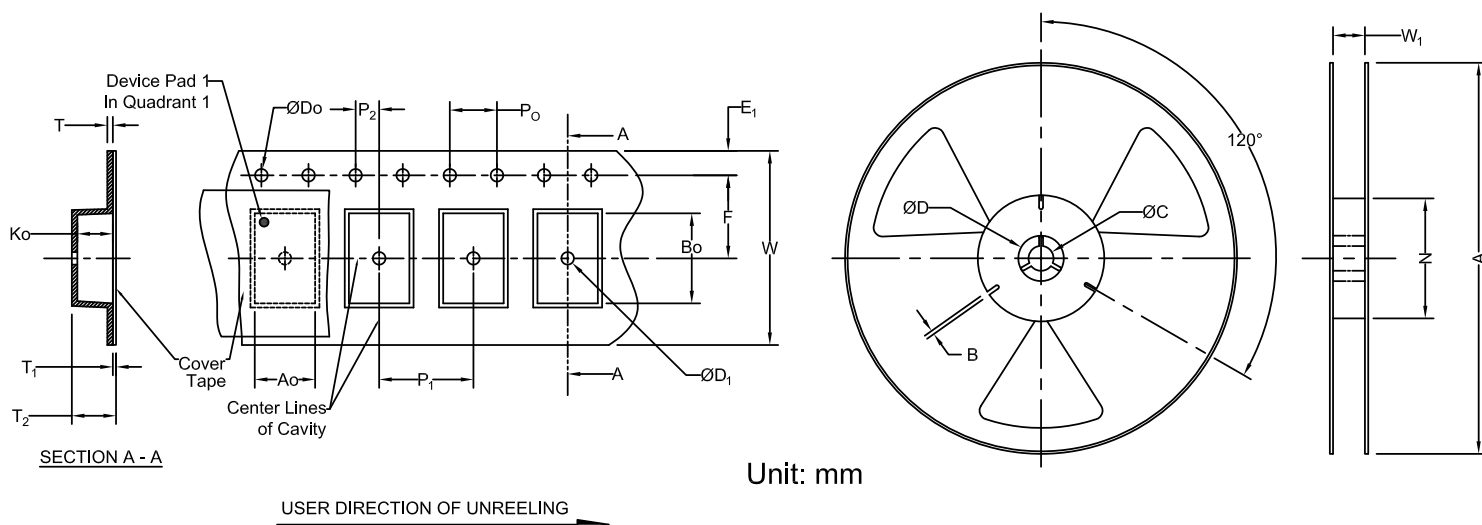
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Request Samples (>)   Check Inventory (>)

1.6 x 0.8 x 0.65 mm

RoHS Compliant

Packaging

Tape & Reel

1. Tape & Reel Dimension 1608(0603)

SECTION A - A

Unit: mm

USER DIRECTION OF UNREELING →

Carrier Tape Specifications (mm)										
Do	E₁	P₀	P₂	T	F	P₁	W	A₀	B₀	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