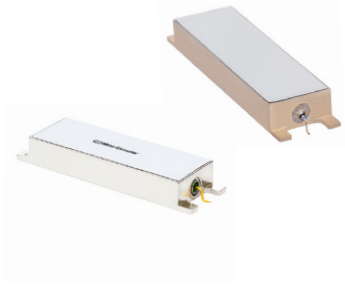
Surface Mount

Gross-Leak-Sealed Metal Package Filters

50Ω DC to 6 GHz



The Big Deal

- Gross-leak-sealed package
- Excellent rejection
- Sharp roll-off
- Resistant to vibration
- Can modify for Hermeticity

Product Overview

Mini-Circuits' *Gross-Leak-Sealed Metal Package filters* offer low insertion loss and wide stop band in a very small form factor. Bandpass and Low pass designs use these construction technique. Small package size combined with sharp roll-off and excellent rejection characteristics make these filters ideal for military or other high performance applications. The product line is standardized by design and package to provide engineers with filters that ideally suit their high performance requirement.

All our Gross-leak-sealed metal package filters are built with durable construction. Excellent repeatability across units is achieved through precise tuning and process control.

All our Gross-leak-sealed metal package filters can be modified to meet fine-leak specification.

Key Features

Feature	Advantages
Gross-leak-sealed metal package	Water and dust resistance; can modify for resistance to fine-leak.
Sharp roll-off	Sharp roll-off helps in adjacent channel rejection and hence increased selectivity
Excellent rejection	Rejects unwanted spurious in the adjacent band
Resistant to vibration	Withstand harsh environmental condition
Small Size	Very well suited for high performance applications where small package size is required.
Temperature stability	Very minimal change in electrical performance across temperature makes these filters suitable for a wide range of operating conditions and applications.

Surface Mount - Gross-Leak-Sealed Metal Package

Low Pass Filter

MLPA-2300+

50Ω DC to 2300 MHz

Generic photo used for illustration purposes only

CASE STYLE: QN2178-2

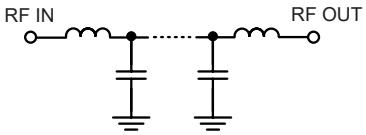
Features

- Low passband IL , 2.0 dB typ.
- Fast Rejection roll-off
- Excellent rejection floor, 70 dB typ.
- Wider stopband performance up to 6GHz
- Good Return loss, 12.7 dB typ.

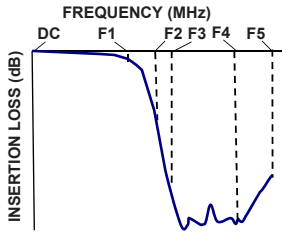
Applications

- GPS
- PCS/DCS/UMTS
- Military communications

Functional Schematic



Typical Frequency Response



+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at 25°C

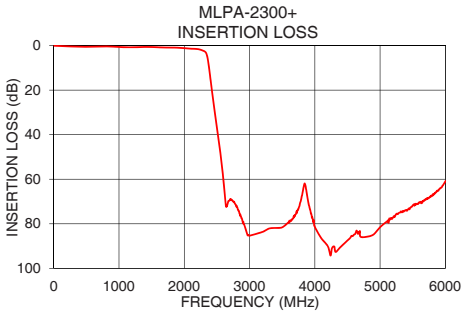
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 2300	—	2.0	3.5	dB
	VSWR	DC-F1	DC - 2300	—	1.6	2.3	:1
Stop Band	Rejection Loss	F2-F3	2600 - 2900	45	60	—	dB
		F3-F4	2900 - 5000	40	70	—	dB
		F4-F5	5000 - 6000	25	65	—	dB

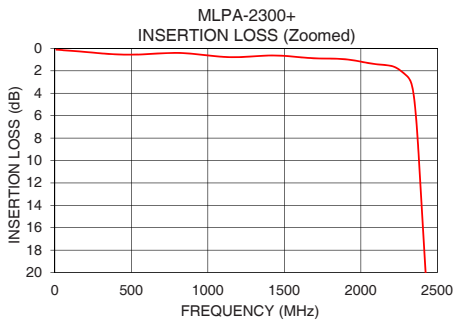
Maximum Ratings[2]	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 105°C
RF Power Input[1]	3W max. @25°C

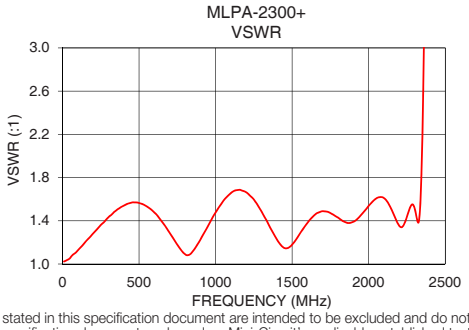
1. Passband rating derates to 1.5W at 85°C ambient.
2. Permanent damage may occur if any of these limits are exceeded.

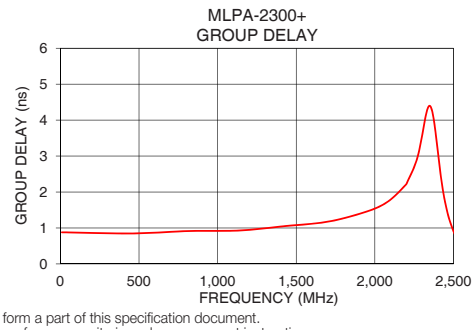
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
10	0.11	1.02	10	0.88
50	0.15	1.06	50	0.88
100	0.21	1.13	100	0.87
500	0.55	1.56	200	0.86
1000	0.63	1.48	300	0.85
1500	0.66	1.18	400	0.85
2000	1.18	1.54	500	0.85
2300	2.45	1.52	600	0.87
2340	3.70	1.65	700	0.89
2400	14.63	8.94	800	0.91
2425	20.44	12.90	900	0.92
2470	30.34	18.08	1000	0.92
2600	60.28	26.86	1100	0.92
2800	72.06	36.81	1200	0.95
2900	79.67	42.17	1300	0.99
3000	85.38	47.21	1400	1.04
4000	81.33	129.64	1500	1.08
4600	84.88	145.98	1600	1.12
5000	81.53	138.98	2000	1.54
6000	60.90	66.31	2300	3.55









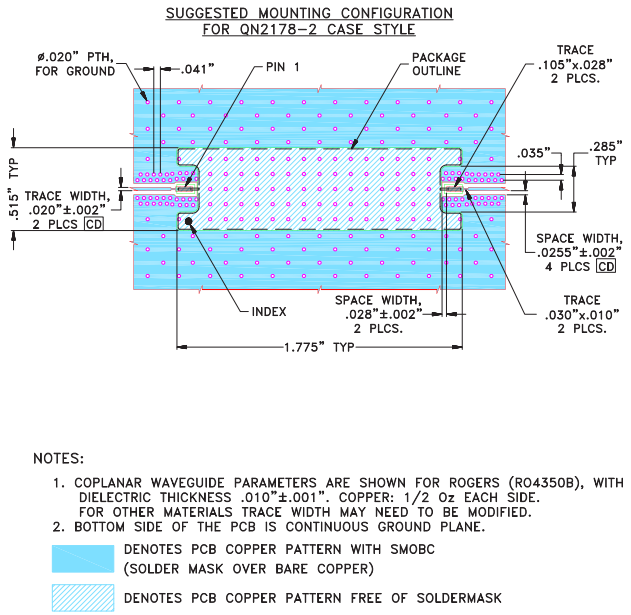
Notes

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-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Pad Connections

INPUT	1
OUTPUT	2

Demo Board MCL P/N: TB-1117+
Suggested PCB Layout (PL-664)



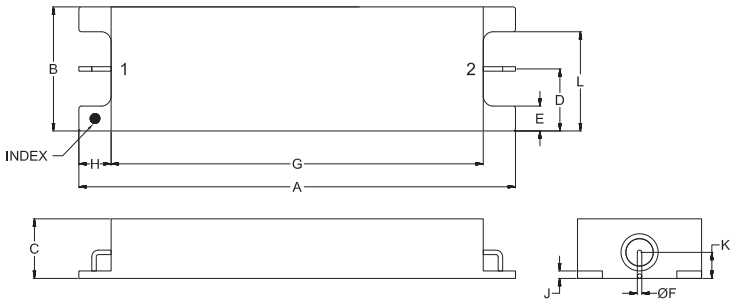
NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS (RO4350B), WITH DIELECTRIC THICKNESS .010"±.001". 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 PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C Min	C Max	D	E	F	G	H
1.76	**.50**	**.24**	**.26**	**.25**	**.10**	**.018**	**1.50**	**.13**
44.70	12.70	6.10	6.60	6.35	2.54	0.46	38.10	3.30

J	K	L	Wt.
.04	**.11**	**.40**	grams
1.02	2.79	10.16	15

Note: Please refer to case style drawing for details