

# 产 品 规 格 书

## Product Specification

CUSTOMER	客户:	_____
CUSTOMER PN	客户 PN:	_____
HANG CRYSTAL P/N	杭晶物料编码:	<b>HCCF1-450.000-LTMGWL</b>
MODEL	产品型号:	<b>Ceramic Filter 9.5x6.3x6.5, 450kHz</b>
NOMINAL FREQUENCY	频率:	<b>450.000kHz</b>
ISSUE DATE	日期:	<b>2019/11/16</b>

CUSTOMER'S APPROVAL

客户确认

(PLEASE RETURN A COPY WITH APPROVAL)  
(请将确认的复印件返回我司)

APPROVED

QA

MB.

James J

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Revision	Description / ECN	Prepared	Approved	Date
1	Initial release	MB.	James Jiang	2019-11-15
2	Not issued			
3	Not issued			
4	Not issued			

## 1. ELECTRICAL SPECIFICATIONS

No	Item	Spec.
1	Center Frequency	450kHz±1.0kHz
2	Pass Band Width at 6dB	≥ ±4.5KHz
3	Pass Band Width at 50dB	≤ ±10KHz
4	Insertion Loss	≤ 5.0dB
5	Ripple	≤ 2.0dB
6	Stop Band Attenuation	≥ 45dBc
7	Input/Output Impedance	2.0KΩ
8	Freq temp. Coefficient	≤ ±50ppm/°C @ -20 to +80°C
9	Operating Temperature Range	-20°C~+80°C
10	Storage Temperature Range	-40°C~+85°C
11	Size(mm)	9.5x6.3x6.5

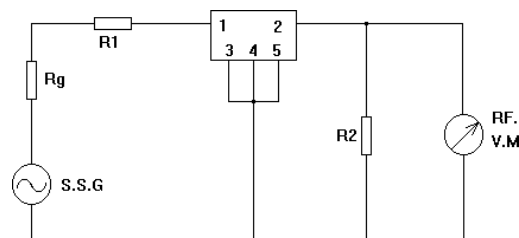
NOTE: A) Center frequency shall be defined as the central value of the band with at 6 dB  
B) Temperature coefficient of center frequency shall be defined as the average of the central frequency.

## 2. Measurement

### A. Environmental Condition

Measurement shall be carried out at the reference temperature of 25°C±2°C. It shall be possibly done at 5°C to 35°C unless it is questionable.

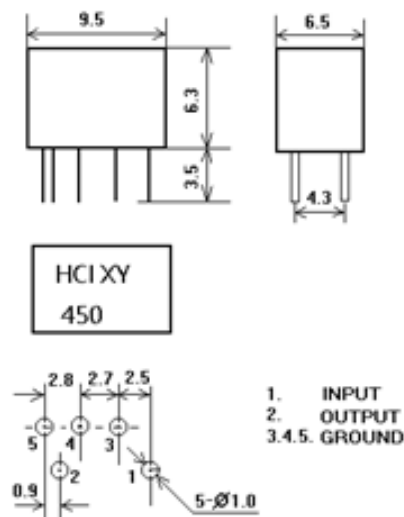
### B. Measuring Circuit



$R_g + R_1 = R_2 = \text{Input/Output Impedance}$

#S.S.G. (STANDARD SIGNAL GENERATION)

## 3. DIMENSIONS (Unit: mm)



#### 4. PRODUCT MARKING

1	FFF.fff	Nominal frequency in MHz (three digits after decimal point)										HCI YM FFF.fff				
2	HCI	Company logo														
	Y	Year code of manufacturing (see table below)														
3	Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032			
	Code	V	W	X	Y	Z	A	B	C	D	E	F	G			
4	M	Month code of manufacturing (see table below)														
	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
	Code	A	B	C	D	E	F	G	H	J	K	L	M			

#### 5. RELIABILITY TEST INFORMATION

	Test item	Test conditions															
1	Tensile Strength Termination	Lead shall be subject to withstand against 90° bending in the direction of thickness. This operation shall be done toward both direction. The filter shall show no evidence of damage and shall satisfy all the initial electrical characteristics.															
2	Vibration	Endurance condition by a frequency sweep shall be made. the entire frequency range from 10HZ to 55HZ and return to 10HZ, shall be transversed in 1 min. Amplitude (total excursion): 1.5mm This motion shall be applied for a period of 1h each of 3 mutually perpendicular axe (a total of 1h)															
3	Drop	From 300mm height 3 times on 30mm hard wooden floor															
4	Damp heat, constant	The unit shall be stored at a temperature of 40°C±2°C with relative humidity of 90% to 95% for 96 hours, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.															
5	Cold	The unit shall be stored at a temperature of -20±3°C for 96h, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.															
6	Dry heat	The unit shall be stored at a temperature of 80±3°C for 96h, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.															
7	Temperature Cycling	The unit shall be subjected to 3 successive change of temperature cycles, each as shown in table below, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made <table border="1"> <thead> <tr> <th></th><th>Temperature</th><th>Duration</th></tr> </thead> <tbody> <tr> <td>1</td><td>-20°C±3°C</td><td>30min</td></tr> <tr> <td>2</td><td>standard atmospheric conditions</td><td>within 30S</td></tr> <tr> <td>3</td><td>80°C±3°C</td><td>30min</td></tr> <tr> <td>4</td><td>standard atmospheric conditions</td><td>within 30S</td></tr> </tbody> </table>		Temperature	Duration	1	-20°C±3°C	30min	2	standard atmospheric conditions	within 30S	3	80°C±3°C	30min	4	standard atmospheric conditions	within 30S
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1	-20°C±3°C	30min															
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3	80°C±3°C	30min															
4	standard atmospheric conditions	within 30S															
8	Resistance to soldering heat	Reflow at Preheat to 150°C±5°C for 60 to 120sec and peak 260°C±5°C for 10s±3sec, Tested after 24±2h at room temp.															

Item	Specification
Center frequency(f。 )	450±1.0 kHz
band width (6 dB)	±4.5 kHz min
selectivity(50db)	±10 kHz max
stop band attenuation	45 dB min
ripple	2.0 dB max
insertion loss	5.0 dB max