

# LTUCG450B

Ceramic Filter | FM broadcast receiver

Part number: LTUCG450B 2.832.361h | Revision: A1 | Date: 26 January 2023



## 1.0 About Maximum Rating<sup>1</sup>

N°	Characteristics	Min.	Max.	Unit
1.1	Withstanding Voltage		50	VDC
1.2	Ambient Operating Temperature Range	-20	80	°C
1.3	Lead Temperature for Soldering 1/16" from Body for 10sec		260	°C
1.4	Storage Temperature Range	-40	85	°C
1.5	Power Dissipation (Ta = 25°C)		100	mW
1.6	Isolation Resistance		100	MΩ

## 2.0 Electrical Characteristics (Ta = 25°C)

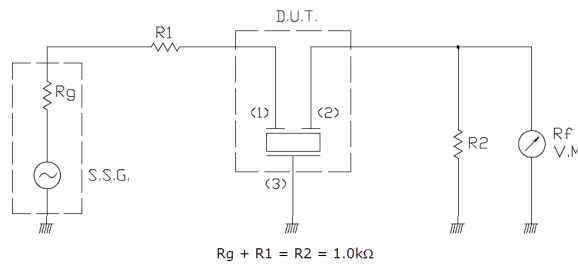
N°	Characteristics	Min.	Nom.	Max.	Unit
2.1	Center Frequency (fc)	NS	450	NS	kHz
2.2	Initial Tolerance			±1.5	kHz
2.3	6 dB bandwidth	±15.0			kHz
2.4	40 dB bandwidth			±35.0	kHz
2.5	Insertion Loss (IL)			4.0	dB
2.6	Ripple in fc ±9.0kHz			2.0	dB
2.7	Stop Band Attenuation (fc =100 kHz)	25			dB
2.8	Temperature Stability over -20 to +80°C			±0.5	%
2.9	I/O Impedance		1.0		kΩ

NS = Not Specified

## 3.0 Test Circuit

N°	Characteristics
3.1	Measurement Condition: The reference temperature shall be 25 ±2°C. The measurement shall be performed at the temperature range of 5 to 35°C unless otherwise the result is doubtful.

3.2	Test Circuit and Equipment: Oscillating frequency shall be measured by the standard test circuit as shown below. Resonant impedance shall be measured by HP87510A Network Analyzer.
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<sup>1</sup> Operating beyond this limit may result in change or permanent damage to the device.

**4.0 Physical Characteristics**

N°	Characteristics	Test conditions	Requirements
4.1	Random Drop	The Filter shall be measured after 3 times random drops from the height of 0.3cm on the concrete floor.	No visible damage and the measured values shall meet Table 1.
4.2	Vibration	The Filter shall be measured after being applied vibration of the amplitude of 1.5mm with 10 to 55Hz bands of vibration frequency to each of 3 perpendicular directions for 1 hours.	The measured values shall meet Table 1.
4.3	Resistance to Soldering Heat	Lead terminals are immersed up to 1.5mm from the Filter's body in a solder bath of 350 ±10°C for 3 ±0.5 seconds, or 260 ±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.
4.4	Solderability	Lead terminals are immersed in resin for 5 seconds and then immersed in a soldering bath of 235 ±5°C for 2 ±0.5 seconds.	95% min. lead terminals shall be wet with solder.
4.5	Washability	Ultrasonic wash not available	

**5.0 Environmental Characteristics**

N°	Characteristics	Test conditions	Requirements
5.1	High Temperature	After being placed in a chamber with +85 ±2°C for 96 ±4 hours and then being placed in natural condition for 1 hour. The Filter shall be measured.	No visible damage and the measured values shall meet Table 1.
5.2	Low Temperature	After being placed in a chamber with -20 ±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.
5.3	Humidity	After being placed in a chamber with 90 to 95% R.H. at +40 ±2°C for 96 ±4 hours and then beaced in natural condition for 1 hour. The Filter shall be measured.	The measured values shall meet Table 1.
5.4	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.
5.5	Temperature Characteristic	From temperature range of -20 to +85°C	FTC < 50 ppm/°C

**6.0 Table 1**

Table 1 – Measurement Requirements

Measurements	Requirements
Center Frequency	450 ±2.0 kHz max
Bandwidth	6dB 40 dB ±14.0 kHz min ±36.0 kHz max
Ripple (fc ±9.0kHz)	3.0 dB max
Insertion Loss	5.0 dB max

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## 7.0 Package, marking and pin connections

N°	Characteristics	Specifications	Model outline drawing
9.1	Package type	SMD, 6.5 x 6.0 x 4.0 mm	
9.2	Marking	Line 1: 50B Line 2: * (See DATE CODE below)	
9.3	Pin connections	Pin 1: Input Pin 2: Output Pin 3: GND	

### \* DATE CODE:

Year\Month	1	2	3	4	5	6	7	8	9	10	11	12
2021	A	B	C	D	E	F	G	H	J	K	L	M
2022	N	P	Q	R	S	T	U	V	W	X	Y	Z

### NOTE:

- Unit: mm
- Tolerance:  $\pm 0.3$  mm
- Leads are soldered on electrode and body is molded by resin

## 8.0 Packaging

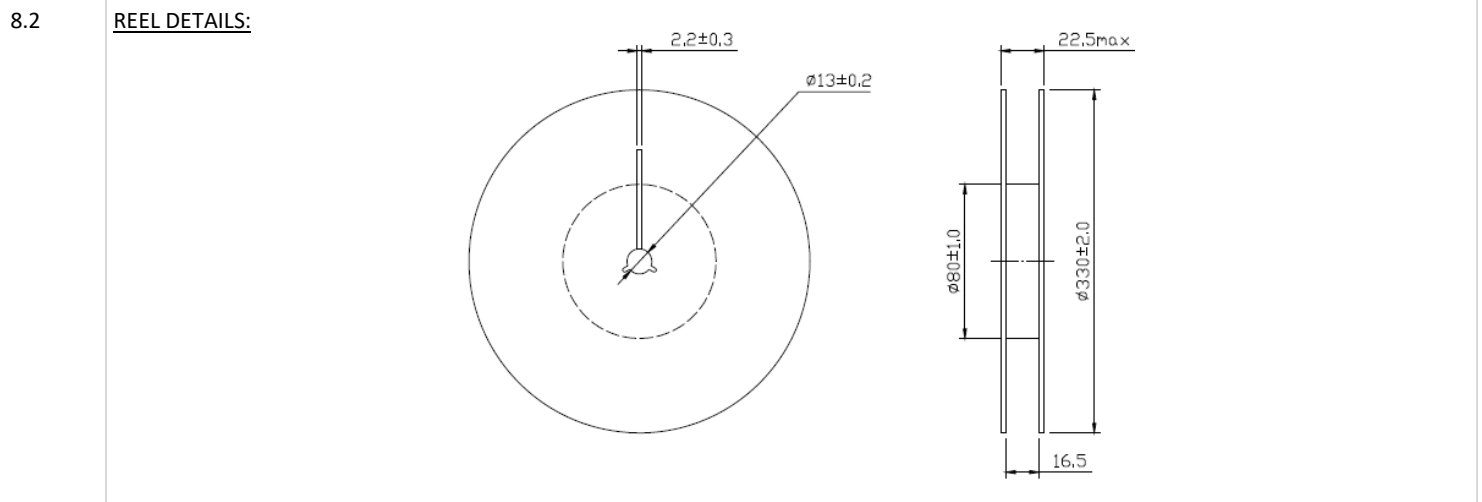
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8.1	<p><u>TAPE DETAILS:</u></p> <table border="1"> <thead> <tr> <th>Item</th> <th>Code</th> <th>Dimension</th> <th>Tolerance</th> </tr> </thead> <tbody> <tr> <td>Pitch of components</td> <td>P</td> <td>8.0</td> <td><math>\pm 0.1</math></td> </tr> <tr> <td>Pitch of sprocket hole (1)</td> <td>Po</td> <td>4.0</td> <td><math>\pm 0.1</math></td> </tr> <tr> <td>Length from hole center to component center</td> <td>P1</td> <td>4.0</td> <td><math>\pm 0.1</math></td> </tr> <tr> <td>Width of carrier tape</td> <td>W</td> <td>16.0</td> <td><math>\pm 0.1</math></td> </tr> <tr> <td>Width of adhesive tape</td> <td>Wo</td> <td>7.5</td> <td><math>\pm 0.2</math></td> </tr> <tr> <td>Gap of hold down tape and carrier tape</td> <td>W2</td> <td>1.75</td> <td><math>\pm 0.1</math></td> </tr> <tr> <td>Diameter of sprocket hole</td> <td>Do</td> <td><math>\varnothing 1.5</math></td> <td>+ 0.1</td> </tr> <tr> <td>Diameter of component hole</td> <td>D1</td> <td><math>\varnothing 1.5</math></td> <td>+ 0.1</td> </tr> <tr> <td>Total tape thickness</td> <td>t</td> <td>4.6</td> <td><math>\pm 0.1</math></td> </tr> </tbody> </table>	Item	Code	Dimension	Tolerance	Pitch of components	P	8.0	$\pm 0.1$	Pitch of sprocket hole (1)	Po	4.0	$\pm 0.1$	Length from hole center to component center	P1	4.0	$\pm 0.1$	Width of carrier tape	W	16.0	$\pm 0.1$	Width of adhesive tape	Wo	7.5	$\pm 0.2$	Gap of hold down tape and carrier tape	W2	1.75	$\pm 0.1$	Diameter of sprocket hole	Do	$\varnothing 1.5$	+ 0.1	Diameter of component hole	D1	$\varnothing 1.5$	+ 0.1	Total tape thickness	t	4.6	$\pm 0.1$
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## 9.0 Substrate Bending and Adhesion

N°	Substrate Bending	Adhesion
9.1		

## 10.0 Reflow Soldering Profile and Prohibited Substances

N°	Pb-Free reflow	Prohibited Substances
10.1		<ol style="list-style-type: none"> <li>RoHS (2002/95/EC) Claimed <ul style="list-style-type: none"> <li>Lead and its compounds</li> <li>Mercury and its inorganic compounds</li> <li>Cadmium and its compounds</li> <li>Hexavalent chromium compounds</li> <li>PBB</li> <li>PDBE</li> </ul> </li> <li>Prohibition to use Ozone Depleting Substances (ODS)                      Prohibited substances:                      CFCS, Halon, Carbon Tetrachloride, Trichloroethane(Methy1 chloroform)                 </li> </ol> <p>We confirm that our products and production process agree with the 'rule of RoHS'. All materials in this product are registered under the law concerning the examination and Regulation of the Manufacture of Chemical Substances.</p>

## 11.0 Disclaimer

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

## 12.0 Specification History

Revision	Change notes	Date
A0	Preliminary Datasheet creation	Aug, 31 <sup>st</sup> 2021
A1	Re-branding Rakon to RakonXpress	Jan, 26 <sup>th</sup> 2023