

## Surface Mount

# Coaxial-Ceramic Resonator Filters and Multiplexers

50Ω DC to 6 GHz

## The Big Deal

- Low insertion loss with excellent power handling
- Passbands up to 6 GHz
- Fractional bandwidth from <1 to 25%
- Low profile designs with min. height of 0.120"
- Excellent temperature stability
- Rugged construction to handle demanding environmental conditions



## Product Overview

Mini-Circuits' *Coaxial-Ceramic Resonator filters* offer low insertion loss in very small form factors, using ceramic material with high dielectric constant and superior Q factor. Bandpass and bandstop filters, diplexer and multiplexer designs can be constructed using this technology. Low insertion loss combined with excellent power handling makes these filters well suited for transmitter and receiver signal chains. Advanced filter design and construction can achieve stopband width greater than 3x the center frequency as high as 20 GHz.

All our coaxial-ceramic resonator filters are built with rugged construction, qualified to withstand multiple demanding reflow cycles. Excellent repeatability across units is achieved through precise tuning and process control.

## Key Features

Feature	Advantages
Low insertion loss	Low signal loss results in better SNR in signal chain
Fast roll-off	Higher selectivity results in better adjacent channel rejection and dynamic range
Wide stop band	Wide spur-free stopband results in better receiver sensitivity
Excellent power handling	Well suited for transmitter applications
Rugged Construction	These filter assemblies have been qualified over a wide range of thermal, mechanical and environmental conditions including withstanding the stress of extensive solder reflow cycles
Small Size	Very well suited for high performance applications where size is a constraint.
Temperature stability	Very minimal change in electrical performance across temperature makes these filters suitable for a wide range of operating conditions.

### Notes

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# Bandpass Filter

## CBP12-1030BE+

50Ω 1027 to 1033 MHz



Generic photo used for illustration purposes only  
CASE STYLE: UP2912

### Features

- Excellent roll-off
- Excellent rejection
- Good passband IL
- Cavity filter standard specs in compact profile

### Applications

- Traffic Alert and Collision Avoidance System (TCAS)
- Military IFF

### Electrical Specifications at 25°C

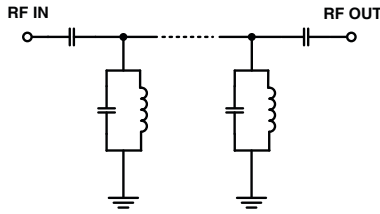
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	-	-	1030	-	MHz	
	Insertion Loss	F1-F2	1027 - 1033	-	1.75	2.5	dB
	VSWR	F1-F2	1027 - 1033	-	1.5	1.92	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC - 950	70	80	-	dB
		F3-F4	950 - 1008	20	30	-	dB
Stop Band, Upper	Insertion Loss	F5-F6	1052 - 1100	20	30	-	dB
		F6-F7	1100 - 1800	60	67	-	dB
		F7-F8	1800 - 2000	-	40	-	dB

### Maximum Ratings

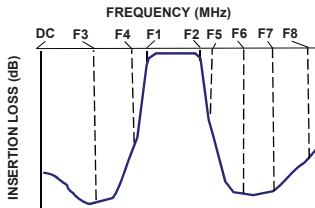
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	10 W max. at 25°C

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

### Functional Schematic



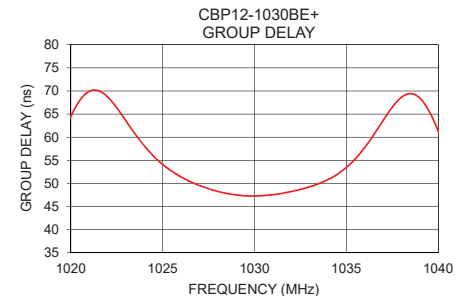
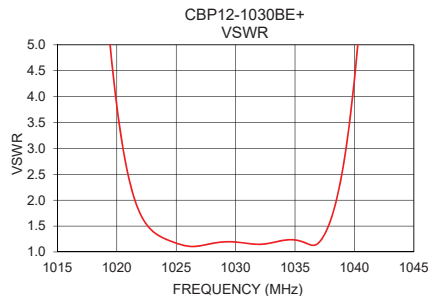
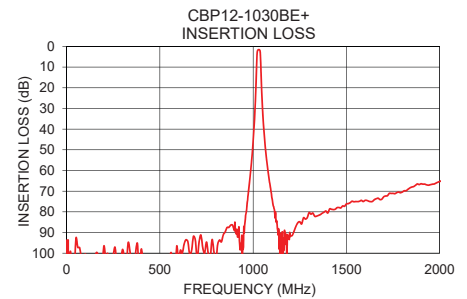
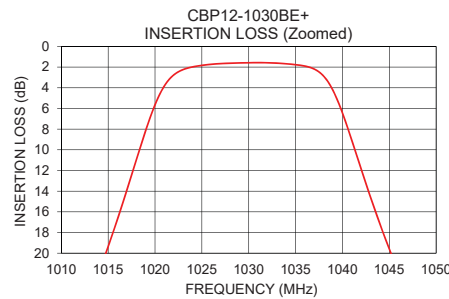
### Typical Frequency Response



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (ns)
1	107.75	169.12	1020	64.52
10	108.16	287.78	1021	69.93
100	100.39	386.63	1022	68.72
950	87.28	267.91	1023	63.53
1000	46.05	86.67	1024	58.11
1008	34.15	52.19	1025	54.11
1014	21.86	25.67	1026	51.41
1027	1.67	1.12	1027	49.55
1029	1.60	1.19	1028	48.28
1030	1.58	1.19	1029	47.52
1032	1.58	1.15	1030	47.28
1033	1.62	1.18	1031	47.56
1038	2.88	1.62	1032	48.25
1046	21.86	32.63	1033	49.27
1052	32.91	75.15	1034	50.86
1100	72.91	388.69	1035	53.46
1200	91.70	370.21	1036	57.79
1500	76.17	261.41	1037	63.65
1800	70.39	203.10	1038	68.65
2000	65.32	149.47	1039	68.45

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



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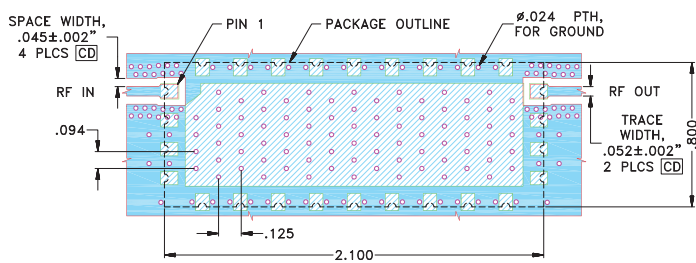


## Pad Connections

INPUT	1
OUTPUT	17
GROUND	2-16, 18-26

**Demo Board MCL P/N: TB-1137+**  
**Suggested PCB Layout (PL-686)**

**SUGGESTED MOUNTING CONFIGURATION FOR UP2912 CASE STYLE**

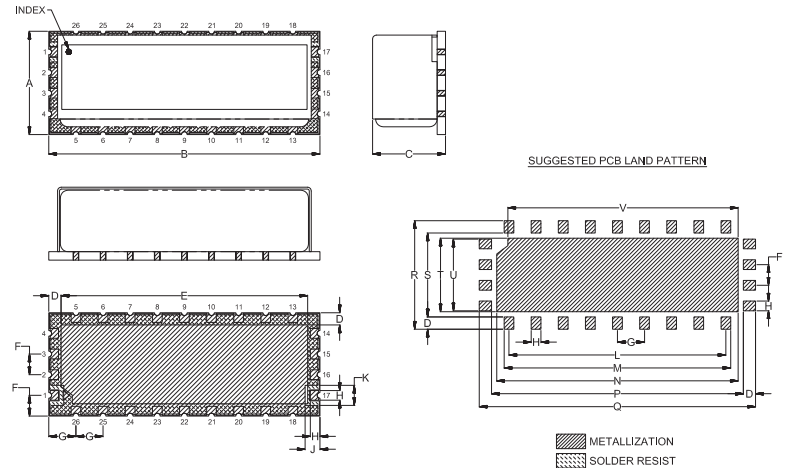


**NOTES:**

1. COPLANAR WAVEGUIDE PARAMETER ARE SHOWN FOR ROGERS(RO4350B), WITH DIELECTRIC THICKNESS .023"±.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



## Outline Dimensions ( inch / mm)

A	B	C	D	E	F	G	H	J	K	L
.800	2.100	.580	.095	1.910	.160	.210	.075	.115	.155	1.680
20.32	53.34	14.73	2.41	48.51	4.06	5.33	1.91	2.92	3.94	42.67
M	N	P	Q	R	S	T	U	V	Wt.	
1.755	1.870	1.950	2.140	.840	.650	.570	.555	1.783	grams	
44.58	47.50	49.53	54.36	21.34	16.51	14.48	14.10	45.29	40	

*Note: Please refer to case style drawing for details*

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