



### FEATURES

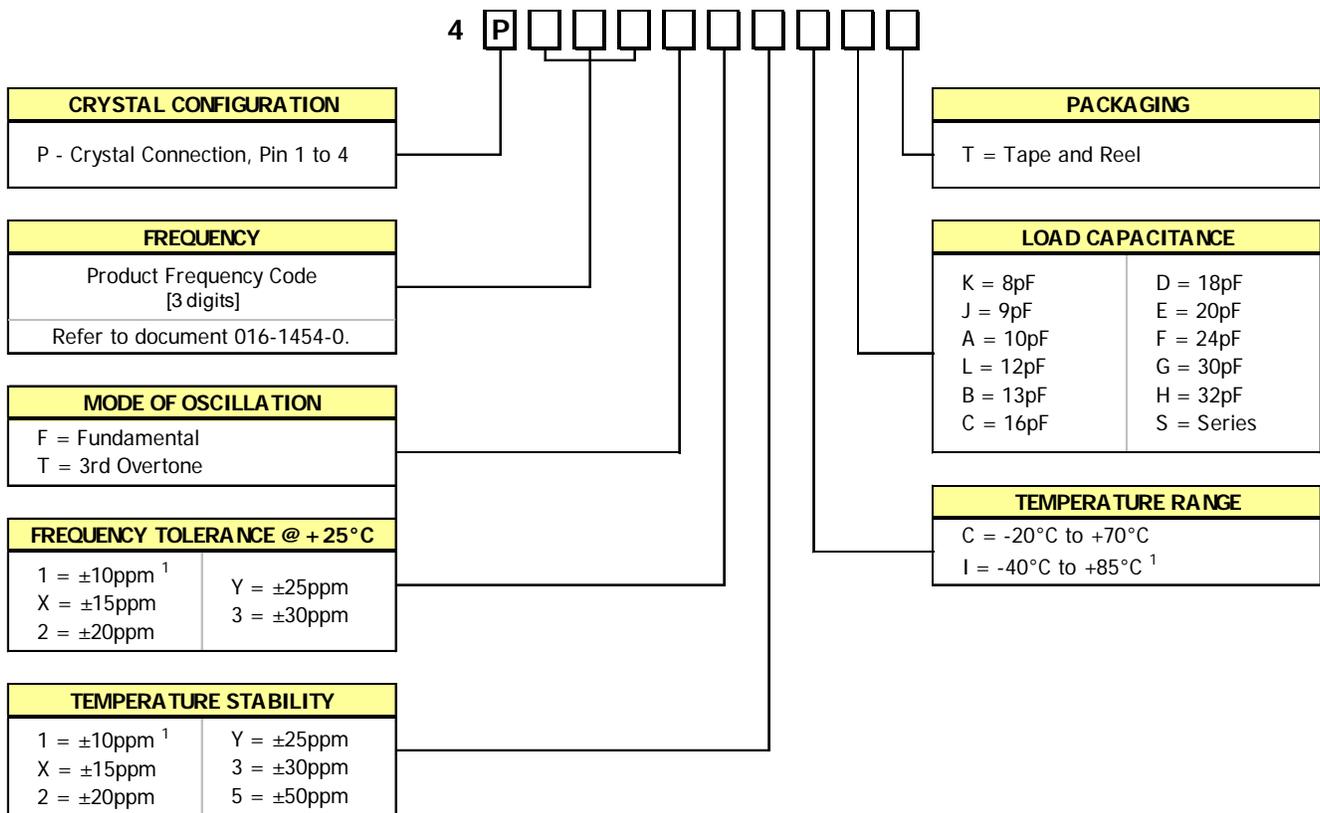
- Four Leaded Package [HC-49/US-SM Type]
- Fundamental and 3<sup>rd</sup> Overtone Crystals
- Alternative for Common Plastic Molded Designs
- Stable Frequency Over Temperature and Drive Level
- Frequency Range 3.2 – 64MHz
- Frequency Tolerance, Options from  $\pm 10\text{ppm}$  to  $\pm 30\text{ppm}$
- 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 "11" 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.

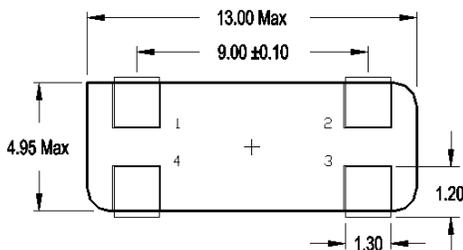
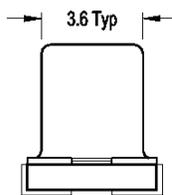
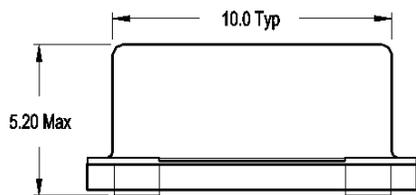
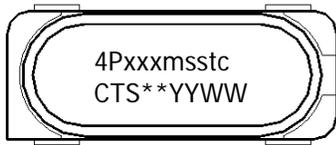
**ELECTRICAL CHARACTERISTICS**

PARAMETER		VALUE		
ELECTRICAL PARAMETERS	Frequency Range	3.2MHz to 40MHz	24MHz to 64MHz	
	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**



KEY: mm

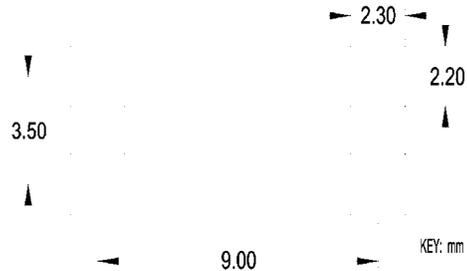
**MARKING INFORMATION**

- 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**



**SCHEMATIC**

