



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.





SURFACE MOUNT CERAMIC RESONATOR

Bandpass Filter

CBP4-1875Q+

Mini-Circuits

50Ω 1825 to 1925 MHz

FEATURES

- High rejection, 60dB typ.
- Narrow band and fast roll-off
- Good insertion loss, 2.5dB typ.

APPLICATIONS

- Defense / Military
- International Mobile Telecommunication



Generic photo used for illustration purposes only

CASE STYLE: HQ2299

+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.	Units	
Center Frequency	—	—	—	1875	—	MHz	
Passband	Insertion Loss	F1-F2	1825 - 1925	—	2.5	3.2	dB
	Return Loss	F1-F2	1825 - 1925	10	15	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 1680	60	70	—	dB
		F3-F4	1680 - 1775	20	30	—	dB
Stop Band, Upper	Rejection	F5-F6	1971 - 2100	20	29	—	dB
		F6-F7	2100 - 3000	48	60	—	dB

1. Measured on Mini-Circuits Test Board TB-CBP4-1875Q+

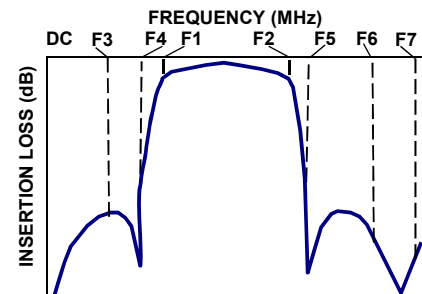
MAXIMUM RATINGS

Parameter	Ratings
Operating temperature	-40°C to +85°C
Storage temperature	-55°C to +100°C
RF Power Input *	7W at 25°C

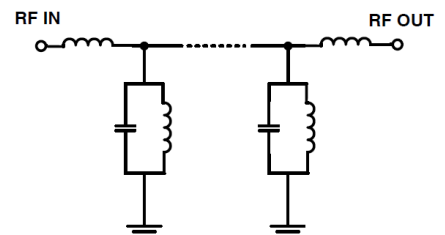
Permanent damage may occur if any of these limits are exceeded.

*Passband rating

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC

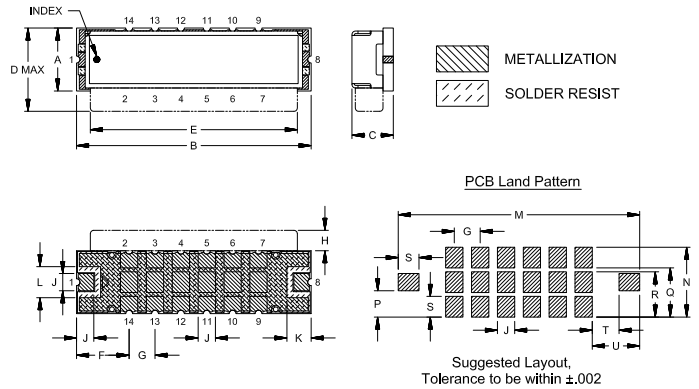




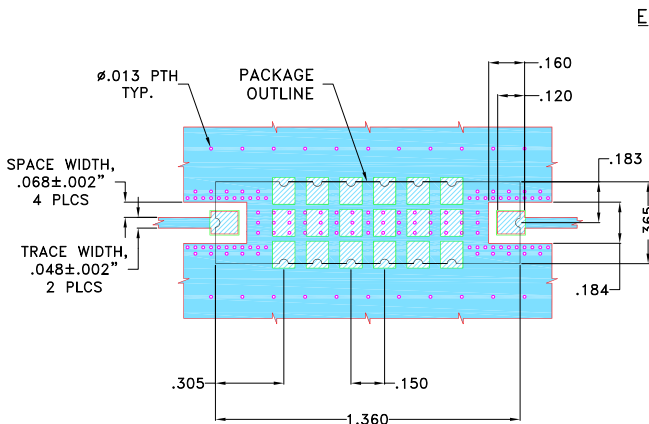
PAD CONNECTIONS

RF IN	1
RF OUT	8
GROUND	2-7,9-14

OUTLINE DRAWING



DEMO BOARD MCL P/N: TB-CBP4-1875Q+ SUGGESTED PCB LAYOUT (PL-543)



NOTES:

- TRACE WIDTH IS SHOWN FOR FR4, IT180A WITH DIELECTRIC THICKNESS $.025 \pm .002$ ". COPPER: 1/2 Oz EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- 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 DIMENSIONS (Inches) mm

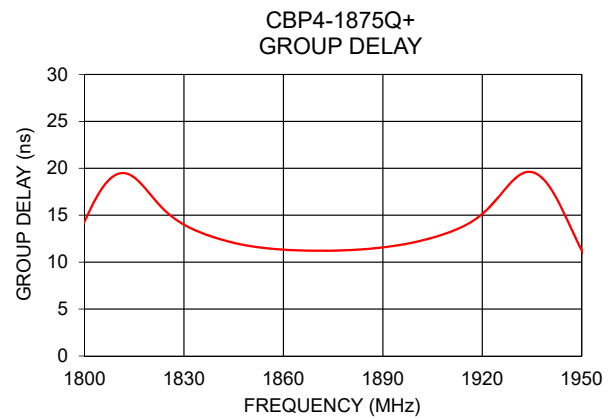
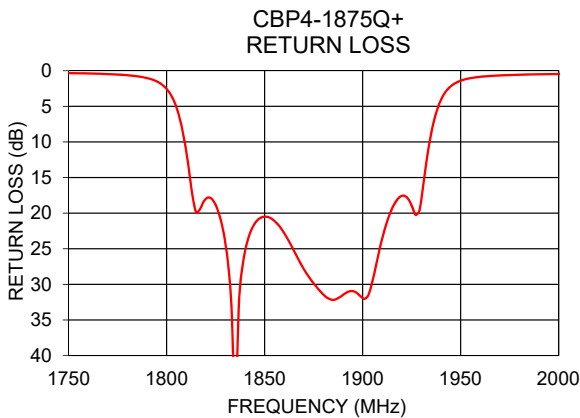
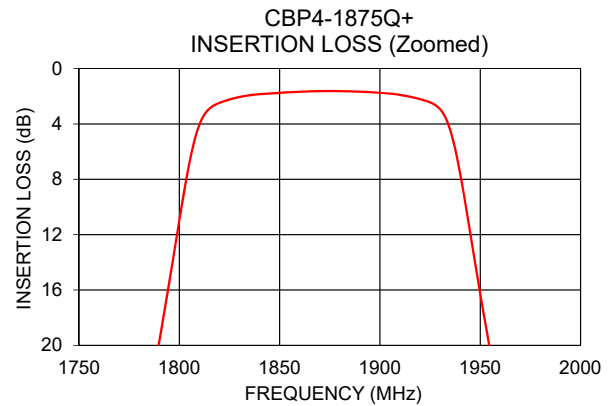
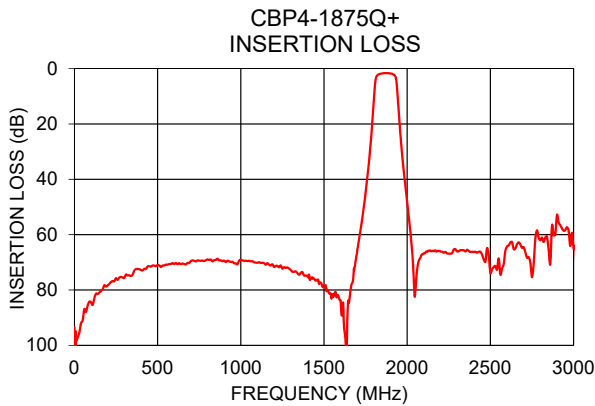
A	B	C	D	E	F	G	H	J	K
-	-	Min	Max	-	-	-	-	-	-
.365	1.360	.240	.270	.483	1.200	.305	.150	.118	.100
9.27	34.54	6.10	6.86	12.27	30.48	7.75	3.81	3.00	2.54
L	M	N	P	Q	R	S	T	U	Wt.
.180	1.400	.405	.153	.285	.263	.120	.155	.275	grams
4.57	35.56	10.29	3.87	7.24	6.67	3.05	3.94	6.99	5.0

Note: Please refer to case style drawing for details



TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	Group Delay (ns)
5	103.11	0.05	1825	15.25
100	84.44	0.06	1833	13.45
1680	72.29	0.22	1839	12.65
1775	30.79	0.53	1845	12.06
1789	20.55	0.97	1851	11.66
1813	3.22	17.22	1857	11.41
1825	2.23	18.84	1863	11.28
1875	1.63	29.87	1869	11.21
1905	1.81	29.56	1875	11.22
1925	2.44	18.92	1883	11.35
1931	3.12	15.89	1891	11.61
1955	20.45	1.04	1899	12.08
1971	31.90	0.64	1905	12.61
2100	66.75	0.31	1915	13.95
3000	65.05	0.09	1925	16.98



- 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