

**DETAILED SPECIFICATION FOR A SURFACE MOUNT 455 KHZ CERAMIC FILTER (ROHS COMPLIANT)**

1.0 PURPOSE

This specification show cover the characteristics of a surface mount 455 KHz ceramic filter, which mainly used for FM broadcast receiver.

2.0 MODEL NAME

- 2.1 Part No. : LTUCG455B (Pre P/N: LTUC455B)
- 2.2 Specification No. : 2.832.451h
- 2.3 Revision No. : 1
- 2.4 Date : January 10, 2011

3.0 ABSOLUTE MAXIMUM RATINGS

“Absolute Maximum Ratings” are those values beyond which the life of the device cannot be guaranteed. They are not meant to imply that the device can or should be operated at these limited.

No.	Parameter	Rating	Unit
3.1	Withstanding Voltage	50	VDC
3.2	Ambient Operating Temperature Range	-20 ~ +80	°C
3.3	Lead Temperature for Soldering 1/16" from Body for 10sec	260	°C
3.4	Storage Temperature Range	-40 ~ +85	°C
3.5	Power Dissipation (Ta = 25°C)	100	mW
3.6	Isolation Resistance	100	MΩ

4.0 ELECTRICAL CHARACTERISTICS Ta = 25°C

No.	Parameter	Minimum	Typical	Maximum	Unit
4.1	Center Frequency fo	NS	455	NS	KHz
4.2	Initial Tolerance	-	-	±1.5	KHz
4.3	6dB bandwidth	±15.0	-	-	KHz
4.4	40dB Bandwidth	-	-	±35.0	KHz
4.5	Insertion Loss (at minmum loss point)	-	-	4.0	dB
4.6	Ripple in fo±9.0KHz	-	-	2.0	dB
4.7	Stop Band Attenuation (fo±100KHz)	25	-	-	dB
4.8	Temperature Characteristics over -20°C ~ +80°C	-	-	±0.5	%
4.9	I/O Impedance	-	1.0	-	KΩ

NS = Not Specified

5.0 TEST CIRCUIT

- 5.1 Measurement Condition:  
The reference temperature shall be 25°C ± 2°C. The measurement shall be performed at the temperature range of 5°C to 35°C unless otherwise the result is doubtful.
- 5.2 Test Circuit and Equipment:  
Oscillating frequency shall be measured by the standard test circuit as shown in Figure 2.  
Resonant impedance shall be measured by HP87510A Network Analyzer.

6.0 PHYSICAL CHARACTERISTICS

No.	Item	Condition of Test	Requirements
6.1	Random Drop	The Filter shall be measured after 3 times random drops from the height of 30cm on concrete floor.	No visible damage and the measured values shall meet Table 1.
6.2	Vibration	The Filter shall be measured after being applied vibration of amplitude of 1.5mm with 10 to 55Hz bands of vibration frequency to each of 3 perpendicular directions for 1 hour.	The measured values shall meet Table 1.
6.3	Resistance to Soldering Heat	Lead terminals are immersed up to 1.5mm from the Filter's body in solder bath of 350°C ± 10°C for 3 ± 0.5 seconds or 260°C ± 5°C for 10 ± 1 seconds, and then the Filter shall be measured after being placed in natural condition for 1 hour.	The measured values shall meet Table 1.
6.4	Solderability	Lead terminals are immersed in resin for 5 seconds and then immersed in soldering bath of 235°C ± 5°C for 2 ± 0.5 seconds.	95% min. lead terminals shall be wet with solder.
6.6	Washability	Ultrasonic wash not available	

7.0 ENVIRONMENTAL CHARACTERISTICS

No.	Item	Condition of Test	Requirements
7.1	High Temperature	After being placed in a chamber with +85°C ± 2°C for 96 ± 4 hours and then being placed in natural condition for 1 hour. The Filter shall be measured.	The measured values shall meet Table 1.
7.2	Low Temperature	After being placed in a chamber with -20°C ± 2°C for 96 ± 4 hours and then being placed in natural condition for 1 hour. The Filter shall be measured.	The measured values shall meet Table 1.
7.3	Humidity	After being placed in a chamber with 90 to 95% R.H. at +40°C ± 2°C for 96 ± 4 hours and then being placed in natural condition for 1 hour. The Filter shall be measured.	The measured values shall meet Table 1.
7.4	Heat Shock	After being kept at room temperature, the Filter shall be placed at temperature of -20°C for 30 minutes, then the Filter shall be immediately placed at temperature of 80°C, after 30 minutes at temperature of 80°C, the Filter shall be returned to -20°C again. After 5 times above cycles, the Filter shall be returned to room temperature, after 1 hour in natural condition, the Filter shall be measured.	The measured values shall meet Table 1.
7.5	Temperature Characteristic	From temperature range of -20°C to +85°C	FTC < 50 ppm/°C

TABLE 1  
MEASURING REQUIREMENTS

Measurements	Requirements	Unit
Center Frequency	455 ± 2.0 max	KHz
6dB Bandwidth	±14.0 min.	KHz
40dB Bandwidth	±36.0 max	KHz
Insertion Loss	5.0 max	dB
Ripple in fo±9.0KHz	3.0 max	dB

8.0 OUTLINE DIMENSIONS

- 8.1 Appearance: No visible damage and dirt.
- 8.2 Dimensions: See Figure 1
- 8.3 Recommended PC Board layout: See Figure 5
- 8.4 Packing and reeling dimensions: See Figure 7 and Figure 8.
- 8.5 Construction: Leads are soldered on electrode and body is molded by resin.

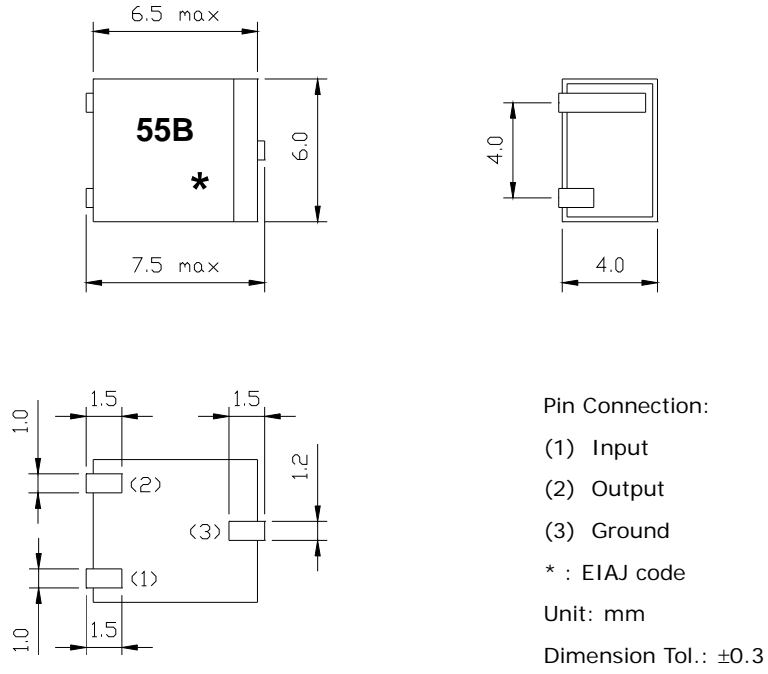
9.0 REVIEW OF SPECIFICATIONS

When something gets doubtful with this specification, we shall jointly work to get an agreement.

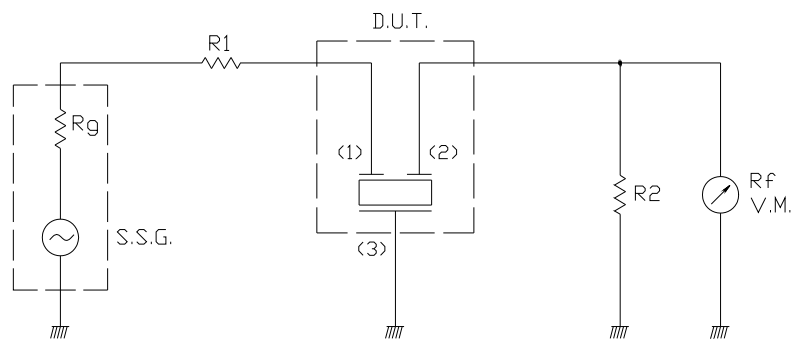
APPENDIX: EIAJ CODE

Year\Month	1	2	3	4	5	6	7	8	9	10	11	12
2011	A	B	C	D	E	F	G	H	J	K	L	M
2012	N	P	Q	R	S	T	U	V	W	X	Y	Z

**FIGURE 1**  
**OUTLINE DIMENSIONS**

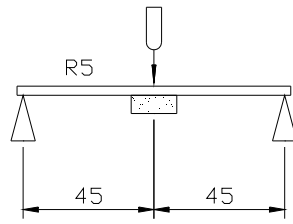


**FIGURE 2**  
**TEST CIRCUIT**



$R_g + R_1 = R_2 = 1.0K\Omega$

**FIGURE 3  
SUBSTRATE BENDING**



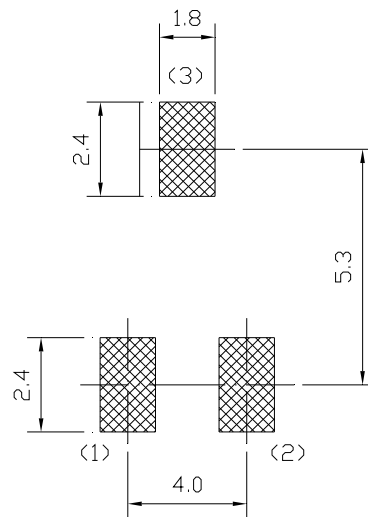
PCB: 0.8t x 100mm

**FIGURE 4  
ADHESION**

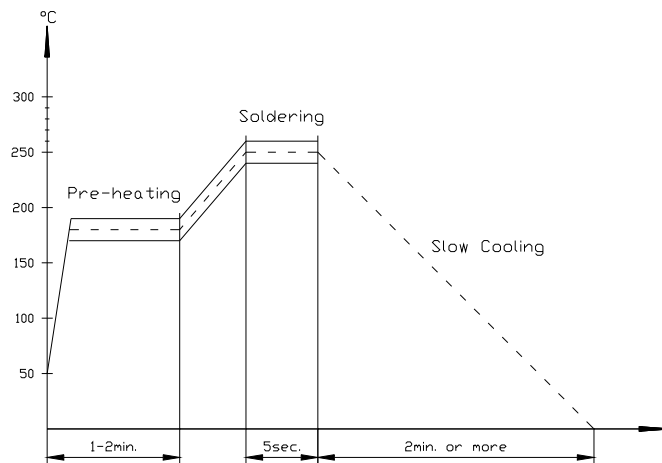


PCB: 0.8t x 100mm

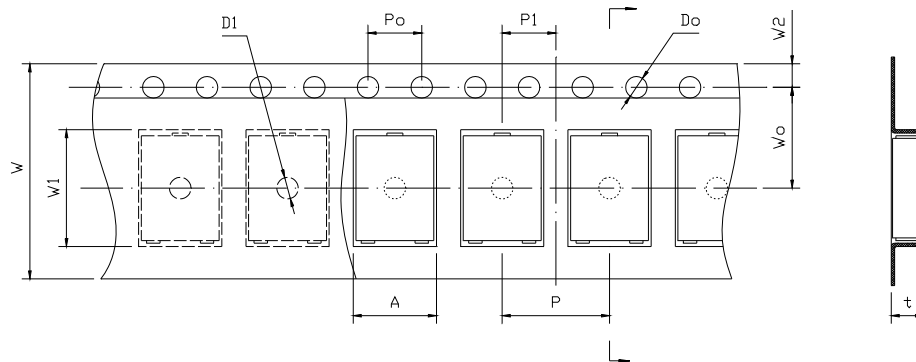
**FIGURE 5  
RECOMMENDED PC BOARD LAYOUT**



**FIGURE 6  
REFLOW SOLDERING TEMPERATURE**



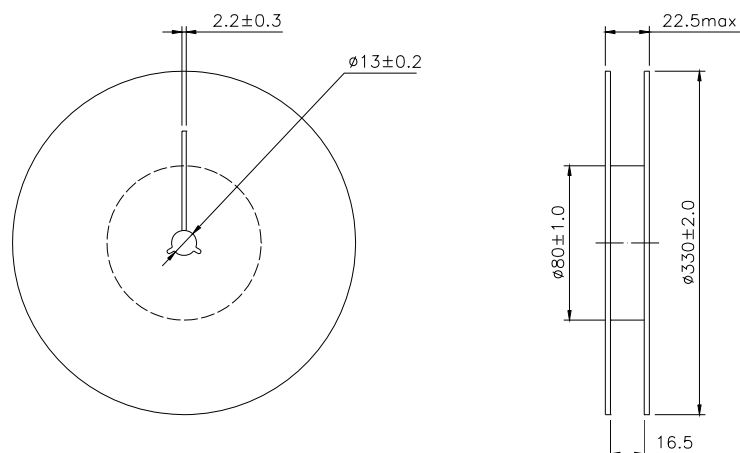
**FIGURE 7**  
**TAPING DIMENSIONS**



**DIMENSIONS**

Item	Code	Dimension	Tolerance	Remark
Pitch of components	P	8.0	± 0.1	
Pitch of sprocket hole (1)	Po	4.0	± 0.1	
Length from hole center to component center	P1	4.0	± 0.1	
Width of carrier tape	W	16.0	± 0.1	
Width of adhesive tape	W0	7.5	± 0.2	
Height of component cavity	W1	8.2		
Width of component cavity	A	6.7		
Gap of hold down tape and carrier tape	W2	1.75	± 0.1	
Diameter of sprocket hole	Do	Ø1.5	+ 0.1	
Diameter of component hole	D1	Ø1.5	+ 0.1	
Total tape thickness	t	4.3	± 0.2	

**FIGURE 8**  
**REELING DIMENSIONS**



1,000 pieces per reel,  
5,000 pieces per box.

**PROHIBITED SUBSTANCES**

## 1. ROHS (2002/95/EC) CLAIMED:

- Lead and its compounds
- Mercury and its inorganic compounds
- Cadmium and its compounds
- Hexavalent chromium compounds
- PBB
- PDBE

## 2. PROHIBITION TO USE OZONE DEPLETING SUBSTANCES (ODS):

Prohibited substances:

CFCS, Halon, Carbon Tetrachloride, Trichloroethane(Methy1 chloroform)

We confirm that our products and our production process accord with 'rule of RoHS'. All materials used in this product are registered material under the law concerning the examination and Regulation of Manufacture of Chemical Substances.