



No.11-3 Jianguo Rd., T.E.P.Z. 42760 Taiwan, ROC

All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

Page: 1/4 Date: August 01, 2022

**Specification Title:**

**Quartz Crysta  
Leaded Package  
HC-49/U-S Short Package  
General Product Specification**

**Series Name: CA Series**

**Electrical Specifications:**

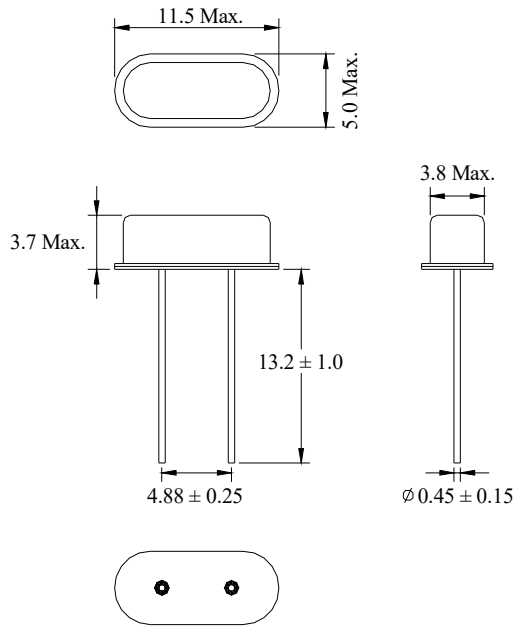
Frequency Range		3.500 to 80.000	MHz
Mode of Oscillation	Fundamental	3.500 to 40.000	MHz
	Third Overtone	24.000 to 80.000	
Frequency Tolerance at 25°C	Standard	±30	PPM Max
		±25	
	Optional	±20	
		±15	
Frequency Stability over Temperature Range	Standard	±10	PPM Max
		±30	
	Optional	±100	
		±50	
		±25	
		±20	
Operating Temperature Range	Standard	-20 to +70	°C
	Extended	-40 to +85	
Storage Temperature Range		-55 to +125	
Aging		±5	PPM Max/Year
Load Capacitance		6 to 47 and Series Resonance	pF
Shunt Capacitance		7.0	pF Max
Equivalent Series Resistance(ESR)		See ESR Table	Ohms
Drive Level		100, 500, 1000 or special requirement	mW Max
Insulation Resistance		500 at 100 Vdc ± 15 Vdc	M Ohm

**Frequency Range and ESR Values:**

Frequency Range in MHz	ESR Ohm Max	Mode of Operation	Frequency Range in MHz	ESR Ohm Max	Mode of Operation
3.500 to 3.999	200	Fundamental	24.000 to 29.999	120	Third Overtone
4.000 to 4.999	120	Fundamental	30.000 to 39.999	80	Third Overtone
5.000 to 5.999	90	Fundamental	40.000 to 80.999	60	Third Overtone
6.000 to 7.999	80	Fundamental			
8.000 to 11.999	60	Fundamental			
12.000 to 14.999	40	Fundamental			
15.000 to 19.999	35	Fundamental			
20.000 to 40.000	25	Fundamental			

RoHS Compliant Pb - Lead Free	Ltr	Revisions	Date	Appr

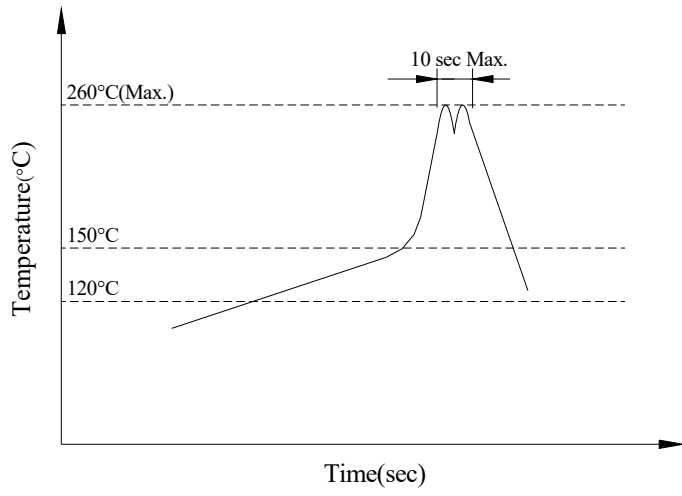
**Mechanical Outline:**



**Package is Seam Sealed Ceramic-Metal.  
Dimensions are millimeters.**

Page:	2/4	Date: August 01, 2022	P/N:	<b>CA Series</b>	
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**Solder Reflow Characteristics:**



**How to build a Part Number:**

Series		C	Parameter
Package		A	HC-49/U-S
		-	
Frequency		3.500 to 80.000	MHz
		-	
Load Capacitance		10	10 pF
		12	12 pF
		16	16 pF
		18	18 pF
		20	20 pF
		32	32 pF
		S	Series
		-	
Frequency Tolerance	Standard	30	±30PPM
	Option	25	±25PPM
		20	±20PPM
		15	±15PPM
		10	±10PPM
Frequency Stability	Standard	30	±30PPM
	Option	100	±100PPM
		50	±50PPM
		25	±25PPM
		20	±20PPM
		15	±15PPM
	10	±10PPM*	
		-	
Mode of Oscillation		See Notes 3	Fundamental Third Overtone
		-	
Temperature Range	Standard	See Notes	-20 to +70 °C
	Option	X	-40 to +85 °C
		-	
Package Height	Standard	See Notes	3.6
	Option	25	2.5
		-	
Packaging		See Notes	Bulk

**Part Number Example:**

**CA-24.000-18-3050-R**

**CA: HC-49/U-S Package**

**24.000 MHz Nominal Frequency**

**18pF Load Capacitance**

**3050: ±30 PPM Tolerance and ±50 PPM Stability**

**Fundamental Mode**

**-20 to +70°C Temperature Range**

**Standard Height - 3.6 mm**

**Notes:**

**1- Standard Temperature Range and Fundamental Mode do not need to be included in Part Number description.**

**2- Product is shipped bulk. 1000 pieces per box, 10 plastic bags containing 100 pieces.**

**3- Optional tape and reel packaging is available for 1000 pieces minimum.**

**4- Specification subject to change without notice.**

Page:	4/4	Date: August 01, 2022	P/N:	<b>CA Series</b>	
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