Ceramic Filter kHz Lead Type Miniature, Normal 4/6 Element Series
(450 kHz to 455 kHz)

Test Item	Condition of Test & Performance
1. Temperature Characteristics	At the temperature range -30°C +85°C,filter shall meet the following table 1.
2. Dropped Shock	The filter shall meet the table 1 electrical characteristics after 3 times random dropping from a height of 30cm on concrete floor.
3. Vibration	The filter shall meet the table 1 electrical characteristics after being vibrated with a sine wave motion having an amplitude of 2.0mm from 10 to 55Hz per 1 minute applied for 2 hours in three different directions(X,Y,Z).
4. Humidity	The filter shall be placed in a chamber with 90 95%R.H. at 40 45°C for 96 hours and then being placed in natural condition for 24 hours. After the test, the filter shall meet the table 1 electrical characteristics.
5. Thermal Shock	The filter shall be placed at each cycle having three temperature levels(-20°C,+25°C,+70°C) for 1 hour and repeated 5 times and then the filter shall be measured after being placed in natural condition for 24 hours. The filter shall meet the table 1 electrical characteristics.
6. Resistance to Solder Heat	The filter shall be placed at 150± 10°C for three minutes and then at 260± 5°C for 10 seconds.After being performed 2 times,the filter shall meet the table 1 electrical characteristics.
7. Solderability	Dip the filter terminals no closer than 1.5mm into the solder bath at 230± 5°C for 5± 1sec. More than 95% of terminal surface of the filter shall be covered with fresh solder.
8. High Temperature Exposure	Subject the filter 80± 5°C for 100± 4 hours. Then, release the filter into the room conditions for 24hours prior to the measurement. It shall meet the table 1 electrical characteristics.
9. Low Temperature Exposure	Subject the filter -20± 5°C for 100± 4 hours. Then, release the filter into the room conditions for 24 hour prior to the measurement. It shall meet the table 1 electrical characteristics.

Test Item	Condition of Test & Performance
10. Pulling (Lead Fatigue)	Weight along with the direction of lead with 1.0 Kg. The filter shall show no evidence of damage and shall satisfy all the initial characteristics.
11. Bending (Lead Fatigue)	Lead shall be subject to withstand against 90° bending in the direction of thickness. This operation shall be done toward both directions. The filter shall show no evidence of damage and shall satisfy all the initial characteristics.

TABLE 1

CM4, CN4 Type				
Electrical Properties	D - Type	E - Type	F - Type	G - Type
Nominal Center Frequency(Fc)	450/455 KHz	450/455 KHz	450/455 KHz	450/455 KHz
6 dB Bandwidth	MIN. ± 9.0KHz	MIN. ± 7.0KHz	MIN. ± 5.5KHz	MIN. ± 4.0KHz
50 dB Bandwidth	MAX. ± 21.0KHz	MAX. ± 16.0KHz	MAX. ± 14.0KHz	MAX. ± 11.0KHz
Stop Band Attenuation	MIN. 25 dB	MIN. 25 dB	MIN. 25 dB	MIN. 25 dB
Insertion Loss	MAX. 5 dB	MAX. 5 dB	MAX. 5 dB	MAX. 7 dB
Ripple	MAX. 4 dB	MAX. 4 dB	MAX. 4 dB	MAX. 4 dB
Electrical Properties	H - Type			
Nominal Center Frequency(Fc)	455 KHz			
6 dB Bandwidth	MIN. ± 2.5KHz			
50 dB Bandwidth	MAX. ± 10.0KHz			
Stop Band Attenuation	MIN. 26 dB			
Insertion Loss	MAX. 7 dB			
Ripple	MAX. 4 dB			
CM6, CN6 Type				
Electrical Properties	B - Type	C- Type	D - Type	E - Type
Nominal Center Frequency(Fc)	450/455 KHz	450/455 KHz	450/455 KHz	450/455 KHz
6 dB Bandwidth	MIN. ± 14.0KHz	MIN. ± 11.0KHz	MIN. ± 9.0KHz	MIN. ± 7.0KHz
50 dB Bandwidth	MAX. ± 32.0KHz	MAX. ± 26.0KHz	MAX. ± 21.0KHz	MAX. ± 16.0KHz
Stop Band Attenuation	MIN. 34 dB	MIN. 34 dB	MIN. 34 dB	MIN. 34 dB
Insertion Loss	MAX. 5 dB	MAX. 5 dB	MAX. 5 dB	MAX. 5 dB
Ripple	MAX. 4 dB	MAX. 4 dB	MAX. 4 dB	MAX. 4 dB
Electrical Properties	F - Type	G - Type	H - Type	
Nominal Center Frequency(Fc)	450/455 KHz	450/455 KHz	450/455 KHz	
6 dB Bandwidth	MIN. ± 5.5KHz	MIN. ± 4.0KHz	MIN. ± 2.5KHz	
50 dB Bandwidth	MAX. ± 14.0KHz	MAX. ± 11.0KHz	MAX. ± 10.0KHz	
Stop Band Attenuation	MIN. 34 dB	MIN. 34 dB	MIN. 43 dB	
Insertion Loss	MAX. 5 dB	MAX. 7 dB	MAX. 7 dB	
Ripple	MAX. 4 dB	MAX. 4 dB	MAX. 4 dB	