SPECIFICATION

COMMERCIALLY AVAILABLE

ITEM: CERAMIC BANDPASS FILTER
PART NUMBER: CF-14000015
No Pure Tin

1/18/2010: Added polyimide marking
6/19/2019: Added process map for NPT

ISSUED	CHECKED	CHECKED	CHECKED	APPROVED
7/2007xx			08/27/2013 GL	08/27/2013 TFG
1/18/10(DS)				
6/19/19(PG)				

***FILTRO**NETICS Inc*

1. APPLICATION

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

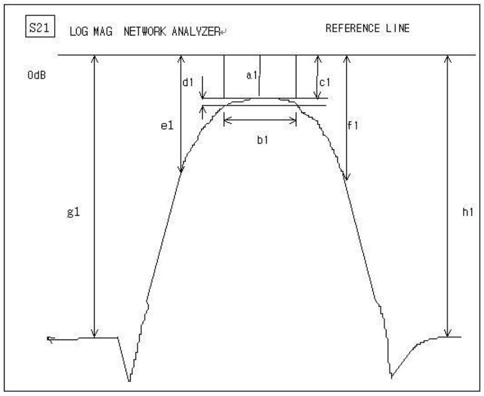
2. PART NUMBER

PART NO	**CF-14000015**
PACKAGING	**PLASTIC TRAY**

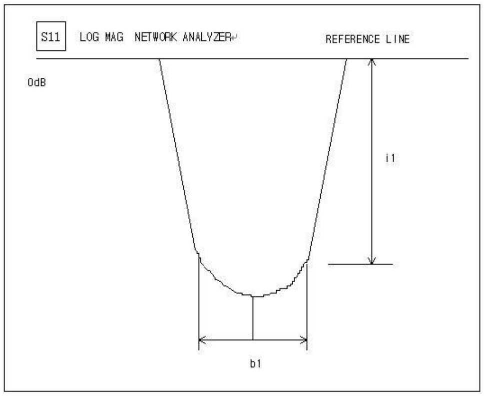
3. SPECIFICATIONS

NO	ITEMS		Ref.	SPECIFICATION
1	Center Frequency (Fo)		a1	1400 MHz
2	3.0dB Pass Band		b1	Fo+/-1 MHz min
3	Insertion Loss AT Fo		a1	2.0 dB Max
4	V.S.W.R AT Fo+/-1MHz		-	1.75:1 Min
5	Attenuation [absolute value]	At 200 MHz	-	50 dB Min
		At 400 MHz	-	60 dB Min
		At 800~1200 MHz	-	40 dB Min
		At 1600~1800 MHz	-	60 dB Min
		At 2000~3400 MHz	-	50 dB Min
		At 3600~3800 MHz	-	10 dB Min
6	Impedance		-	50Ω
7	Maximum Input Power		-	1 W (+30dBm)
8	Operating Temperature Range		-	-35 ~ +85℃
9	Workmanship		-	IPC-A-610 Class 3

S21 LOG MAG NETWORK ANALYZER

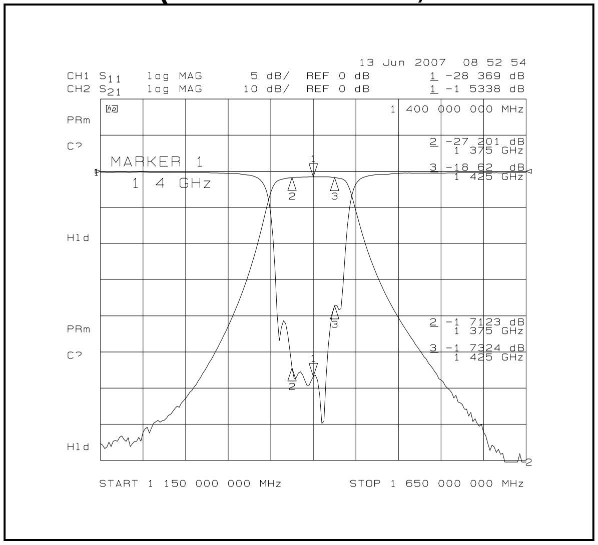


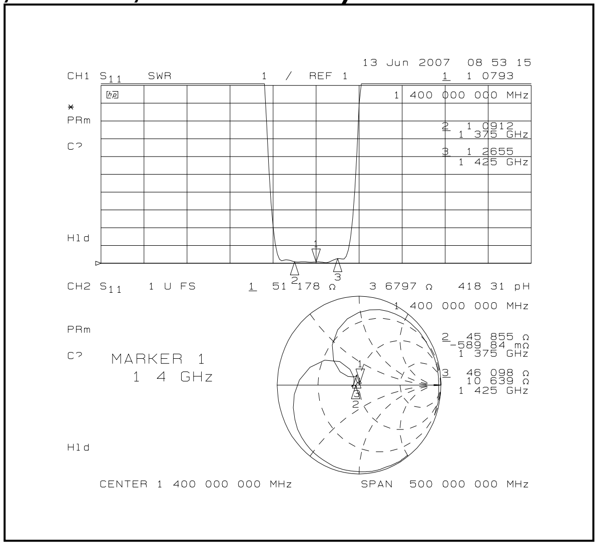
S11 LOG MAG NETWORK ANALYZER



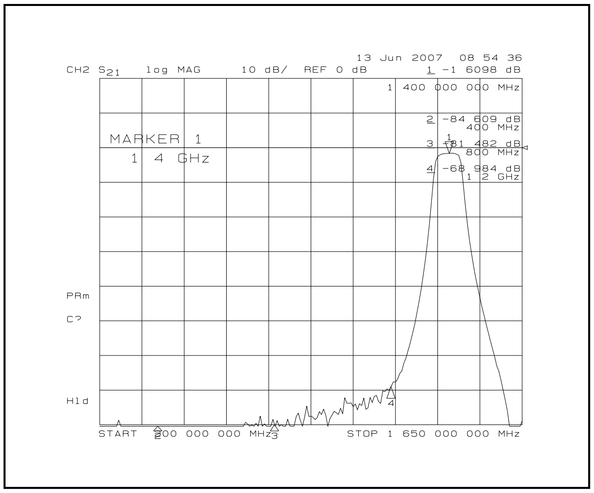
4. GRAPHS

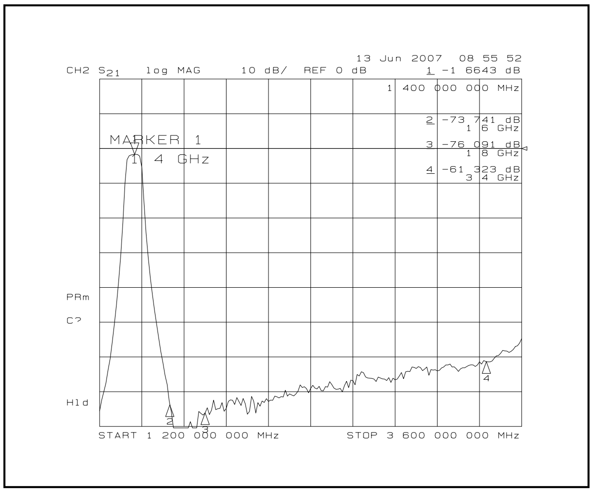
S21 vs S11(INSERTION LOSS, RETURN LOSS, V.S.W.R,SMITH CHART)



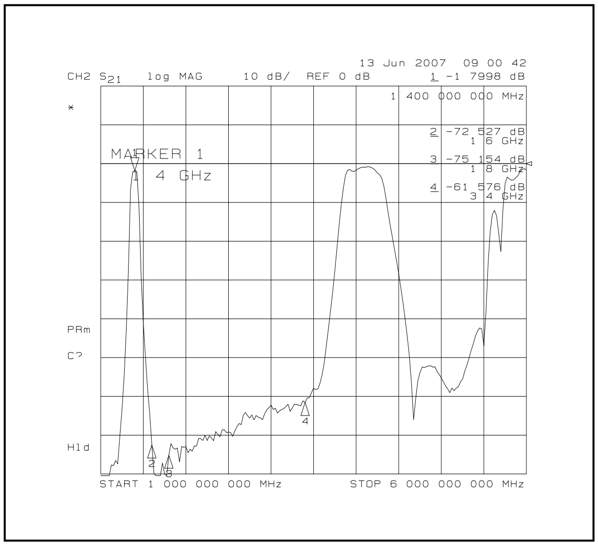


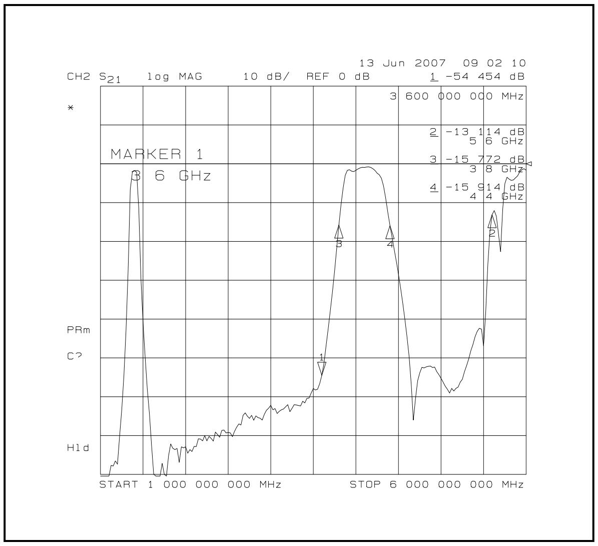
S21 (ATTENUATION)



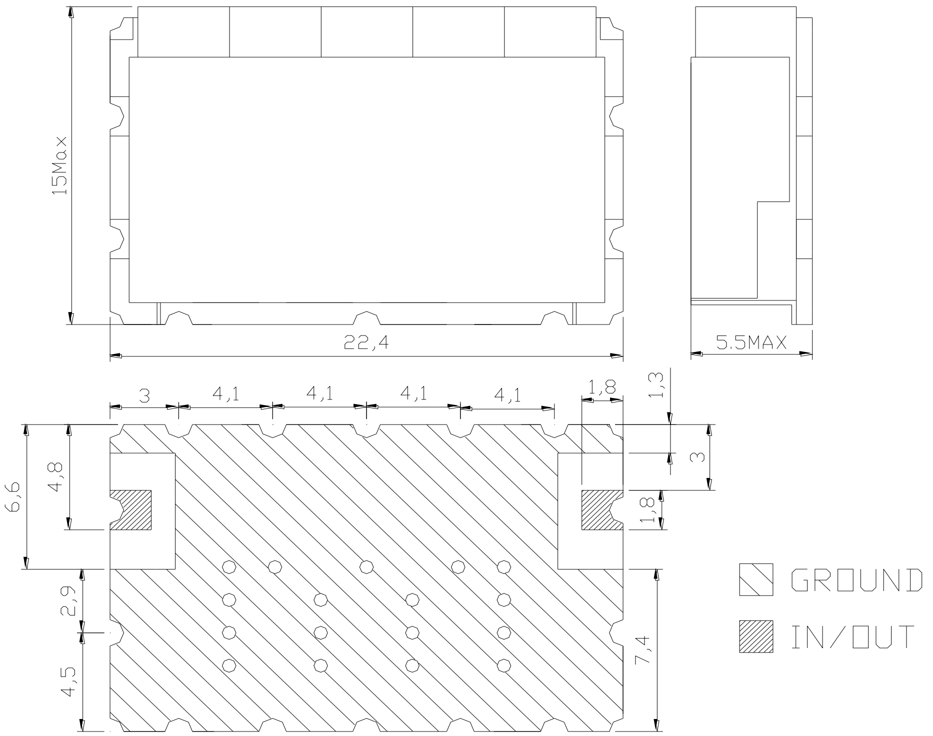


S21 (ATTENUATION)





5. DIMENSIONS



MATERIAL SPECIFICATION

1. PCB
   1) MATERIAL: FR4
   2) TERMINALS: Sn-Pb PLATED
2. METAL CASE
   1) MATERIAL: Sn OR Ni PLATED
3. RESONATOR
   1) COATING MATERIAL: Ag
4. No Pure Tin

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

MARKING

Label Material: High Temp Polyimide

CF-14000015
Filtronetics, Inc
Date Code

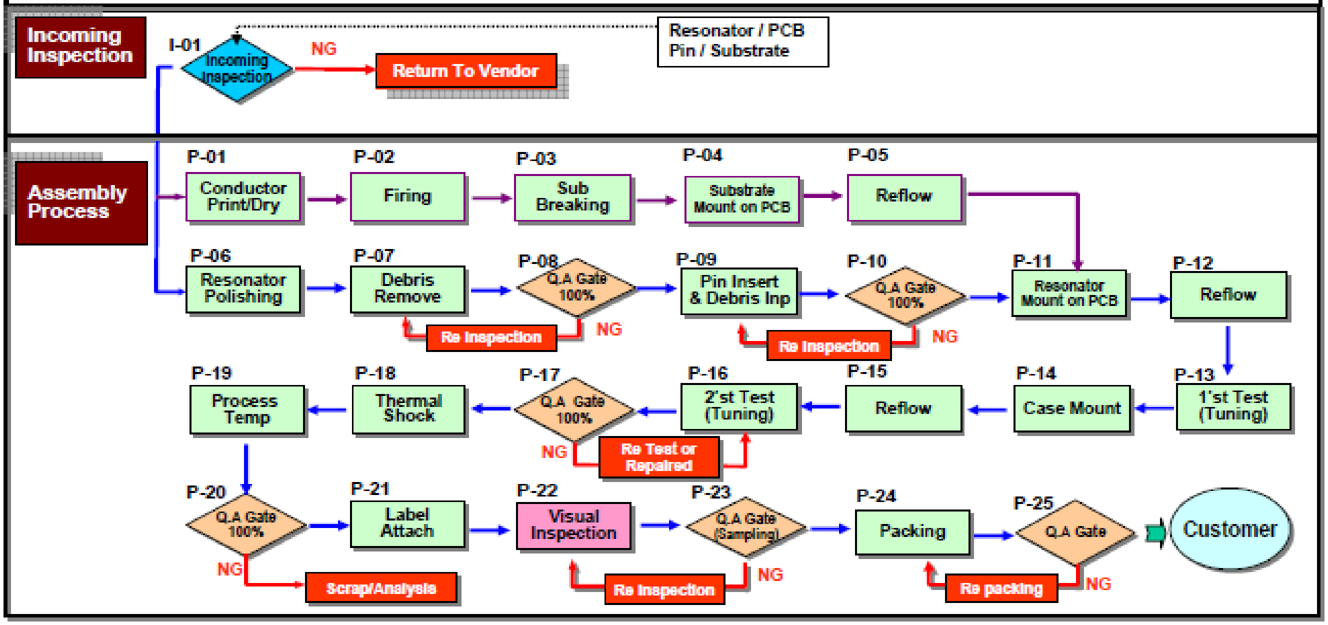
- CAUTIONS:

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.

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.	

Process Map for Filtronetics NPT

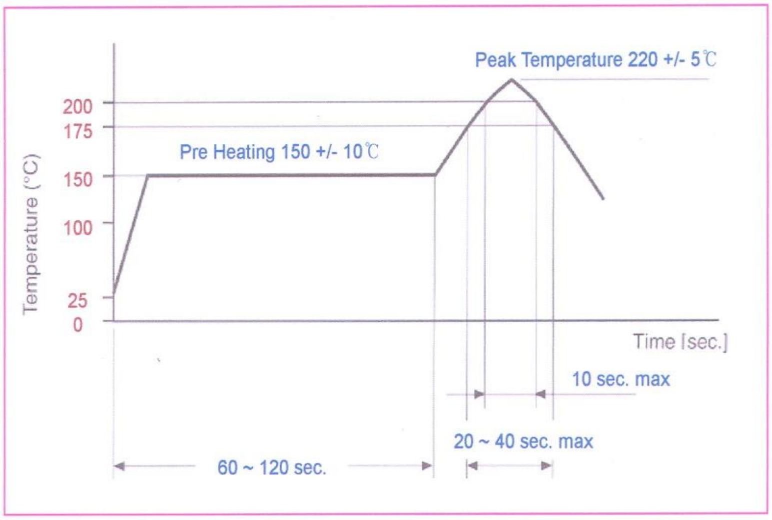


•Note : 1. At I- 01: IQA must inspect PCB to make sure of good Castellation with no loose edges.
2. At P-08 and P-10: No debris left in the hole of resonator.
3. At P-17:100% Electrical test and visual inspection of solder joint If there is a loose debris of solder due to tuning process, Must be retuned to P-16 to repair
4. At P-18: Thermal Shock Condition - -44 to +85'C / 10 Cycles.
5. At P-19: Process Temp Condition - +150 'C / I HR + 230 'C / 10 MIN.
6. At P-17 and P-20: Q.A MUST record the test result.
7. At P-23:Sampling Plan–Visual (GII/AQL=0.65)
8. At P-24:Packing method – Tray and Vinyl bag

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: 1.52 ㎜ (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