

1. SCOPE

This specification shall cover the characteristics of the ceramic filter with the type SFE10.7MHZ.

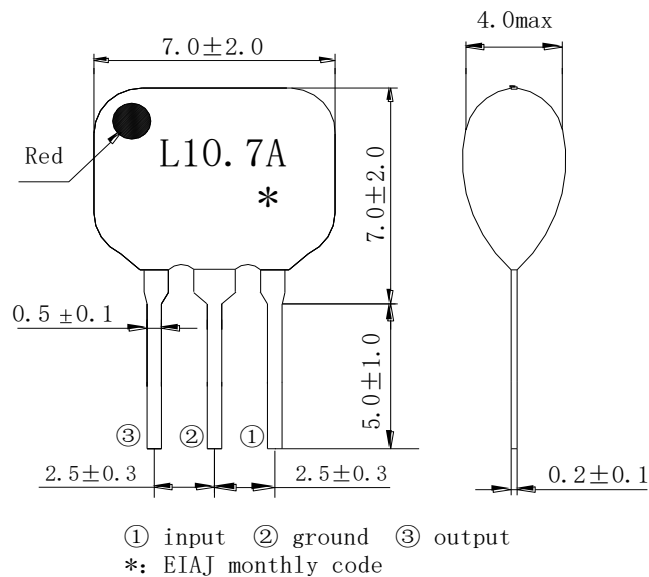
2. OUTLINE DIMENSIONS AND MARK

2.1 Appearance: No visible damage and dirt.

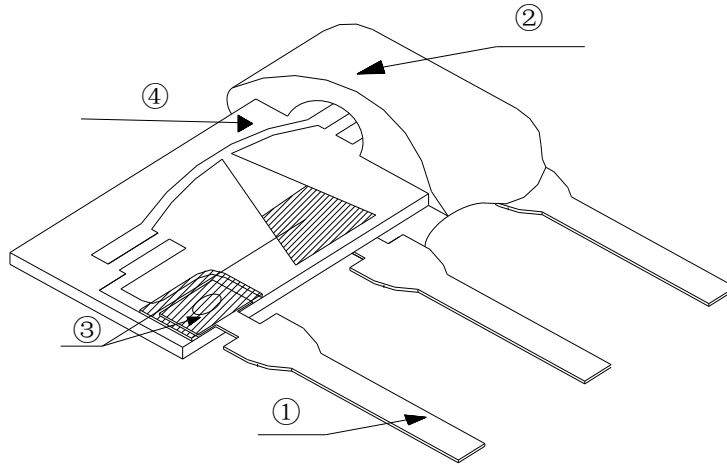
2.2 Construction: Leads are soldered on electrode and body is molded by resin.

2.3 The products conform to the RoHS directive and national environment protection law.

2.4 Dimensions and mark



2.5 Structure



No.	Component	Material
①	Lead Wire	Solder plating copper or iron wire
②	Mold Resin	epoxy resin
③	Solder	High-melting solder
④	Ceramic Substrate	Lead titanate-zirconate

3. ELECTRICAL SPECIFICATIONS

3.1 RATING

Items	Requirement
Withstand DC Voltage	50V (1min max)
Insulation Resistance MΩ min.	100 (10V, 1min±5s)
Operating temperature @ ₁	-40°C ~ 85°C
Storage temperature	-40°C ~ 85°C

3.2 ELECTRICAL SPECIFICATIONS

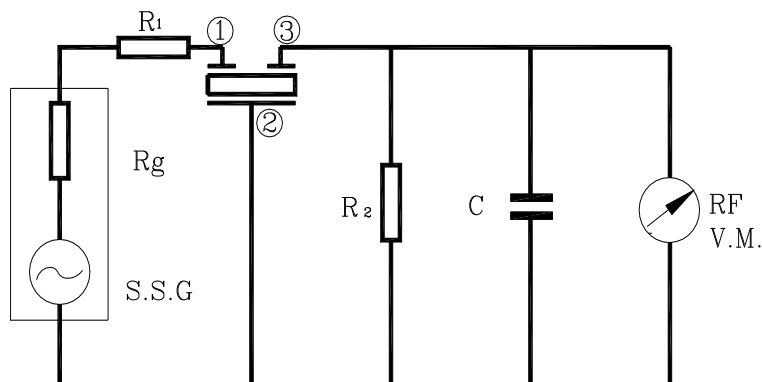
Items	Requirement
Center Frequency (fo) MHz	10.700 ± 0.030
3dB Band Width kHz	280 ± 50
20dB Band Width kHz max	650
Insertion Loss dB max	6.0
Ripple (within 3dB bandwidth) dB max	1.0
Spurious Attenuation (9~12MHz) dB min	30
Input/Output Impedance Ω	330
Temp. Coefficient of Frequency ppm/ $^{\circ}\text{C}$ max $^{\circ}\text{C}$	± 50 (Center Frequency drift, -40~85 $^{\circ}\text{C}$)

4. TEST

4.1 Test Conditions

Parts shall be tested under the condition (Temp.: $20 \pm 15^{\circ}\text{C}$, Humidity : $65 \pm 20\%$ R.H.) unless the standard condition (Temp.: $25 \pm 2^{\circ}\text{C}$, Humidity : $65 \pm 5\%$ R.H.) is regulated to measure.

4.2 Test Circuit



$$R_g + R_1 = R_2 = 330 \Omega$$

$C = 10 \text{pF}$ (Including stray capacitance and input capacitance of RF voltmeter)

5. ENVIRONMENTAL TEST

No.	Item	Condition of Test	Performance Requirement	
5.1	Humidity	Subject the filter at $60 \pm 2^\circ\text{C}$ and 90%-95% R.H. for 1000h, Filter shall be measured after being placed in natural conditions for 1h.	It shall fulfill Table 1.	
5.2	High Temperature Exposure	Subject the filter to $85 \pm 2^\circ\text{C}$ @ ₂ for 1000h, Filter shall be measured after being placed in natural conditions for 1h.	It shall fulfill Table 1.	
5.3	Low Temperature Exposure	Subject the filter to $-40 \pm 2^\circ\text{C}$ @ ₃ for 1000h, Filter shall be measured after being placed in natural conditions for 1h.	It shall fulfill Table 1.	
5.4	Temperature Cycling	After temperature cycling of blow table was performed 5 times, Filter shall be measured after being placed in natural conditions for 1h.	It shall fulfill Table 1.	
		Temperature@ ₄		Time
		$-40 \pm 3^\circ\text{C}$		30 ± 3 min
		$85 \pm 3^\circ\text{C}$	30 ± 3 min	
5.5	Vibration	Subject the filter to vibration for 2h.Each in x y and z axis with the amplitude of 1.5mm, The frequency shall be varied uniformly between the limits of 10Hz-55Hz-10Hz and then filter shall be measured.	It shall fulfill Table 1.	
5.6	Mechanical Shock	Filter shall be measured after 3 times random dropping from the height of 1m on concrete floor.	No visible damage and it shall fulfill Table 1.	
5.7	Resistance to Soldering Heat	1) Lead terminals are immersed up to 2 mm from filter's body in soldering bath of $260 \pm 5^\circ\text{C}$ for 10 ± 1 s and then filter shall be measured after being placed in natural conditions for 1h. 2) Lead terminals is directly contacted with the tip of soldering iron of $350 \pm 5^\circ\text{C}$ for 5.0 ± 0.5 s and then filter shall be measured after being placed in natural conditions for 1h.	It shall fulfill Table 1.	

(to be continued)

5. ENVIRONMENTAL TEST

No.	Item	Condition of Test	Performance Requirements
5.8	Solderability	Lead terminals are immersed up to 2mm from filter's body in soldering bath of $250 \pm 5^\circ\text{C}$ for $3 \pm 0.5\text{s}$.	More than 95% of the terminal surface of the filter shall be covered with fresh solder.
5.9	Terminal Strength		
5.9.1	Terminal Pulling	Force of 5N is applied to each lead in axial direction for $10\text{s} \pm 1\text{s}$.	No visible damage and it shall fulfill Table 1.
5.9.2	Terminal Bending	When force of 5N is applied to each lead in axial direction, the lead shall be folded up 90° from the axial direction and folded back to the axial direction. The speed of folding shall be each 3s.	

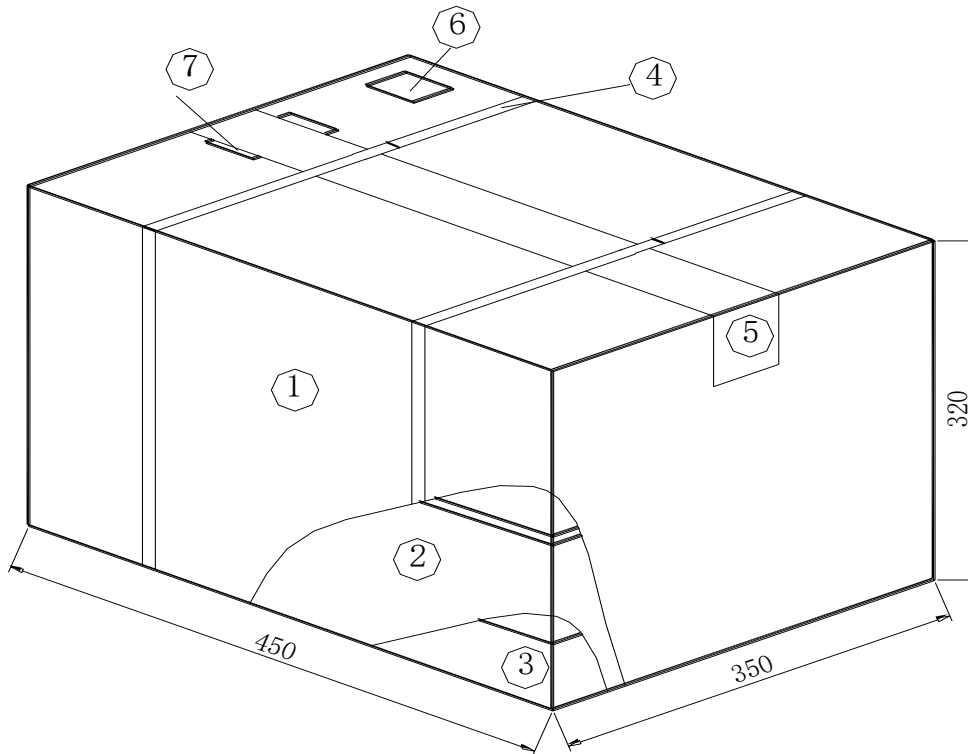
Table 1

Item	Characteristics after test
Center Frequency drift	$\pm 30\text{kHz}$ max
Insertion Loss drift	$\pm 2\text{dB}$ max.
3dB Band Width drift	$\pm 20\text{kHz}$ max.
20dB Band Width drift	$\pm 30\text{kHz}$ max.
Spurious Response	28 dB min
Note: The limits in the above table are referenced to the initial measurements.	

6. PACKAGE

To protect the products in storage and transportation, it is necessary to pack them (outer and inner package). On paper pack, the following requirements are requested.

6.1 Dimensions and Mark



NO.	Name	Quantity
①	Package	1
②	Box	2
③	Inner Box	40
④	Belt	2.9 m
⑤	Adhesive tape	1.2 m
⑥	Label	1
⑦	Certificate of approval	1
⑧	Company name ,Address etc.	

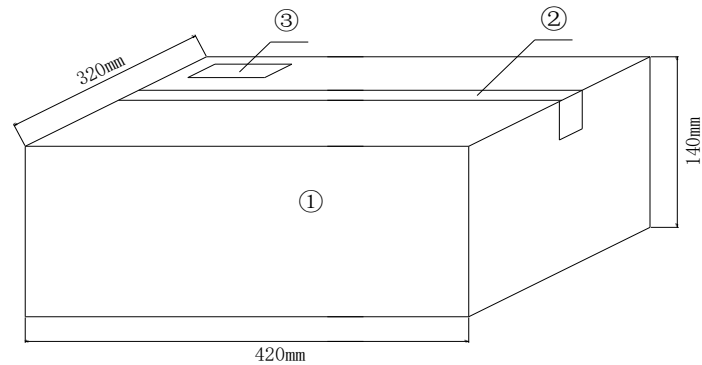
6.2 Section of Package

Package is made of corrugated paper with thickness of 0.8cm. Package has 2 boxes, each has 20 inner boxes.

6.3 Quantity of Package

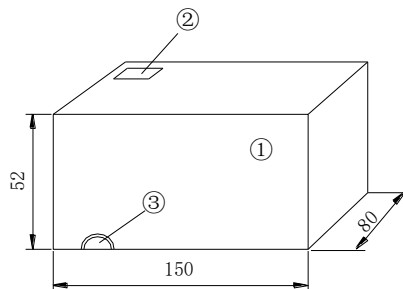
Per plastic bag 500 pieces
 Per inner box 3 plastic bag
 Per package 40 inner boxes
 (60000 pieces of piezoelectric ceramic part)

6.4 Inner Package



NO.	Name	Quantity
①	Inner package	1
②	Adhesive tape	1.2 m
③	Label	1

6.5 Inner Box Dimensions



NO.	Name	Quantity
①	Inner Box	1
②	Label	1
③	QC Label	1

7. EIAJ Monthly Code

2009/2011/2013/2015		2012/2014/2016/2018	
MONTH	CODE	MONTH	CODE
JAN	A	JAN	N
FEB	B	FEB	P
MAR	C	MAR	Q
APR	D	APR	R
MAY	E	MAY	S
JUN	F	JUN	T
JUL	G	JUL	U
AUG	H	AUG	V
SEP	J	SEP	W
OCT	K	OCT	X

NOV	L	NOV	Y
DEC	M	DEC	Z

8. OTHER

8.1 Caution

8.1.1 Don't apply excess mechanical stress to the component and terminals at soldering. Do not use this product with bend.

8.1.2 Do not clean or wash the component for it is not hermetically sealed.

8.1.3 Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.

8.1.4 Don't be close to fire.

8.1.5 All kinds of re-flow soldering must not be applied on the component.

8.1.6 This specification mentions the quality of the component as a single unit. Please insure the component is thoroughly evaluated in your application circuit

8.1.7 Expire date (Shelf life) of the products is one year after delivery under the conditions of a sealed and an unopened package. Please use the products within 12 months after delivery. If you store the products for a long time (more than one year), use carefully because the products may be degraded in the solderability or rusty. Please confirm solderability and characteristics for the products regularly.

8.1.8 Please contact us before using the product as automobile electronic component.

8.2 Notice

8.2.1 Please return one of this specification after your signature of acceptance.

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