



# SHOULDER

## Shoulder Electronics Ltd.

### SPECIFICATION FOR APPROVAL

NO 编号 : \_\_\_\_\_

CUSTOMER 客 户 : \_\_\_\_\_

PRODUCT 产 品 : \_\_\_\_\_ CERASTAL FILTER \_\_\_\_\_

MODEL NO 型 号 : \_\_\_\_\_ UM-5-21M15B \_\_\_\_\_

PREPARED 编 制 : \_\_\_\_\_ Fengyu \_\_\_\_\_ CHECKED 审 核 : \_\_\_\_\_ York \_\_\_\_\_

APPROVED 批 准 : \_\_\_\_\_ Liuping \_\_\_\_\_ DATE 日 期 : \_\_\_\_\_ 2009-11-04 \_\_\_\_\_

CUSTOMER 客户确认意见 :	
CHECKED 审核 :	
APPROVED 批准 :	
DATE 日期 :	

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# SPECIFICATION SHEET

□ APPLICATION

This Standard Will Apply to The Quartz Crystals.

□ ELECTRICAL DATA

NO	Speciality	Parameter
01	Holder type	MCF UM-5*2
02	Mode of Oscillations	Fundamental
03	Center Frequency	21.4MHz
04	Pass bandwidth	±7.5KHz min (at 3dB)
05	Pass band ripple	1.0dB max
06	Insertion loss	2.0dB max
07	Stop Band width	±25KHz max (at 40dB)
08	Terminating impedance	1500Ω//2.0pf//8.0pf
09	Operating Tem. Range	-20~+70°C
10	Insulated Resistance	500MΩ(max)(DC100V)
11	Aging per Year	±3ppm

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# SPECIFICATION SHEET

□ MECHANICAL DATA

1. Marking :	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>SDE 21M15 B</p> </div>
2.Shock Test :	Dropping from 75 cm height,3 times on 30mm-thick- hard wood, After testing, the electrical data follows the requirement.
3.Vibration Test :	30 minutes in each direction 10 to 55 Hz, amplitude 0.75mm, After testing, the electrical data follows the requirement.
4.Terminal strength :	<p>Tensile: Fix main body of crystal. Load 0.9kg pulling force along, terminal axial for 30±5 seconds. The terminal can not be pulled out or broken.</p> <p>Bending: Hang 450g object on lead terminal. Bend 90 degree for 2 to 3 seconds. Return to the former place with the same speed and then do it again oppositely. The down-lead does not become broken and loosed.</p>
5.Sealing :	The crystal unit shall be immersed in alcohol for 5 minutes with 5kg pressure per cm <sup>2</sup> .Taking out, Testing the resistance between down-lead and fundamental. The resistance shall be at least 500MΩ(max) (DC100V).
6.Temperature cycle :	<p>2 ~ 3 min -20°C to +70°C 30min 30min</p> <p>After cycling three times, there is no distinct damage on the surface. Capacity testing requirement as vibration.</p>

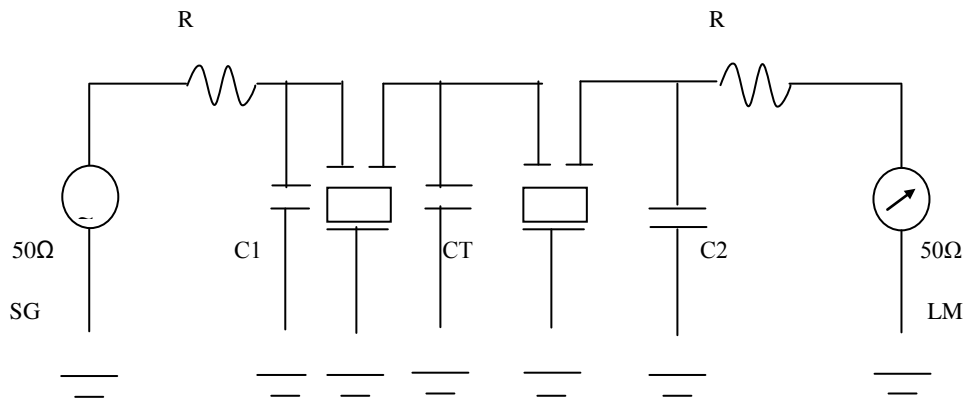
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# SPECIFICATION SHEET

□ MECHANICAL DATA

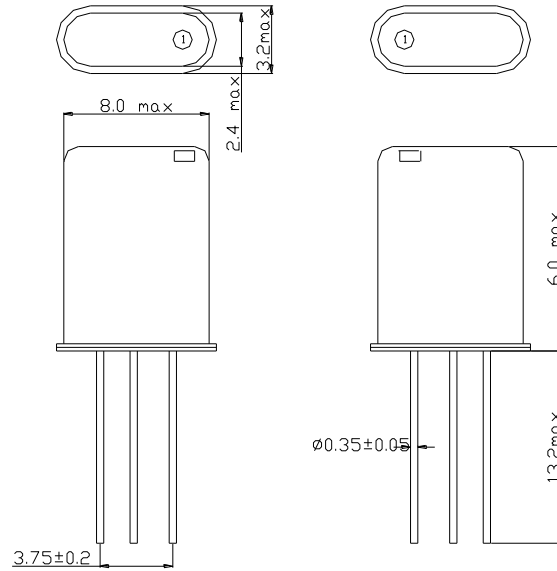
7.Solderability :	The lead(2to2.5mm from terminal to bottom) is immersed in a $230\pm 5^{\circ}\text{C}$ Solder bath within $2\pm 0.5$ seconds. The dipping surface of the lead shall be at least 95% covered with a Continuous new solder coating. Capacity testing requirement as vibration.
8. Resistance to soldering heat :	The(2 to 2.5mm from terminal to bottom) is immersed in a $350\pm 10^{\circ}\text{C}$ solder bath within $3.5\pm 0.5$ seconds. After testing, without distinct damage on the surface. Capacity testing requirement as vibration.
9. Resistance to heat :	Resistance to the lowest temperature: Stored at $-25\pm 3^{\circ}\text{C}$ for 2 hours and then at normal temperature for 2 hours before testing. Capacity testing requirement as vibration. Resistance to the highest temperature: Stored at $70\pm 2^{\circ}\text{C}$ for 2 hours and then at normal temperature for 2 hours before testing. Capacity testing requirement as vibration.
10. Invariable humidity :	Stored at $40\pm 3^{\circ}\text{C}$ and $\text{RH}93\%\pm 2\%$ for 48 hours and then at normal condition for 2 hours before testing. Without distinct damage to the surface. Capacity testing requirement as vibration.

Test Circuit



R : 1450Ω, C1, C2 : 2.0pf , CT:8.0pf

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MCF UM 5\*2

Remark : ○,black dot

Title	Dimensions(UM-5*2)		Article	21M15B	Page 1 of 1
Date	2009-11-04	Size	mm	Spec.No.	21.4
Issued			Discussed		
Checked			Approved		