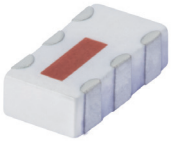
LTCC SURFACE MOUNT

Differential Low Pass Filter DLFCN-290+

50Ω DC to 290 MHz

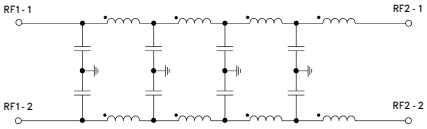
THE BIG DEAL

- Differential Operation
- Low Insertion Loss, 2.0 dB Typ.
- Passband Return Loss, 20 dB Typ.
- Stopband Rejection, 45 dB Typ.
- 1206 Surface Mount Footprint
- Power Handling: 2 W



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



APPLICATIONS

- Test and Measurement Equipment
- VHF/UHF Transmitters / Receivers
- Harmonic Rejection
- Used with PMC-Sierra's PM8910/11/12/13

PRODUCT OVERVIEW

Mini-Circuits' DLFCN-290+ is a LTCC dual low pass filter with a passband from DC to 290 MHz. This can operate as balanced input / output filter. This model is ideal for applications requiring filtering of balanced signals on dual 50Ω lines such as DACs/ ADCs, systems with very low noise requirements and more. The filter provides low insertion loss in the passband, and a very wide stopband up to 2000 MHz, making it suitable for use in wideband systems with many harmonics and spurious products. The unit comes housed in a tiny, rugged 1206 ceramic package, with wraparound terminations for excellent solderability.

KEY FEATURES

Features	Advantages
Differential Filter	Allows filtering of balanced signals in a single, tiny component. Eliminates the need for binning and matching of separate discrete components.
Tiny Size (0.126" x 0.063" x 0.035")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Wide Stopband	Provides excellent rejection over a wide band, ideal for blocking harmonics in wide band communications systems.
Wrap-around Terminations	Provides excellent solderability and easy visual inspection.

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ELECTRICAL SPECIFICATIONS[1,2] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC - 290	—	2.0	3.5	dB
	Freq. Cut-Off[3]	Fc	325	—	3	—	
	Return Loss	DC-F1	DC - 290	—	20	—	
Stopband	Rejection	F2	460	20	25	—	dB
		F3-F4	600 - 2000	37	45	—	

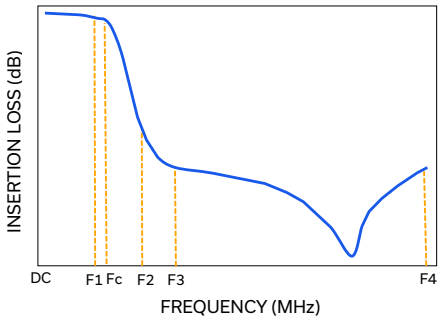
1. Tested in Evaluation Board P/N TB-DLFCN-290+.
2. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
3. Typical variation ± 5%.

ABSOLUTE MAXIMUM RATINGS[4]

Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Input Power[5]	2 W @ +25°C

4. Permanent damage may occur if any of these limits are exceeded.
5. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 1 W at +100°C.

TYPICAL FREQUENCY RESPONSE



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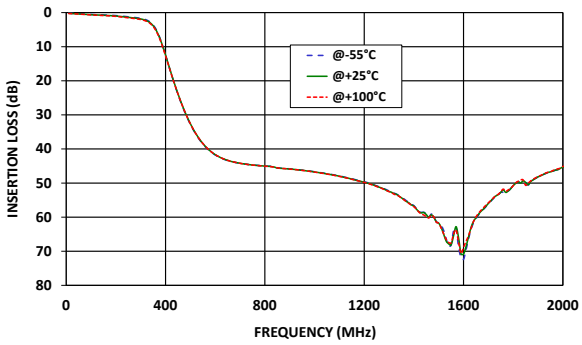
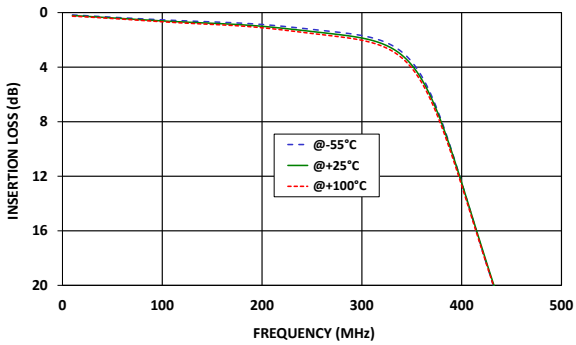
TYPICAL PERFORMANCE GRAPHS

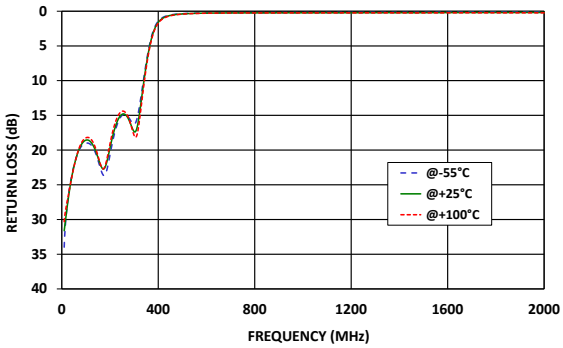
DLFCN-290+
INSERTION LOSS



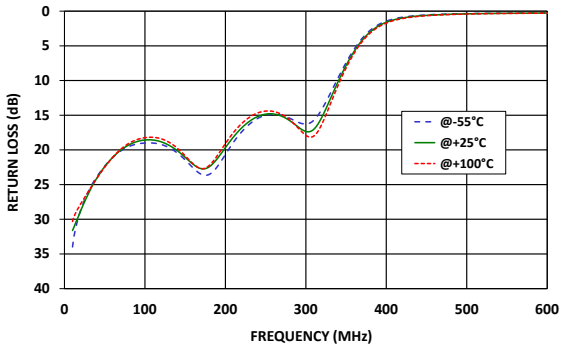
DLFCN-290+
INSERTION LOSS (Zoomed)



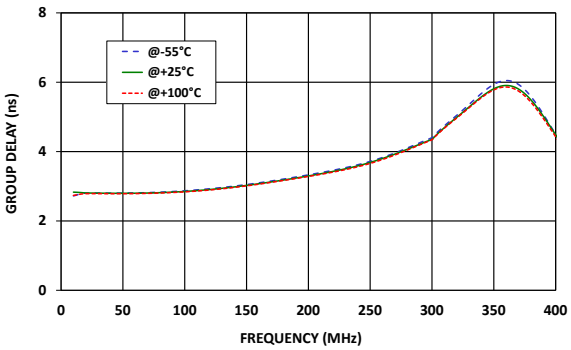
DLFCN-290+
RETURN LOSS



DLFCN-290+
RETURN LOSS (Zoomed)



DLFCN-290+
GROUP DELAY



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FUNCTIONAL DIAGRAM

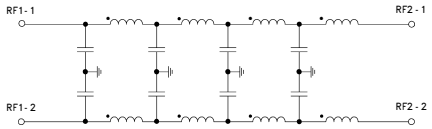
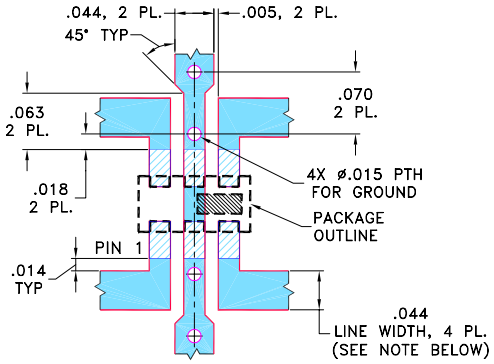


Figure 1. DLFCN-290+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1-1, RF1-2	1,6	Connects to RF Input Port
RF2-1, RF2-2	3,4	Connects to RF Output Port
GROUND	2,5	Connects to Ground on PCB, (See drawing PL-131)

SUGGESTED PCB LAYOUT



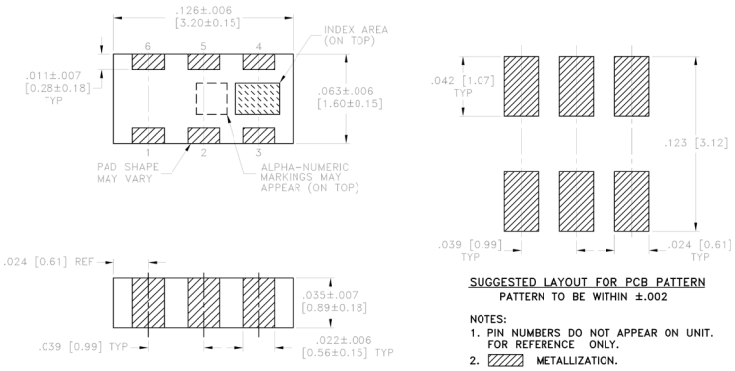
NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2.BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Figure 2. Suggested PCB Layout

CASE STYLE DRAWING



Weight: .020 grams
Dimensions are in inches (mm). Tolerances: 2Pl. ± .01 [.254]; 3Pl. ± .005 [.127]

PRODUCT MARKING*: W6

*Marking may contain other features or characters for internal lot control.

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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S4P Files) Data Set (.zip file) De-embedded to device pads
Case Style	FV1206-1 Lead Finish: Tin over Nickel Plate
RoHS/REACH Status	Compliant
Tape and Reel	F75
Suggested Layout for PCB Design	PL-131
Evaluation Board	TB-DLFCN-290+ Gerber File
Environmental Rating	ENV06

NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.

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