12 to 18GHz 20dB Directional Coupler

FPC06078

www.knowlescapacitors.com

DESCRIPTION

DLI brand surface mount directional couplers utilize DLI's high dielectric ceramic materials with precision engineering deliver small size and minimal performance variation over temperature. The components are well matched for monitoring incident and reflected power.

FEATURES

- Small Size
- Solder Surface Mount Package
- Moisture Sensitivity Level: MSL1
- Frequency Stable over Temperature
- Operating & Storage Temp: -55˚C to +125˚C
- Characteristic Impedance: 50Ω

Packaging and Ordering Information: To request Tape and Reel packaging, please order part number FPC06078-T, see additional data on page 5.

SPECIFICATIONS*

Parameter	Frequency (GHz)	Min	Max
Passband Insertion Loss* (dB)	12 - 18		0.3
Passband Return Loss (dB)		15	
Coupling (dB)		20	22
Directivity (dB)		14	
CW Input Power (W)**			25
$\theta_{JC}\ \left(\frac{°C}{W}\right)$	3		
Size (L x W x H)	0.100 x 0.080 x 0.015 in 2.54 x 2.03 x 0.38 mm		

*Electrical specifications based on typical mounted performance at room temperature. Insertion loss shall vary ±0.5dB over temperature.

** Power rating assumes the component will be mounted to a PCB with good thermally conducting ground vias as outlined in the recommended PCB layout that are connected to an adequate heat sink. Max power is based on 125°C base temperature.

Information in this document is for informational and guideline purposes only. All information regarding the Product described in this datasheet is subject to change from time to time at Knowles Precision Devices' sole discretion. It is the customer's sole responsibility to evaluate the suitability of the Product in the customer's particular application. Knowles Precision Devices assumes no responsibility or liability for the use of the information contained within.

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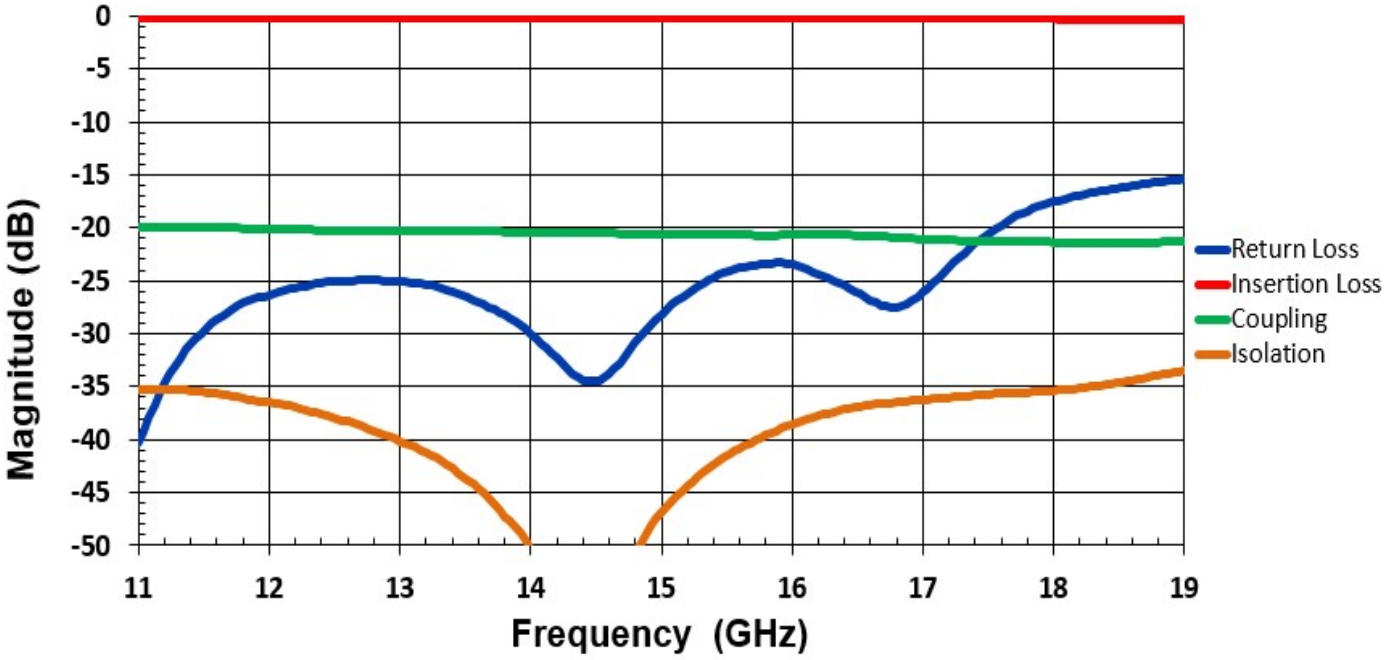
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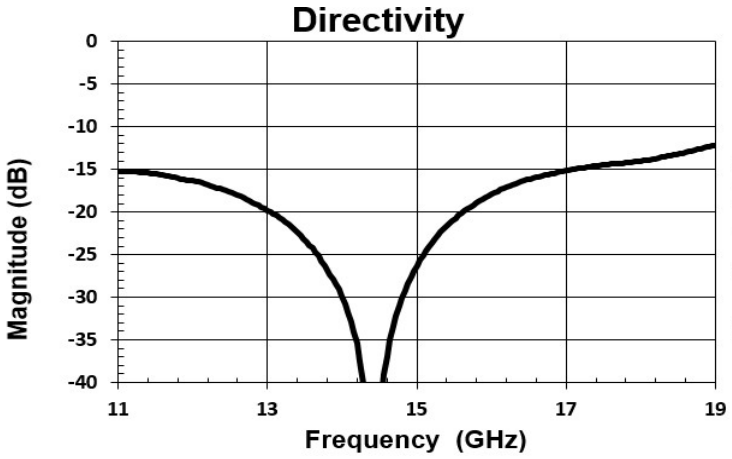
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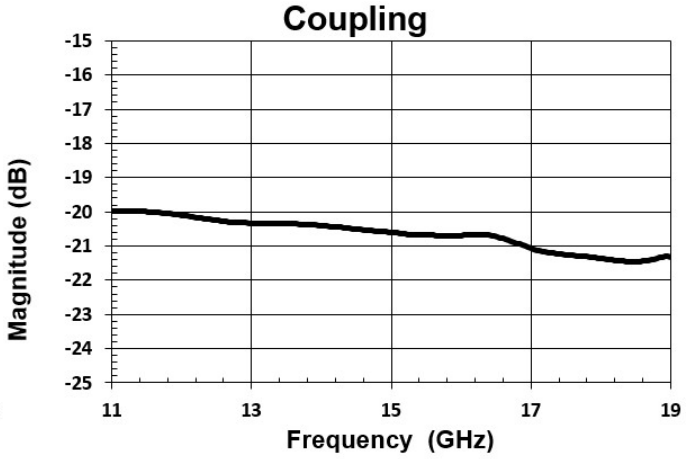
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Typical Measured Performance*



*Typical de-embedded measured performance mounted on a connectorized test fixture. DEB is 0.010in RO4350B with 50.0Ohm CPW ground traces going into the ports at room temperature.





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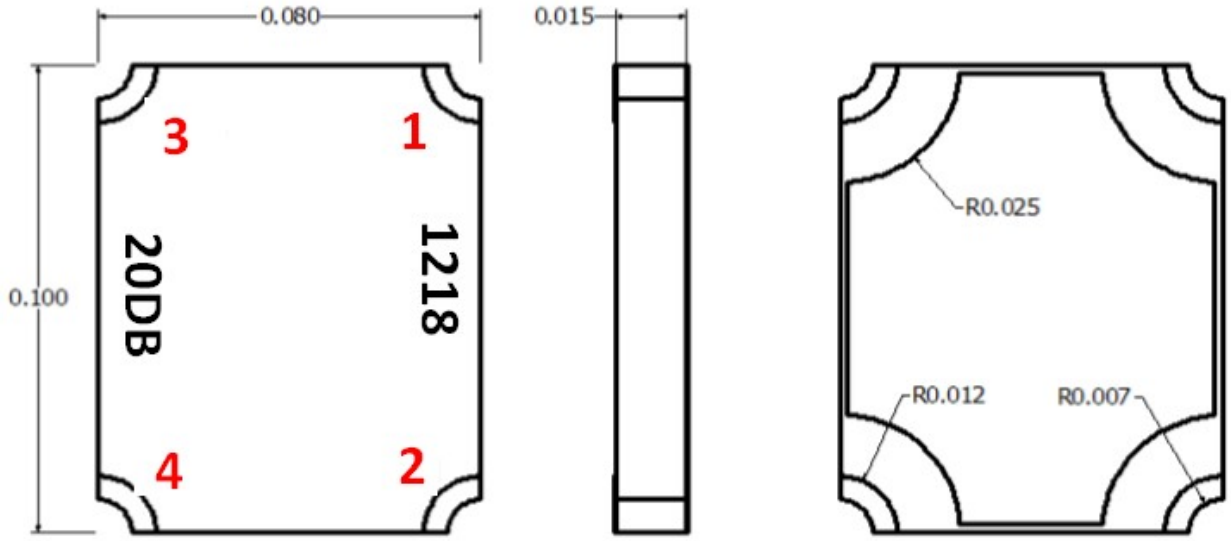
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Physical Dimensions

Units = Inches



Top Side Bottom

Notes :

1. Termination Finish:

   ENIG: 3 - 6 µinch Au over 50 µinch Ni

2. Maximum Assembly Process Temperature: 250°C

Tolerances:

For values with 3 decimal places ±0.001

For values with 4 decimal places ±0.0005

FPC06078 Coupler Port Configuration				
	Port 1	**Port 2**	**Port 3**	**Port 4**
Configuration 1	Input	Output	Coupled	Isolated
Configuration 2	Output	Input	Isolated	Coupled
Configuration 3	Coupled	Isolated	Input	Output
Configuration 4	Isolated	Coupled	Output	Input

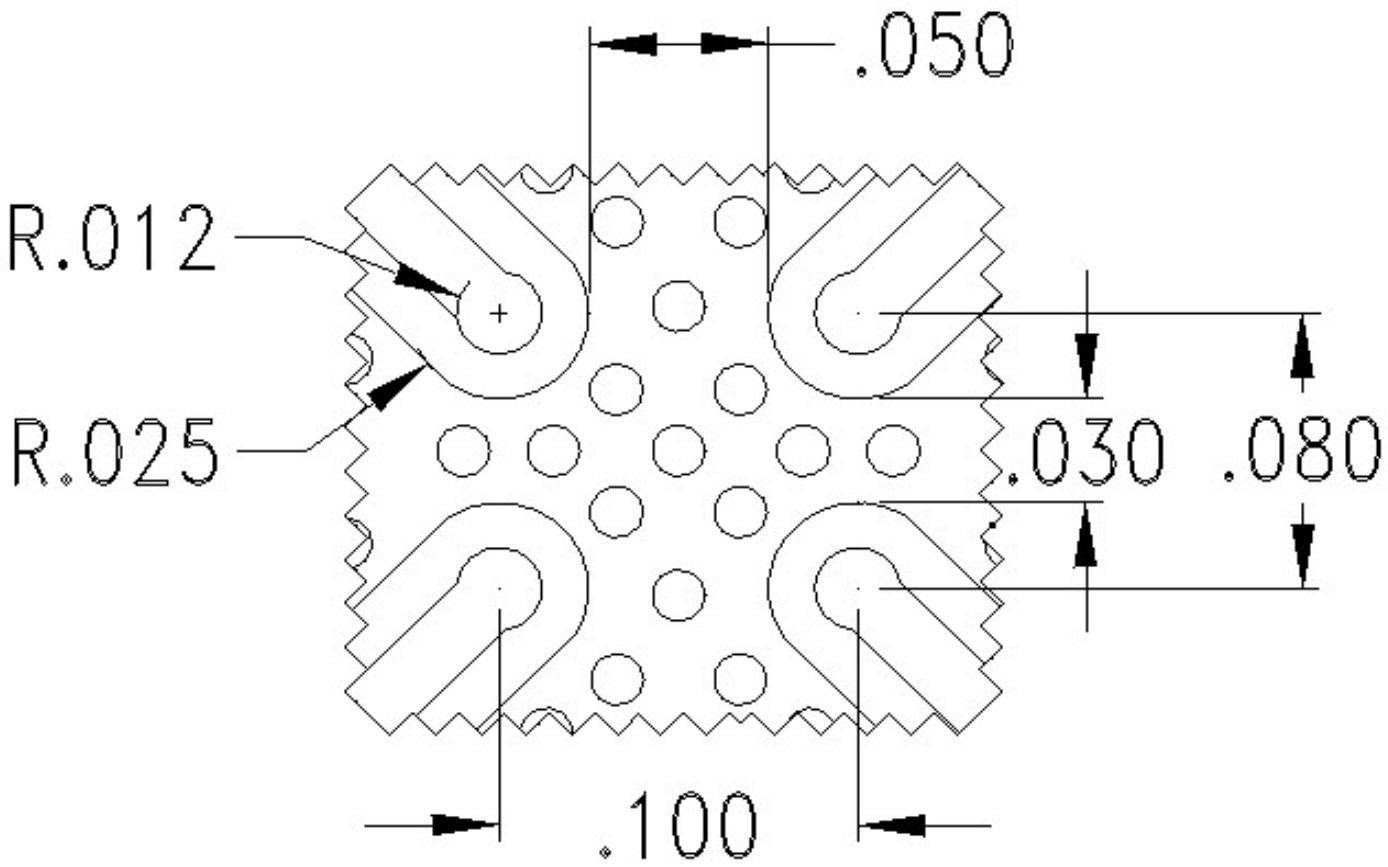
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Recommended PCB Layout



Note:

- 50Ω trace dimensions are application specific.
- Ensure adequate grounding beneath the part.
- Trace feed locations can be horizontal, vertical or angled.

For further details and best practices, reference the **Microwave Products Guide,** available at: https://www.knowlescapacitors.com/Support/Catalogs

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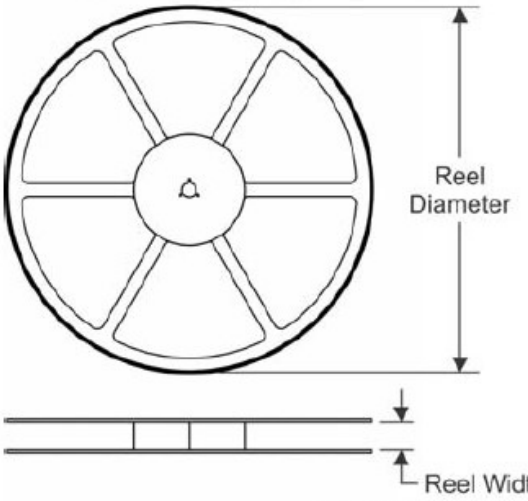
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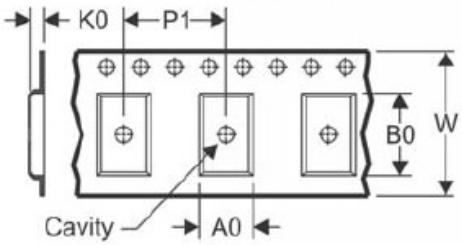
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TAPE AND REEL INFORMATION

REEL DIMENSIONS

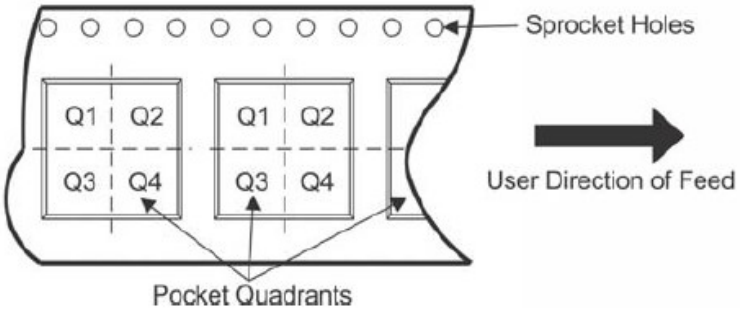


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
FPC06078-T	SMD	180	8.4	1.9	2.4	0.6	4	8	Q1&2

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