SPECIFICATION

COMMERCIALLY AVAILABLE

CERAMIC BAND PASS FILTER
PART NUMBER: CF-09600105
No Pure Tin

ISSUED / REVISION	ENGINEER APPROVED	DOCUMENT CHECKED	DRAFTSMAN	DOCUMENT CHECKED
8/26/10 kn				
12/16/11 kn	12/20/2011 TFG		12/20/2011 GL	

***FILTRO**NETICS Inc*

1. APPLICATION

THIS SPECIFICATION APPLIES TO A BAND PASS FILTER, USING DIELECTRIC RESONATORS.

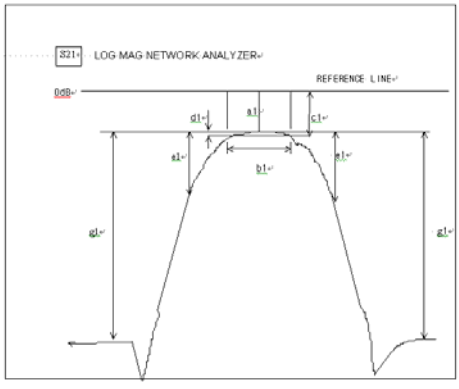
2. PART NUMBER:

PART NO	**CF-09600105**
PACKAGING	**PLASTIC TRAY**

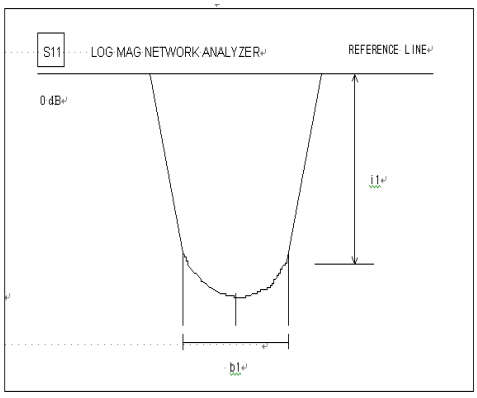
3. SPECIFICATIONS:

NO	ITEMS		Ref.	SPECIFICATION
1	Center Frequency (Fo)		a1	960 MHz
2	3.0dB Band Width (=PB)		b1	10 MHz Min
3	Insertion Loss AT Fo		a1	5.3 dB Max
4	V.S.W.R IN Fo+/-5MHz		-	1.75:1 Min
5	Attenuation [absolute value]	At Fo-60 MHz	-	65 dB Min
		At Fo+60 MHz	-	65 dB Min
6	Impedance		-	50Ω
7	Maximum Input Power		-	1 W (+30dBm)
8	Operating Temperature Range		-	-35 ~ +85℃
9	Workmanship		-	IPC-610 class 2
10	Process Temperature		-	+150°C for 1 hour or +230°C for 10 minutes

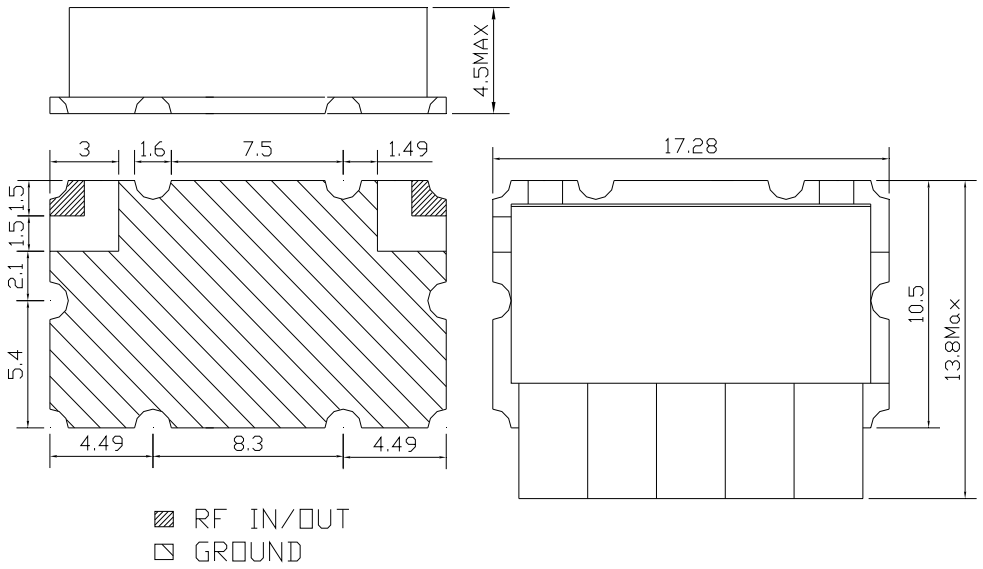
S21 LOG MAG NETWORK ANALYZER



S11 LOG MAG NETWORK ANALYZER



4. DIMENSIONS:



MATERIAL SPECIFICATION

1. **PCB**
   1) **MATERIAL: FR4**
   2) **TERMINALS: Sn/Pb, HASL,**
2. **METAL CASE**
   1) **Ag plated brass**
3. **RESONATOR**
   1) **COATING MATERIAL: silver plate, 8~30um**
4. **INTERNAL SOLDER**
   1) **Sn96.5/Ag3.5 Lead Free solder, 221 deg C melting**
5. **RESONATORS TABS**
   1) **Sn/Pb(9:1) Plated brass (Can not be pure Tin) Or Ag Plates**
6. **NO PURE TIN ALLOWED**

MARKING

Label Material: High temp polyimide

Marking:
Part No: CF-09600105
Filtronetics, Inc
Date Code

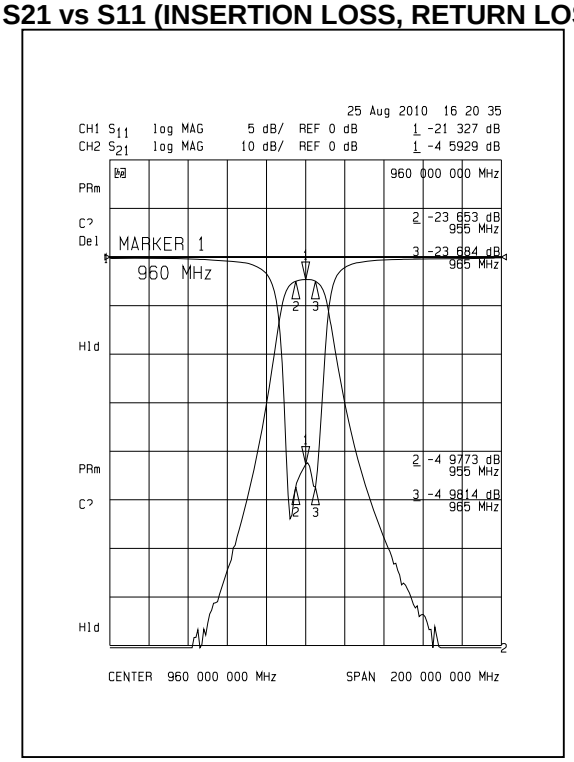
UNIT: MM
TOLERANCE: +/-0.5MM
IN/OUT LAND :+/-0.3MM

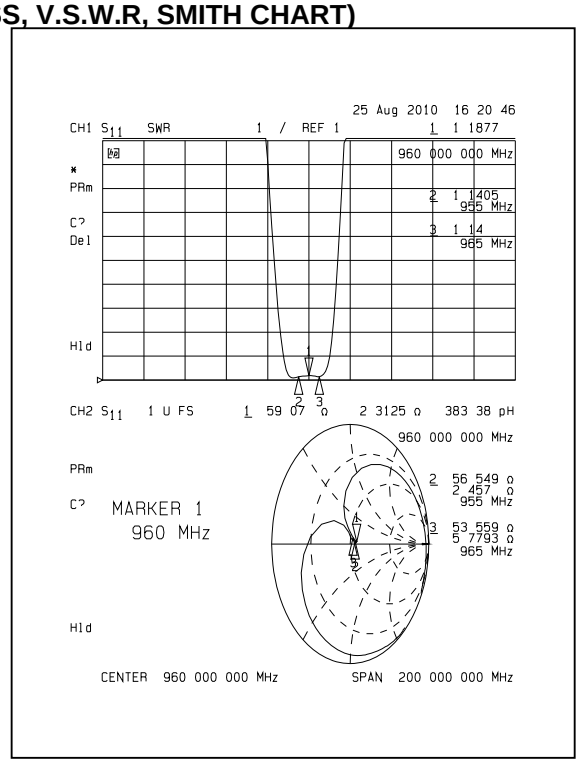
CAUTIONS:

1. When handling products, be careful not to damage the outer-electrode.
2. When handling products be careful not to touch the outer-electrode with bare hands or solder-ability is reduced.
3. Do not apply excessive pressure or shock to product in handling or in transportation or damage to the ceramic filters may result.

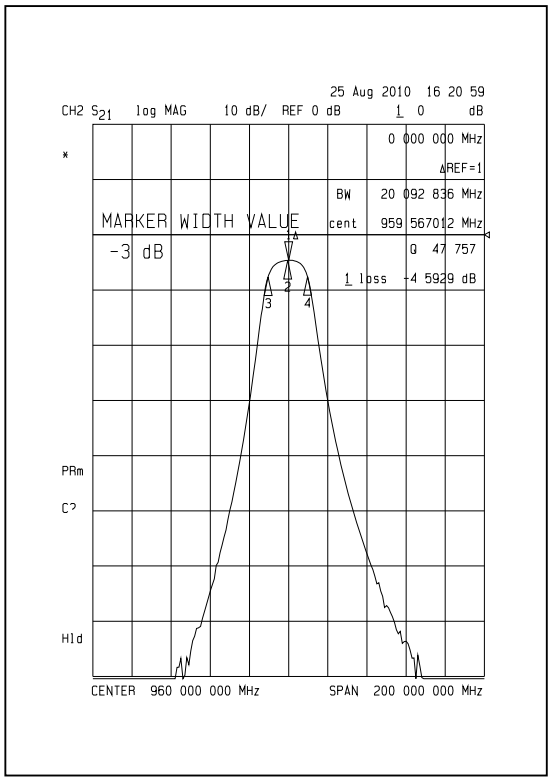
5. GRAPHS:

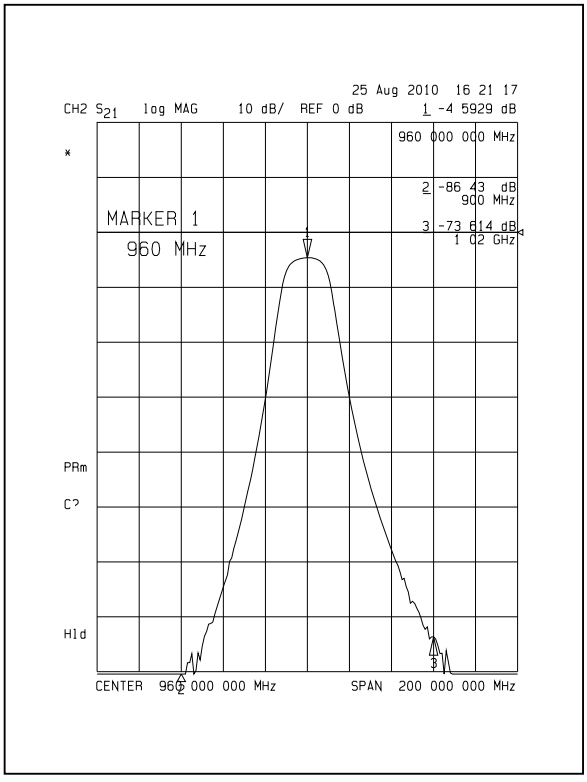
S21 vs S11 (INSERTION LOSS, RETURN LOSS, V.S.W.R, SMITH CHART)





S21 (3dB BAND WIDTH, ATTENUATION)

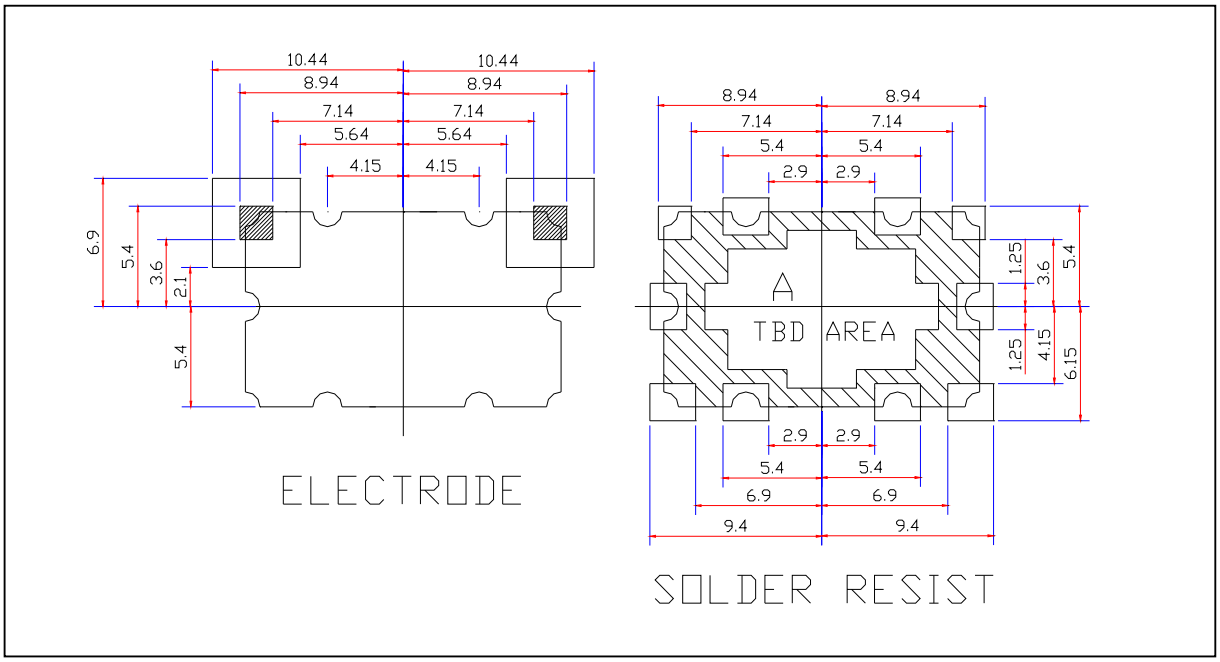




6. DEFINITIONS:

TERMS	DESCRIPTION	SPECIFICATION
Center Frequency	**The midpoint of through band pass filter pass band, normally expressed as the arithmetic mean of the -3db point. Also called fo.**	**3. SPECIFICATION**
Pass Band Width	**The width of the pass band of a filter referenced to the minimum insertion loss point in the pass band. The pass band of a filter is stated as -1.0dB bandwidth.**	
Insertion Loss	**The loss of the filter, in db, measured at center frequency relative to a through line (0 dB).**	
Attenuation	**Reduction of RF power through a filter measured in dB, at desired band and referenced to 0 dB. (Filter to be removed from circuit)**	
Pass Band Ripple	**Variations in loss in the pass band of the filter, superimposed upon the fundamental shape of the pass band.**	
V.S.W.R in Pass Band	**The ratio of the maximum value of a standing wave to its minimum value, related to the return loss in pass band.**	

Recommended Solder Pattern:

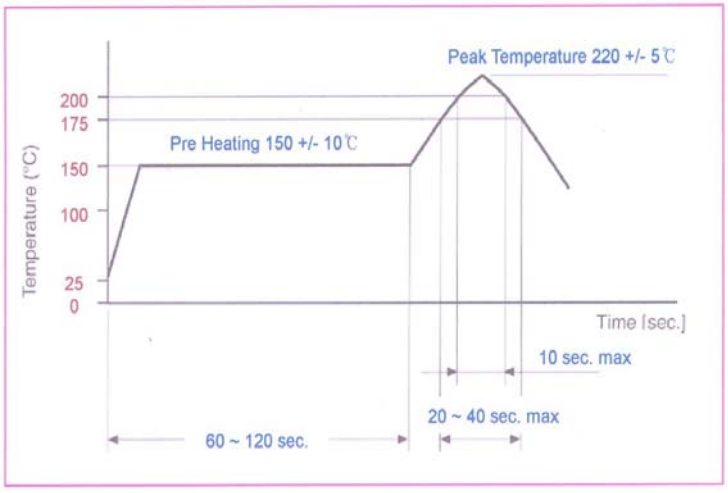


	Quality Conformance Test 100% Final inspection 100% Test Data
1)	Visual mechanical to IPC-610 Class 3 Including inspection for cleanliness.
2)	Thermal Shock -44 to +85°C 10 cycles
3)	Electrical Specifications at ambient

7. RELIABILITY TEST AND CONDITIONS

ITEM	TEST CONDITIONS	REQUIREMENTS
Resistance to solder heat	**Preheat temperature : 120 to 150°C** **Preheat time: 1 to 1.5 min** **Solder temperature: 260 +/- 10°C** **Dipping time: 10 +/- 0.5 sec**	**No damage such as cracks should be caused in chip element.**
Solderability	**Preheat temperature: 120 to 150°C** **Preheat time: 1 to 1.5 min** **Solder temperature: 235 +/- 5°C** **Dipping time: 5 +/- 1 sec**	**More than 80% of the terminal electrode shall be covered with new solder**
Heat resistance (High-temperature Load)	**Temperature: 85 +/- 2°C** **Applied voltage: Rated voltage** **Applied current: Rated current** **Recovery: 1 to 2hrs of recovery under the standard condition after the removal from test chamber.**	**No mechanical damage. After test, the device shall satisfy the specification in section 3.**
Thermal shock (Temperature cycle)	**Conditions for 1 cycle** **Step 1: + 85°C 15 min** **Step 2 : - 30°C 15 min** **Number of cycle: 10**	**No mechanical damage. After test, the device shall satisfy the specification in section 3.**
Humidity Resistance	**Temperature: 40 +/- 2°C** **Humidity: 90 to 95% RH** **Duration: 96 +/- 5 hrs** **Recovery: 1 to 2hrs of recovery under the standard condition after the removal from test chamber.**	**No mechanical damage. After test, the device shall satisfy the specification in section 3.**
Vibration	**Frequency: 10 ~ 50 Hz** **Amplitude: 1.52mm (0.060 inches)** **Direction: X, Y and Z** **Time: each 30 min for all directions**	**No mechanical damage. After test, the device shall satisfy the specification in section 3.**

8. REFLOW SOLDERING STANDARD CONDITIONS FOR TIN/LEAD



- Measuring point of temperature in-out terminals of the device.
- Reflow Soldering
- Both convection and infrared rays
- Hot air
- Hot plates
- Solder Cream: Sn64/Pb36