MXB1172A - Preliminary

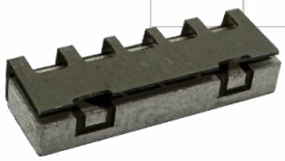
10.7-12.75 GHz Bandpass Filter

Features

- Low Loss with High Rejection
- Low ripple

Applications

- Receive band for Ku-Band Satcom
- Specialty wireless applications



Part Dimensions: 11.7 × 2.5 × 3.7 mm • 0.25 g
Materials: Ag plated ceramic block with fused-tin plated brass shield

Description

Surface mount ceramic bandpass filter. Superior rejection, insertion loss, reliability, as well as both peak and average power handling compared other bandpass filter technologies.

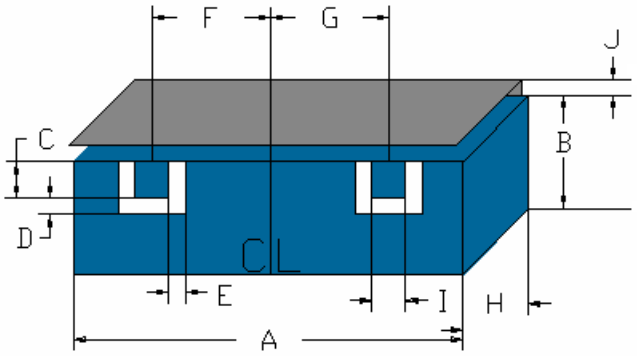
Electrical Specifications *– specs are estimates based on simulation & subject to protoype verfication*

Parameter	Frequency (GHz)	Typical at 25°C	Spec. at 25°C	Spec. over -40°C to +85°C
Nominal Impedance	-	50 ohms	-	-
Average Input Power	-	-	-	2.0 Watt max
Peak Input Power	-	-	-	20 Watt max
Input-Output Response				
Passband Insertion Loss (500MHz avg)	10.70 - 12.75	1.3 dB	1.5 dB min	1.6 dB min
Passband Insertion Loss (single point)	10.70 - 12.75	1.4 dB	1.7 dB min	1.8 dB min
Passband Return Loss	10.70 - 12.75	11 dB	10 dB min	10 dB min
Attenuation:	1 - 9.70	47 dB	40 dB min	40 dB min
	13.75 - 13.99	39 dB	37 dB min	37 dB min
	14.00 - 16.50	43 dB	40 dB min	40 dB min
	16.51 - 17.00	35 dB	30 dB min	30 dB min

Note: CTS tests each unit to the critical specifications above. Subsequent audits may deviate due to repeatability among different test systems which shall not exceed these allowances.

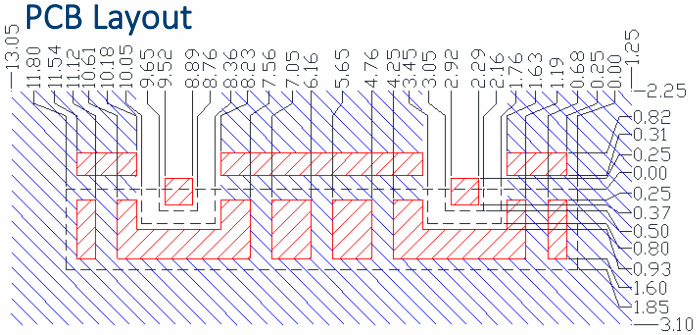
Specification Allowance	
Insertion Loss	0.1 dB
Return Loss	1.0 dB
Attenuation	1.0 dB

Mechanical Drawing



Dim.	Nominal (mm)	Tolerance (±mm or Max)
A	11.70	max
B	1.50	max
C	0.50	0.13
D	0.30	0.13
E	0.40	0.13
F	3.30	0.13
G	3.30	0.13
H	3.70	max
I	0.89	0.13
J	0.63	0.20

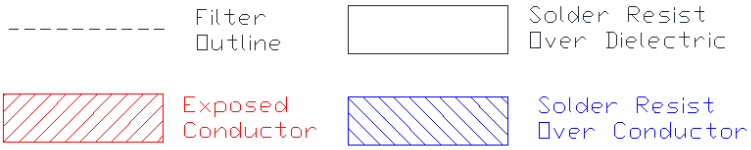
PCB Layout



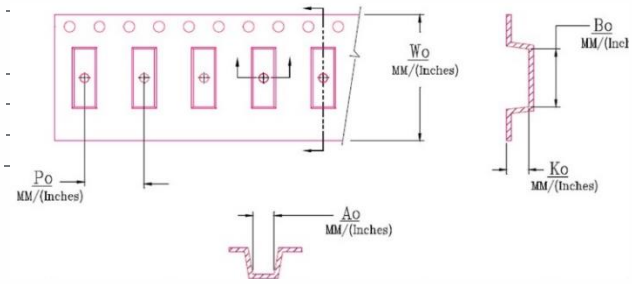
IMPORTANT: Please assure >=30mils (0.75mm) thickness of dielectric beneath the I/O Pads and the surrounding clearance zone down to the ground plane.

Please assure sufficient ground vias between the top metal ground plane and the primary ground plane.

Recommended solder: 4-6 mils of SAC305 with reflow incl. 120s of soak at 217°C, and up to 30 sec peak at 241°C.

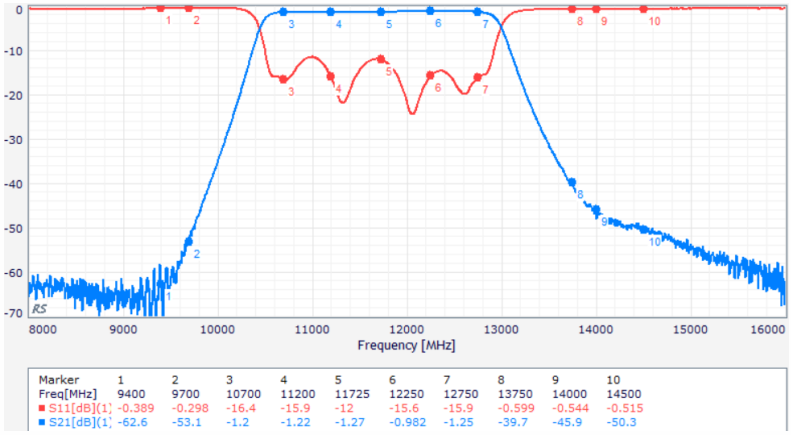


Packaging and Marking



W_o	A_o	B_o	K_o	P_o
0.945 in 24.0 mm	0.098 in 2.50 mm	0.366 in 9.30 mm	0.132 in 3.35 mm	0.315 in 8.0 mm

Electrical Response



Marker	1	2	3	4	5	6	7	8	9	10
Freq[MHz]	9400	9700	10700	11200	11725	12250	12750	13750	14000	14500
S11[dB](1)	-0.389	-0.298	-16.4	-15.9	-12	-15.6	-15.9	-0.599	-0.544	-0.515
S21[dB](1)	-62.6	-53.1	-1.2	-1.22	-1.27	-0.982	-1.25	-39.7	-45.9	-50.3