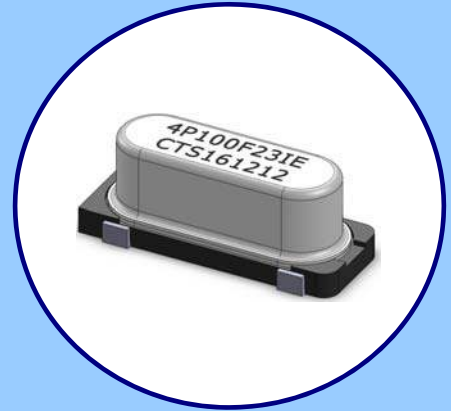




### FEATURES

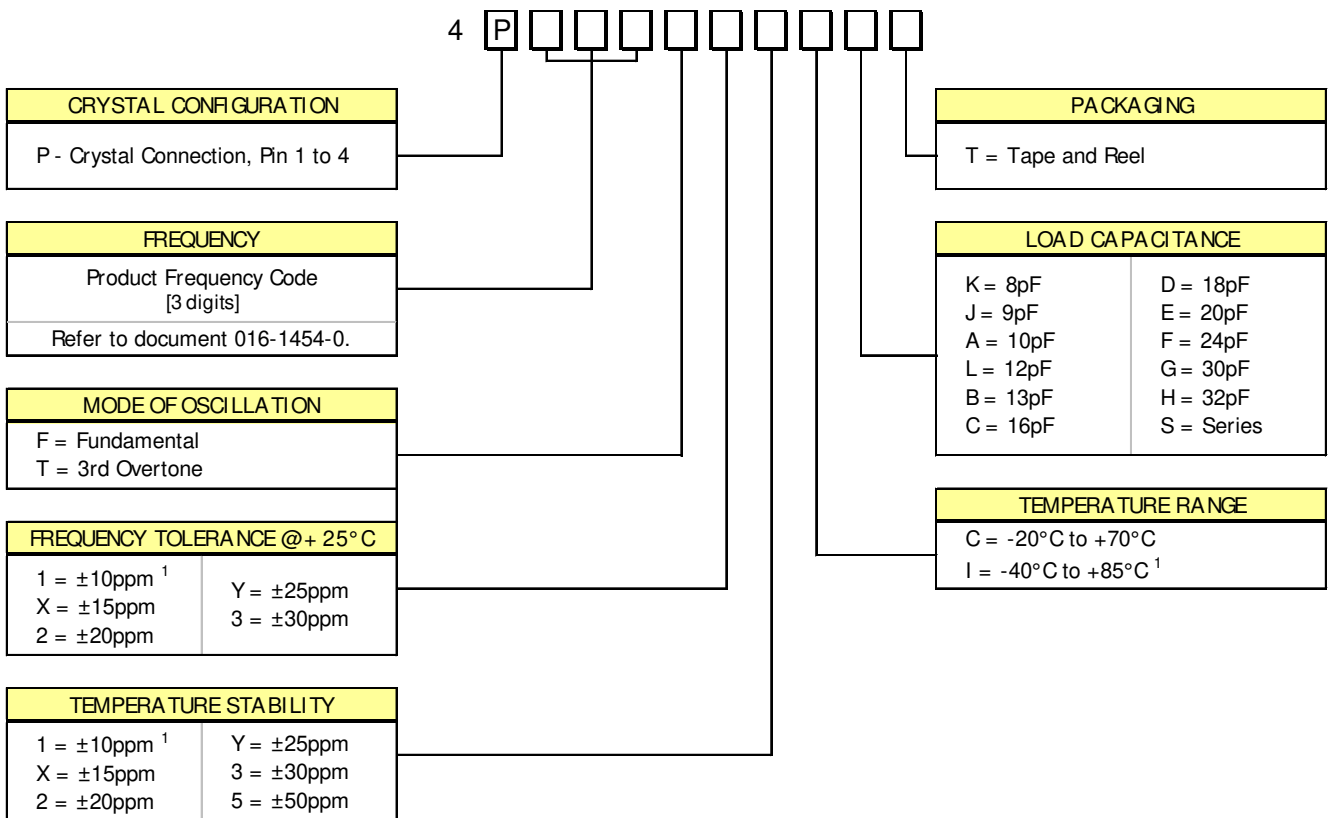
- Four Leaded Package [HC-49/ US-SM Type]
- Fundamental and 3<sup>rd</sup> Overtone Crystals
- Alternative for Common Plastic Molded Designs
- Stable Frequency Over Temperature and Drive Level
- Frequency Range 3.2 – 64MHz
- Frequency Tolerance, Options from  $\pm 10\text{ppm}$  to  $\pm 30\text{ppm}$
- Frequency Stability, Options from  $\pm 10\text{ppm}$  to  $\pm 50\text{ppm}$
- Operating Temperature,  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  &  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  Standard
- Tape & Reel Packaging Standard
- RoHS/ Green Compliant [6/ 6]



### APPLICATIONS

The ATSSM4P [4 Pad] crystal series offers excellent long-term stability and reliability in a proven resistance-weld metal package. The excellent shock performance makes it suitable for microprocessor, telecommunication, industrial, consumer electronics and networking applications.

### ORDERING INFORMATION



1. Check factory availability for "111" Tolerance/Stability/Temperature combination.

Not all performance combinations and frequencies may be available.  
Contact your local CTS Representative or CTS Inside Sales Representative for availability.

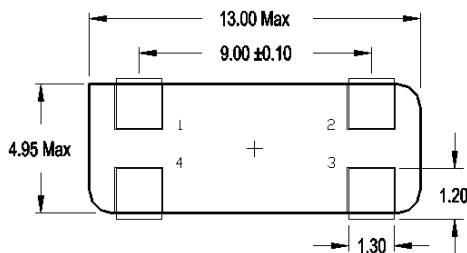
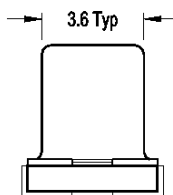
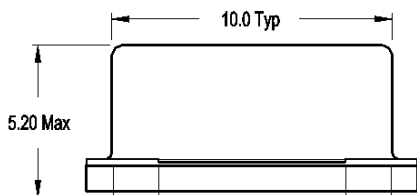
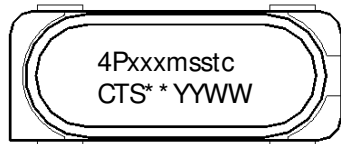
**ELECTRICAL CHARACTERISTICS**

PARAMETER	VALUE	
	Frequency Range	3.2MHz to 40MHz
Operating Mode	Fundamental	3rd Overtone
Crystal Cut	AT-Cut	
Frequency Tolerance @ +25°C *	±10, ±15, ±20, ±25, ±30ppm	
Frequency Stability Tolerance * [Operating Temperature Range, Referenced to +25°C Reading]	±10, ±15, ±20, ±25, ±30, ±50ppm	
Operating Temperature Ranges	-20°C to +70°C	
	-40°C to +85°C	
Equivalent Series Resistance - Fundamental Mode [Maximum]	3.20MHz - <4.00MHz	150 Ohms
	4.00MHz - <5.00MHz	120 Ohms
	5.00MHz - <8.00MHz	80 Ohms
	8.00MHz - <12.00MHz	60 Ohms
	12.00MHz - <20.00MHz	40 Ohms
	20.00MHz - 40.00MHz	30 Ohms
Equivalent Series Resistance - 3rd Overtone Mode [Maximum]	24.00MHz - <48.00MHz	80 Ohms
	48.00MHz - 64.00MHz	60 Ohms
Load Capacitance	See Ordering Information	
Shunt Capacitance [C <sub>0</sub> ]	7.0pF Maximum	
Drive Level	100µW Typ., 1000µW Max.	
Aging @ +25°C	±3ppm/yr Typical, ±5ppm/yr Maximum	
Insulation Resistance	500M Ohms @ DC 100V	
Storage Temperature Range	-40°C to +100°C	

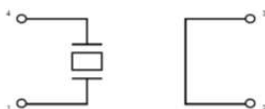
\* See Ordering Information.

**MECHANICAL SPECIFICATIONS**

**PACKAGE DRAWING**



**SCHEMATIC**



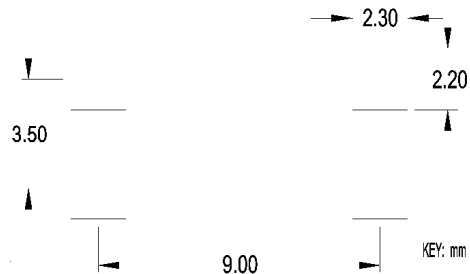
**MARKING INFORMATION**

- 4Pxxxmsstc – Truncated CTS Part Number.  
[Packaging code is not required in the marking.]
  - 4P – ATSSM4P platform.
  - xxx – 3-digit Frequency Code. [Reference document 016-1454-0]
  - m – Operating Mode; F = fundamental, T = 3<sup>rd</sup> Overtone.
  - sstc – Tolerance, Stability, Temperature and Load Capacitance codes. Reference Ordering Information.
- \*\* - Manufacturing Site Code.
- YYWW – Date Code, YY – year, WW – week.
- Complete CTS part number, frequency value and date code information must appear on bag and box labels.

**NOTES**

- JEDEC termination code (e1). Lead finish is SnAgCu.
- Reflow conditions per JEDEC J-STD-020; 260°C maximum, 10 seconds.

**SUGGESTED SOLDER PAD GEOMETRY**



**PACKAGING INFORMATION [For Reference]**

Tape and Reel

