

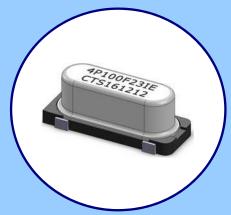
# ATSSM4P SERIES



## QUARTZ CRYSTAL W/ FOUR LEADS

#### **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 ±10ppm to ±30ppm
- Frequency Stability, Options from ± 10ppm to ±50ppm
- Operating Temperature, -20°C to +70°C & -40°C to +85°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 CRYSTAL CONFIGURATION PACKAGING P - Crystal Connection, Pin 1 to 4 T = Tape and Reel FREQUENCY LOAD CAPACITANCE Product Frequency Code K = 8pFD = 18pF[3 digits] J = 9pFE = 20pFRefer to document 016-1454-0. A = 10pFF = 24pFL = 12pFG = 30pFH = 32pFB = 13pFMODE OF OSCILLATION C = 16pFS = SeriesF = Fundamental T = 3rd Overtone TEMPERATURE RANGE $C = -20^{\circ}C \text{ to } +70^{\circ}C$ FREQUENCY TOLERANCE @+ 25°C $I = -40^{\circ}C \text{ to } +85^{\circ}C^{1}$ $1 = \pm 10$ ppm <sup>1</sup> $Y = \pm 25ppm$ $X = \pm 15ppm$ $3 = \pm 30$ ppm $2 = \pm 20$ ppm TEMPERATURE STABILITY $1 = \pm 10 \text{ppm}^{-1}$ $Y = \pm 25ppm$ $X = \pm 15ppm$ $3 = \pm 30$ ppm $2 = \pm 20$ ppm $5 = \pm 50$ ppm

 ${\it 1. \ Check factory \ availability for "11" \ Tolerance/Stability/Temperature \ combination.}\\$ 

Not all performance combinations and frequencies may be available.

Contact your local CTS Representative or CTS Inside Sales Representative for availability.

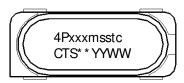
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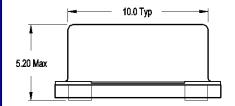
	PA RA METER	VALUE	
ELECTRI CAL PARAMETERS	Frequency Range	3.2MHz to 40MHz	24MHz to 64MHz
	Operating Mode	Fundamental	3rd Overtone
	Crystal Cut	AT-Cut	
	Frequency Tolerance @ +25°C *	±10, ±15, ±20, ±25, ±30ppm	
	Frequency Stability Tolerance *	±10, ±15, ±20, ±25, ±30, ±50ppm	
	[Operating Temperature Range, Referenced to +25°C Reading]		
	Operating Temperature Ranges	-20°C to +70°C	
	Sporating Tomporatoro Fangos	-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	24.00MHz - <48.00MHz	80 Ohms
	[Maximum]	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	

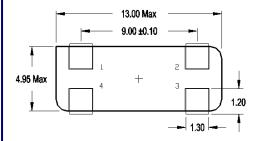
See Ordering Information.

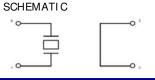
#### MECHANICAL SPECIFICATIONS

PACKAGE DRAWING









### MARKING INFORMATION

- 1. 4Pxxxmsstc Truncated CTS Part Number. [Packaging code is not required in the marking.]
  - a) 4P ATSSM4P platform.
  - b) xxx 3-digit Frequency Code. [Reference document 016-1454-0]
     c) m Operating Mode; F = fundamental, T = 3<sup>rd</sup> Overtone.

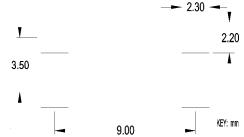
  - d) sstc Tolerance, Stability, Temperature and Load Capacitance codes. Reference Ordering Information.
- \*\* Manufacturing Site Code.
- 3. YYWW Date Code, YY year, WW week.
- 4. Complete CTS part number, frequency value and date code information must appear on bag and box labels.

3.6 Typ

KEY: mm

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

#### SUGGESTED SOLDER PAD GEOMETRY





# ATSSM4P SERIES QUARTZ CRYSTAL W/ FOUR LEADS

DIMENSIONS IN MILLIMETERS

#### PACKAGING INFORMATION [For Reference] Tape and Reel 24.40 -- 2.00 Ø13.00 Ø1.55 4.00 12.00 ---120° 0000 000000 24.00 Ø330 16.00 \_\_ 0.40 - 5.10 -Ø21.00 DIRECTION OF FEED