

FEATURES	APPLICATIONS
<ul style="list-style-type: none"> <li>- ±20ppm/±30ppm (Tolerance/Stability) Available</li> <li>- RoHS Compliant</li> <li>- Wide Frequency Range</li> <li>- AT-Cut</li> <li>- Bulk Packing</li> </ul>	<ul style="list-style-type: none"> <li>- Computer Peripherals</li> <li>- Microprocessor</li> <li>- Test Equipment</li> </ul>



**PART NUMBERING GUIDE**

**SUNTSU CYLINDRICAL MHz CRYSTAL** → **SCM 13 2 18 A A 48 T - 48.000M** ← **FREQUENCY (MHz)**

**10.5mm x 3.2mm**

**2 LEAD**

**LOAD CAPACITANCE**  
S: SERIES  
7 - 30: 7pF - 30pF

**FREQUENCY TOLERANCE**  
A: ±50ppm  
B: ±30ppm  
C: ±25ppm  
D: ±20ppm

**FREQUENCY STABILITY**  
A: ±50ppm  
B: ±30ppm

**MODE OF OPERATION**  
BLANK: FUNDAMENTAL  
T: THIRD OVERTONE

**OPERATING TEMPERATURE RANGE**  
07: 0°C to +70°C  
16: -10°C to +60°C  
17: -10°C to +70°C  
27: -20°C to +70°C  
38: -30°C to +85°C  
48: -40°C to +85°C

Cage Code: 4GUT4  
To customize your parameters contact a Suntsu representative.

ELECTRICAL PARAMETERS	UNITS	MIN.	TYP.	MAX.	REMARKS
Frequency Range	MHz	3.579545		29.999	AT-Cut Fundamental.
		30		90	3 <sup>rd</sup> Overtone.
Frequency Tolerance at +25°C	ppm	-20		+20	See part numbering guide for options.
Frequency Stability vs. Operating Temperature (Ref. 25°C)	ppm	-30		+30	See part numbering guide for options.
vs. Aging		-5		+5	First year @ +25°C.
Operating Temperature	°C	-40		+85	See part numbering guide for options.
Storage Temperature	°C	-40		+125	
Load Capacitance	pF	7		30	See part numbering guide for options.
Shunt Capacitance	pF			5	
Drive Level	µW			100	
Insulation Resistance	MΩ	500			@ 100V <sub>DC</sub> ± 15V.
Equivalent Series Resistance	3.579MHz ~ 3.999MHz			200	AT-Cut Fundamental.
	4.000MHz ~ 5.999MHz			150	AT-Cut Fundamental.
	6.000MHz ~ 6.999MHz			100	AT-Cut Fundamental.
	7.000MHz ~ 8.999MHz			80	AT-Cut Fundamental.
	9.000MHz ~ 12.999MHz			60	AT-Cut Fundamental.
	13.000MHz ~ 19.999MHz			50	AT-Cut Fundamental.
	20.000MHz ~ 29.999MHz			30	AT-Cut Fundamental.
	30.000MHz ~ 69.999MHz			100	3 <sup>rd</sup> Overtone.
70.000MHz ~ 90.000MHz			80	3 <sup>rd</sup> Overtone.	

**OUTLINE DRAWING**

X	Frequency Range
10.2	3.579MHz ~ 3.999MHz
9.2	4.000MHz ~ 5.999MHz
8.2	6.000MHz ~ 90.00MHz

NOTE: Dimensions in millimeters (mm).

**MARKING**

Line 1: **XX.XXX F Y WW**

Frequency in MHz → XX.XXX  
Manufacturing Identifier → F  
Year → Y  
Week → WW

ENVIRONMENTAL SPECIFICATIONS		MECHANICAL SPECIFICATIONS	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition C
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Moisture Resistance	MIL-STD-883, Method 1004	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Solderability	MIL-STD-883, Method 2003