

HTA Series

High Temperature Quartz Crystal



Part Dimensions:
11.1 × 4.83 × 4.3mm • 587.84mg

Features

- AEC-Q200 Compliant Available
- Standard HC-49/US-SM Metal Package
- Fundamental and 3rd Overtone Crystal Design
- Frequency Range 3.2 – 64MHz
- Frequency Tolerance, ±30ppm Standard
- Frequency Stability, ±50ppm Standard
- Operating Temperature Range, -40°C to +105°C Standard
- Tape and Reel Packaging, EIA-418

Applications

- Industrial Control Equipment
- M2M Communications
- FPGAs and Microcontrollers
- Internet of Things [IoT and IIoT]
- Automotive Electronics
- Mobile Multimedia/Infotainment
- Computer Peripherals
- Test and Measurement
- Commercial Military & Aerospace

Description

CTS Model HTA incorporates a high Q quartz resonator in a proven resistance weld metal package. HTA is ideal for supporting a wide range of commercial, industrial and automotive applications requiring extended operating temperature ranges.

Ordering Information

Model	Frequency Code [MHz]	Mode of Oscillation	Tolerance @ +25°C	Temperature Stability	Temperature Range	Load Capacitance	Product Grade	Packaging
HTA	XXX	F	3	5	G	D	A	T
	Code Frequency		Code Tolerance		Code Temp. Range		Code Packing	Code Packing
	Product Frequency Code ¹		1 ±10ppm X ±15ppm 2 ±20ppm Y ±25ppm 3 ±30ppm		I -40°C to +85°C G -40°C to +105°C H -40°C to +125°C ² M -55°C to +125°C ³		Blank Standard A AEC-Q200	T Tape & Reel
		Code Mode		Code Stability		Code Capacitance	Code Capacitance	
		F Fundamental T 3rd Overtone		X ±15ppm 5 ±50ppm 2 ±20ppm 6 ±100ppm Y ±25ppm 7 ±150ppm 3 ±30ppm		K 8pF D 18pF J 9pF E 20pF A 10pF F 24pF L 12pF G 30pF B 13pF H 32pF C 16pF S Series		

Notes:

- 1] Refer to document 016-1454-0, Frequency Code Tables. 3-digits for frequencies <100MHz.
- 2] Temperature Stability Codes 5, 6 & 7. Check factory availability when combining other Stability Codes with -40°C to +125°C temperature range.
- 3] Temperature Stability Code 7. Check factory availability when combining other Stability Codes with -55°C to +125°C temperature range.

**Not all performance combinations and frequencies may be available.
Contact your local CTS Representative or CTS Customer Service for availability.**

This product is specified for use only in standard commercial applications. Supplier disclaims all express and implied warranties and liability in connection with any use of this product in any non-commercial applications or in any application that may expose the product to conditions that are outside of the tolerances provided in its specification.



Electrical Specifications

Operating Conditions

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Temperature	T _A	-	-40		+85	°C
			-40	+25	+105	
			-40		+125	
			-55		+125	
Storage Temperature	T _{STG}	-	-55	-	+125	°C

Frequency Stability

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Frequency Range						
Fundamental	f ₀	-		3.2 - 40		MHz
3rd Overtone				24 - 64		
Frequency Tolerance	Δf/f ₀	@ +25°C		10, 15, 20, 25 or 30		±ppm
Frequency Stability	Δf/f ₂₅	Referenced to +25°C reading		15, 20, 25, 30, 50, 100 or 150		±ppm
Aging	Δf/f ₀	Typical per year @ +25°C	-5	±3	5	ppm

Crystal Parameters

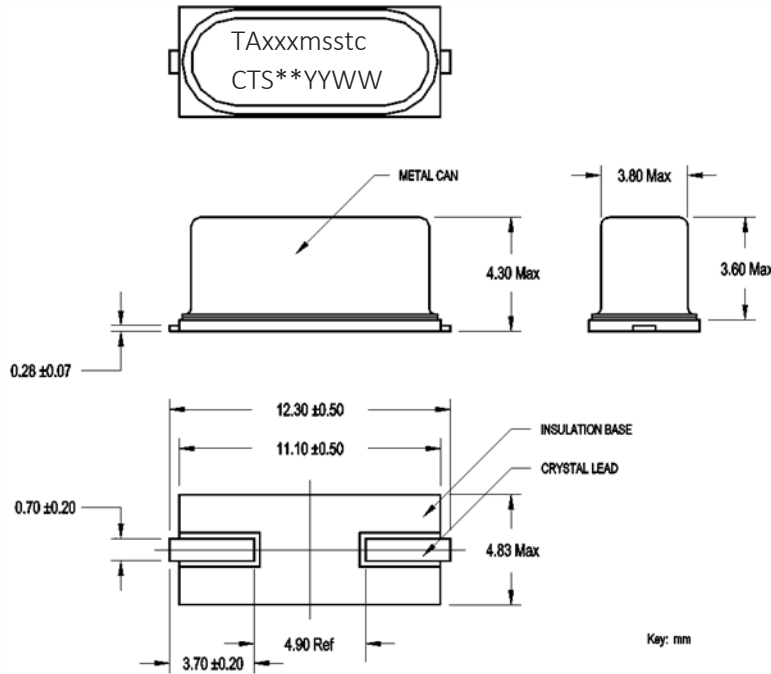
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Mode	-	-	Fundamental or 3rd Overtone			-
Crystal Cut	-	-	AT-Cut			-
Load Capacitance	C _L	-	See Ordering Information			pF
Shunt Capacitance	C ₀	-	-	-	7.0	pF
Series Resistance						
Fundamental	R1	3.2MHz - <4.0MHz	-	-	150	Ω
		4.0MHz - <5.0MHz	-	-	120	
		5.0MHz - <8.0MHz	-	-	80	
		8.0MHz - <12.0MHz	-	-	60	
		12.0MHz - <20.0MHz	-	-	40	
		20.0MHz - 40.0MHz	-	-	30	
3rd Overtone	R1	24.0MHz - <48.0MHz	-	-	80	
		48.0MHz - 64.0MHz	-	-	60	
Drive Level	DL	-	-	100	1000	μW
Insulation Resistance	R _i	+100Vdc ±15Vdc	500	-	-	MΩ

Δf/f₀ - Frequency deviation referenced to nominal frequency.

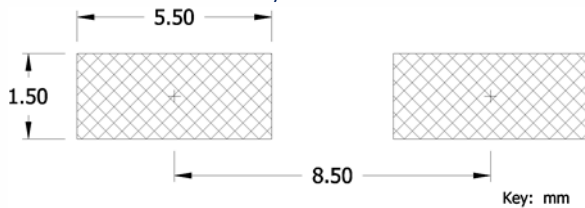
Δf/f₂₅ - Frequency deviation over operating temperature range, referenced to +25°C frequency.

Mechanical Specifications

Package Drawing



Recommended Pad Layout



Marking Information

- TAXxxmsstc – Truncated CTS part number.
[Packaging code is not required in the marking.]
 - TA – HTA platform.
 - xxx – 3-Digit Frequency Code.
[Reference document 016-1454-01]
 - m – Operating Mode. F = Fundamental, T = 3rd Overtone.
 - D] sstc – Tolerance, Stability, Temperature Range and Load Capacitance codes. Reference Ordering Information.
- ** – Manufacturing Site Code.
- YYWW – Date Code. YY = year, WW = week.

Schematic

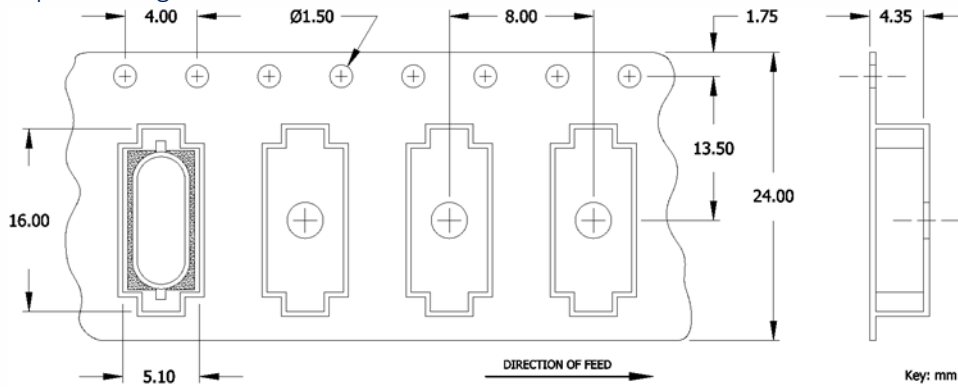


Notes

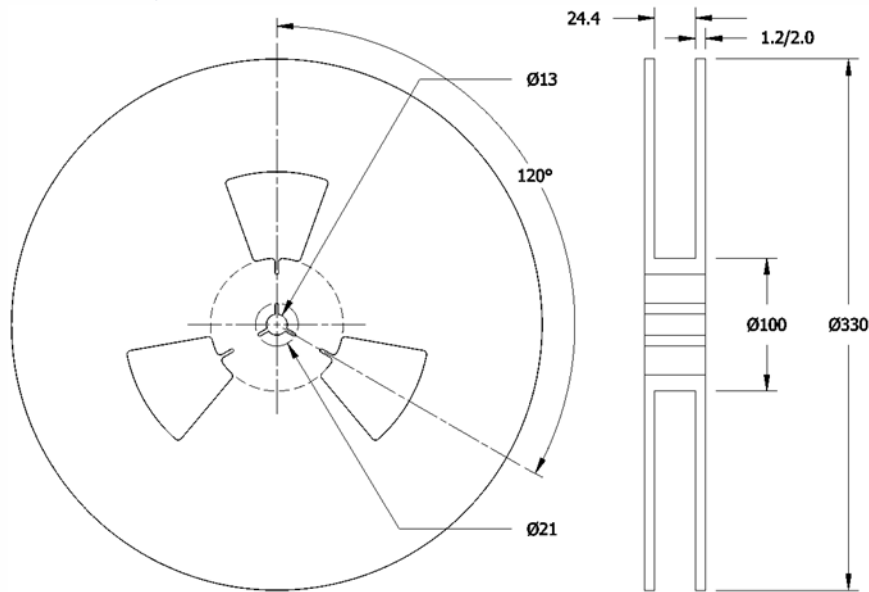
- JEDEC termination code (e1). Barrier-plating is nickel [Ni] with tin-silver-copper [SnAgCu] lead finish.
- Reflow conditions per JEDEC J-STD-020; +260°C maximum, 20 seconds.
- MSL = 1.

Packaging – Tape and Reel

Tape Drawing



Reel Drawing



Notes

1. Device quantity is 1k pieces maximum per 330mm reel.
2. Complete CTS part number, frequency value, date code and manufacturing site code information must appear on reel and carton labels.