Surface Mount

Low Pass Filter

LPF-B500+

50Ω DC to 500 MHz

CASE STYLE: HZ1198

The Big Deal

- Good passband Insertion loss, 1.2 dB typical
- High rejection, 50 dB typical from 650-4000 MHz
- Fast roll-off
- Good VSWR, 1.3:1 typical in passband
- Miniature shielded package

Product Overview

The LPF-B500+ is a lowpass filter in a shielded package (size of 0.472" x 0.826" x .22") fabricated using SMT technology. Covering DC-500 MHz band width, these units offer good matching within the passband and high rejection. This unit uses a miniature high Q capacitors and wire welded inductors for high reliability. In addition it has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Low frequency and good passband Insertion loss, 1.2 dB typical	Low insertion loss will be used in designs optimized for high performance applications.
Fast roll-off	Fast roll-off, this will attenuate frequencies closer to the passband with good rejection value of 72 dB.
Good ultimate rejection	This enables the filters to attenuate spurious signals and reject harmonics for broadband frequency.
Good VSWR, 1.3:1 typical in passband	The model has very good return loss for this bandwidth and provides good interface when used with others devices.

Surface Mount

Low Pass Filter

LPF-B500+

50Ω DC to 500 MHz

CASE STYLE: HZ1198

Features

- High rejection, 31 dB typical
- Sharp insertion loss roll-off
- Miniature shielded case
- Aqueous washable

Applications

- Defence communications
- Transmitters / receivers
- Harmonic rejection

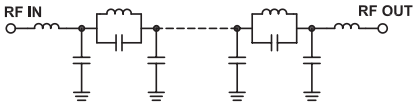
Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-500	—	1.2	2	dB
	Freq. Cut-Off	F2	515	—	3	—	dB
	VSWR	DC-F1	DC-500	—	1.3	1.7	:1
Stop Band	Rejection Loss	F3-F4	585-4500	20	31	—	dB
	VSWR	F3-F4	585-4500	—	24	—	:1

Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1.25 W max.

Permanent damage may occur if any of these limits are exceeded.

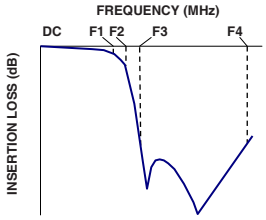
Functional Schematic



Typical Performance Data at 25°C

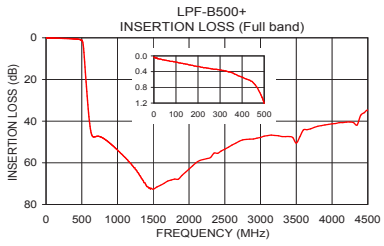
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	0.03	1.01	1	2.52
5	0.04	1.01	5	2.19
50	0.11	1.02	10	2.10
150	0.21	1.08	50	2.04
250	0.32	1.15	150	2.13
400	0.54	1.17	200	2.22
500	1.22	1.31	250	2.35
515	2.40	2.21	275	2.46
530	7.00	6.49	300	2.56
550	16.46	16.72	325	2.72
570	25.75	23.18	350	2.88
585	32.17	26.33	375	3.09
750	47.41	45.72	400	3.37
1000	53.88	57.91	410	3.52
1500	72.66	57.91	430	3.91
2000	63.00	59.91	450	4.42
2500	53.46	62.05	470	5.15
3000	47.81	52.65	480	5.68
4000	41.29	36.97	490	6.47
4500	34.78	32.18	500	7.75

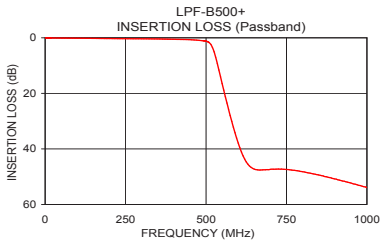
Typical Frequency Response

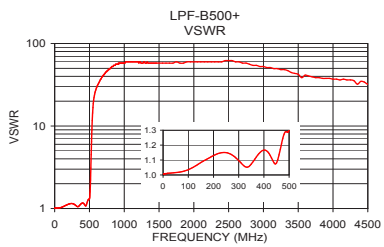


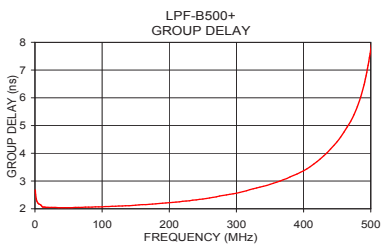
+RoHS Compliant

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









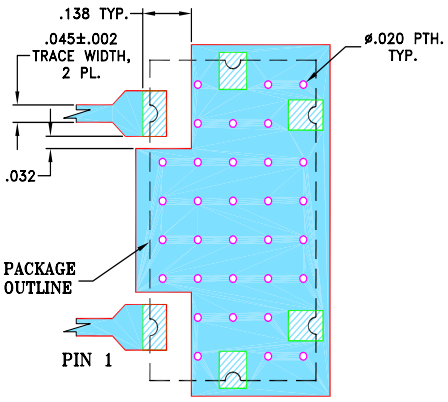
Notes

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
GROUND	3,4,5,6

Demo Board MCL P/N: TB-400+
Suggested PCB Layout (PL-247)

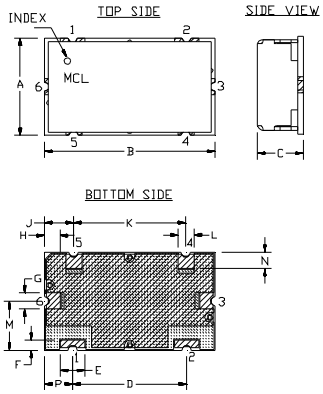


NOTES:
1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025"±.002". COPPER: 1/2 OZ. EACH SIDE.
   FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

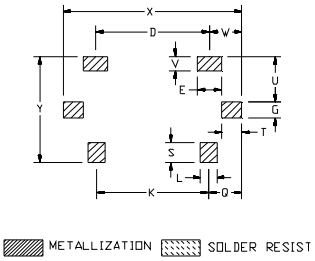
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Outline Drawing



PCB Land Pattern



METALLIZATION SOLDER RESIST

Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M
.472	.826	.220	.551	.118	.047	.078	.076	.142	.543	.078	.236
11.99	20.98	5.59	14.00	3.00	1.19	1.98	1.93	3.61	13.79	1.98	5.99

N	P	Q	S	T	U	V	W	X	Y	
.079	.138	.162	.098	.096	.217	.067	.157	.866	.512	grams
2.01	3.51	4.11	2.49	2.44	5.51	1.70	3.99	22.00	13.00	6.0