



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

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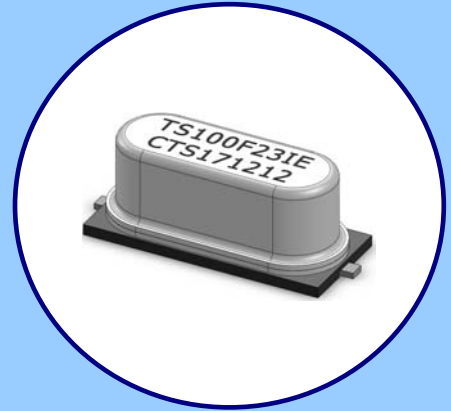
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





FEATURES

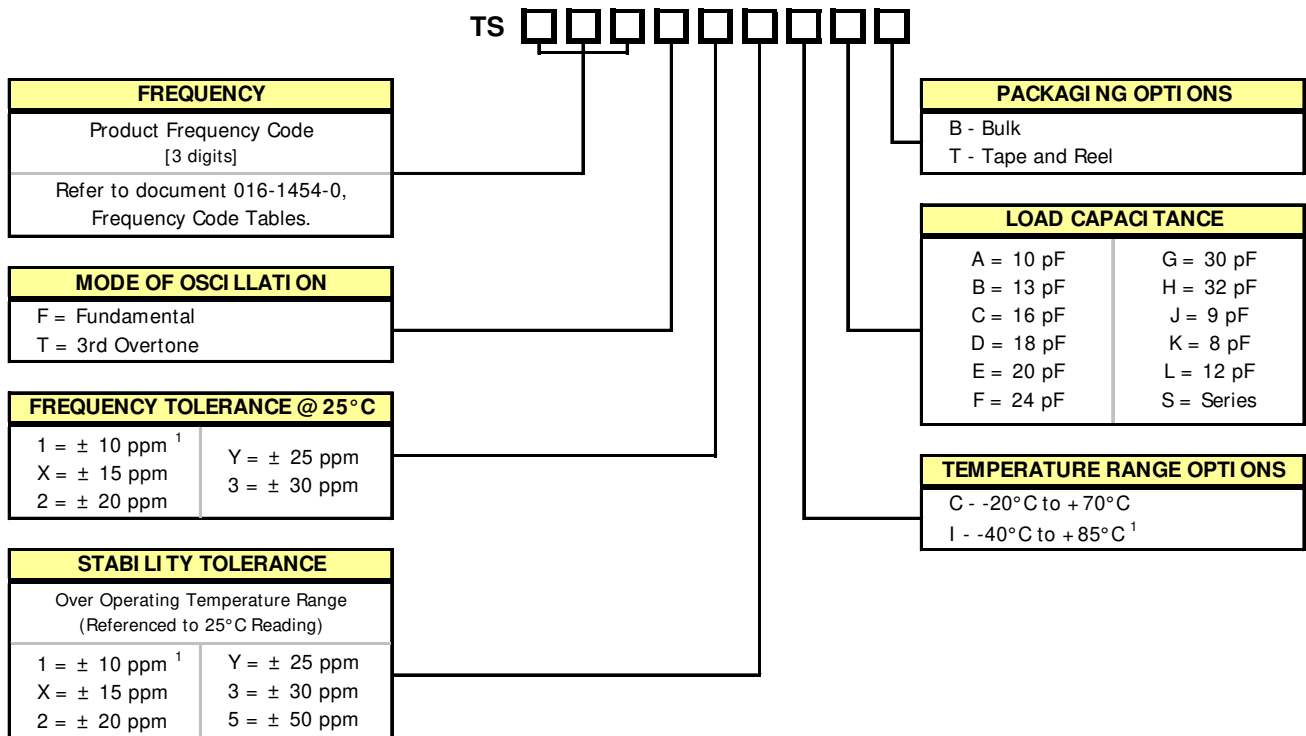
- **Standard HC-49/ US-SM (surface mount) Package**
- **Fundamental and 3rd Overtone Crystals**
- Stable Frequency Over Temperature and Drive Level
- Frequency Range 3.2 – 64 MHz
- Frequency Tolerance, Options from ± 10 ppm to ± 30 ppm
- Frequency Stability, Options from ± 10 ppm to ± 50 ppm
- Operating Temperature, -20°C to $+70^{\circ}\text{C}$ & -40°C to $+85^{\circ}\text{C}$ Standard
- Tape & Reel Packaging Standard
- **RoHS/ Green Compliant (6/ 6)**



APPLICATIONS

The ATSSMTS [Tight Stability] 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
ELECTRICAL PARAMETERS	Frequency Range	3.2 MHz to 64.0 MHz
	Operating Mode	Fundamental or 3rd Overtone
	Crystal Cut	AT-Cut
	Frequency Tolerance @ +25°C *	± 10, ± 15, ± 20, ± 25, ± 30 ppm
	Frequency Stability Tolerance * (Over Operating Temperature Range, Referenced to +25°C Reading)	± 10, ± 15, ± 20, ± 25, ± 30, ± 50 ppm
	Operating Temperature Range *	-20°C to +70°C and -40°C to +85°C
	Equivalent Series Resistance	See ESR Table
	Load Capacitance	See Ordering Information
	Shunt Capacitance (C ₀)	7.0 pF Maximum
	Drive Level	100 μW Typical, 1,000 μW Maximum
	Aging @ +25°C	± 3 ppm/yr Typical, ± 5 ppm/yr Maximum
	Storage Temperature Range	-40°C to +85°C

* See Ordering Information

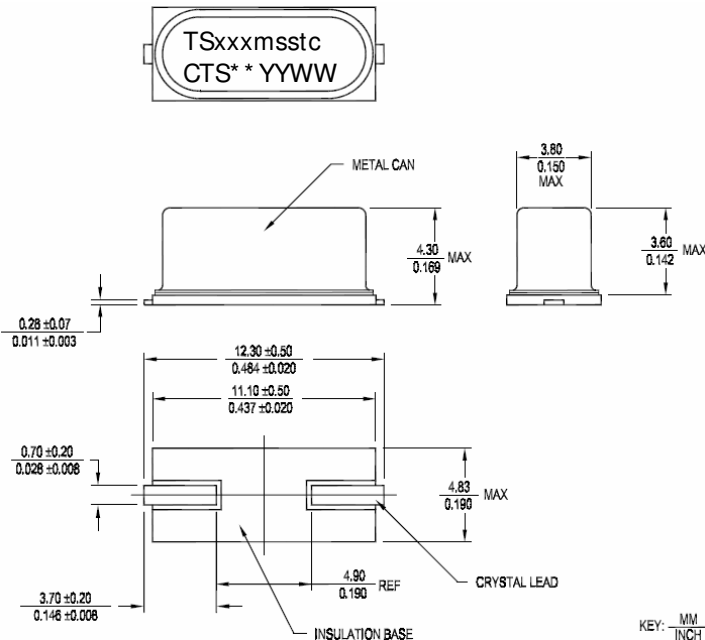
EQUIVALENT SERIES RESISTANCE TABLE

FREQUENCY RANGE	OSCILLATION MODE	ESR MAXIMUM
3.20 MHz - < 4.00 MHz	Fundamental	150 Ohms
4.00 MHz - < 5.00 MHz	Fundamental	120 Ohms
5.00 MHz - < 8.00 MHz	Fundamental	80 Ohms
8.00 MHz - < 12.00 MHz	Fundamental	60 Ohms
12.00 MHz - < 20.00 MHz	Fundamental	40 Ohms
20.00 MHz - < 30.00 MHz	Fundamental	30 Ohms
27.00 MHz - 64.00 MHz	3rd Overtone	80 Ohms



MECHANICAL SPECIFICATIONS

PACKAGE DRAWING



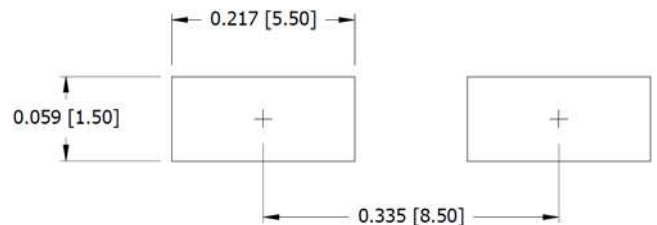
MARKING INFORMATION

- TSxxxmsstc – Truncated CTS Part Number. [Packaging code is not required in the marking.]
 - TS – ATSSMTS platform.
 - xxx – 3-digit Frequency Code. [Reference document 016-1454-01]
 - m – Operating Mode; F = fundamental, T = 3rd 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

- Lead finish (e1), SnAgCu.
- Reflow conditions per JEDEC J-STD-020; 260°C maximum, 10 sec.
- MSL = 1.

SUGGESTED SOLDER PAD GEOMETRY



Key: Inch [mm]

PACKAGING INFORMATION

ATS-SM Tape and Reel [For Reference]

DIMENSIONS IN MILLIMETERS

