



ATSM-49-R Surface Mount Crystals

FEATURES

Resistance Weld (HC-49S-SMD)
 AT-Cut Fundamental and Overtone Modes
 Swept Quartz Options Available
 Rugged Design to support harsh environments

APPLICATIONS

Avionics and Aerospace
 Communication and Navigation
 Military Radios
 Instrumentation and Industrial
 Test and Measurement Equipment

ORDERING INFORMATION

Product ATSM-49: Fundamental (AT-cut) 520-010: Fundamental (AT-Cut), -20°C to +70°C operating temperature 520-210: Fundamental (AT-Cut), 18pF load capacitance 520-230: Fundamental (AT-Cut), 20pF load capacitance 520-260: Fundamental (AT-Cut), 32pF load capacitance 520-910: Third Overtone (AT-Cut), 18 pF load capacitance 520-930: Third Overtone (AT-Cut), 20pF load capacitance 520-960: Third Overtone (AT-Cut), 32pF load capacitance 522-210: Fundamental (AT-Cut), -40°C to +85°C operating temperature 522-215: Third Overtone (AT-Cut), -40°C to +85°C operating temperature 471-010: Fundamental (BT-Cut)	-R	00.0000 MHz
RoHS Compliance -R: RoHS Compliant -V: non-RoHS		

Example of parallel resonant part Number: ATSM-49-R 16 .0000 MHz
 Example of series resonant part Number: SRATSM-49-R 16 .0000 MHz

Notes	
Note 1	Series resonant designated "SR" prefix (i.e., SRATSM-49-R)
Note 2	24.000 to 40.000 MHz have a tolerance of ± 50 ppm and 100 ppm stability

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency Range	F ₀	3.579545		72	MHz	
Frequency Tolerance	F/F	-30		+30	ppm	@ +25°C, see ordering information.
Frequency Stability	$\Delta F/F$	-50		+50	ppm	Over the operating temperature range
Aging		-3		+3	ppm	1 st year
		-5		+5	ppm	Thereafter per year (up to 3 rd year)
Load Capacitance			18		pF	See Note 1
Shunt Capacitance				7	pF	
ESR		See ESR Table				
Drive Level	DL	25	100	500	μ W	
Insulation Resistance	IR	500			M Ω	

Temperature

Operating Temperature	T _A	-10		+70	°C	
Storage Temperature	T _S	-55		+125	°C	

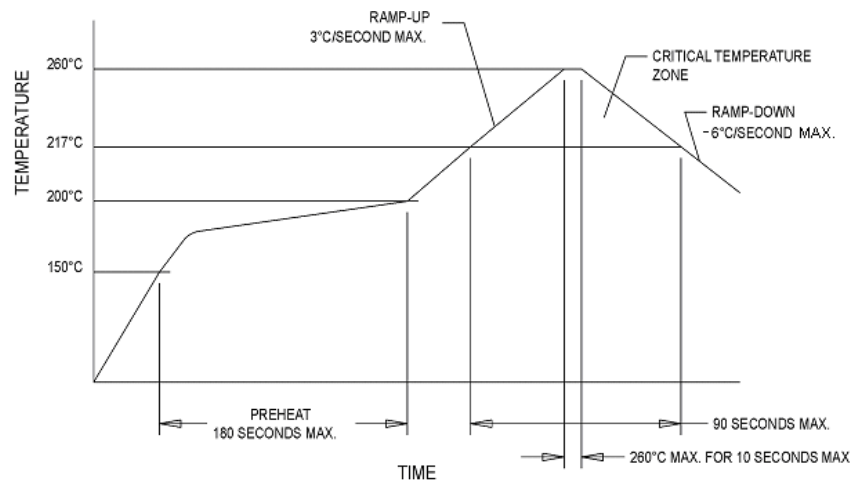
ESR Table

Frequency Range	ESR (MAX)
Fundamental (AT-cut)	
3.579 to 3.999 MHz	200 Ω
4.000 to 4.999 MHz	150 Ω
5.000 to 5.999 MHz	120 Ω
6.000 to 9.999 MHz	100 Ω
10.000 to 13.999 MHz	80 Ω
14.000 to 40.000 MHz	50 Ω
Fundamental (BT-cut) – Note 2	
24.000 to 50.000 MHz	100 Ω
Third Overtone (AT-cut) – Note 3	
25.000 to 39.999 MHz	100 Ω
40.000 to 72.000 MHz	80 Ω

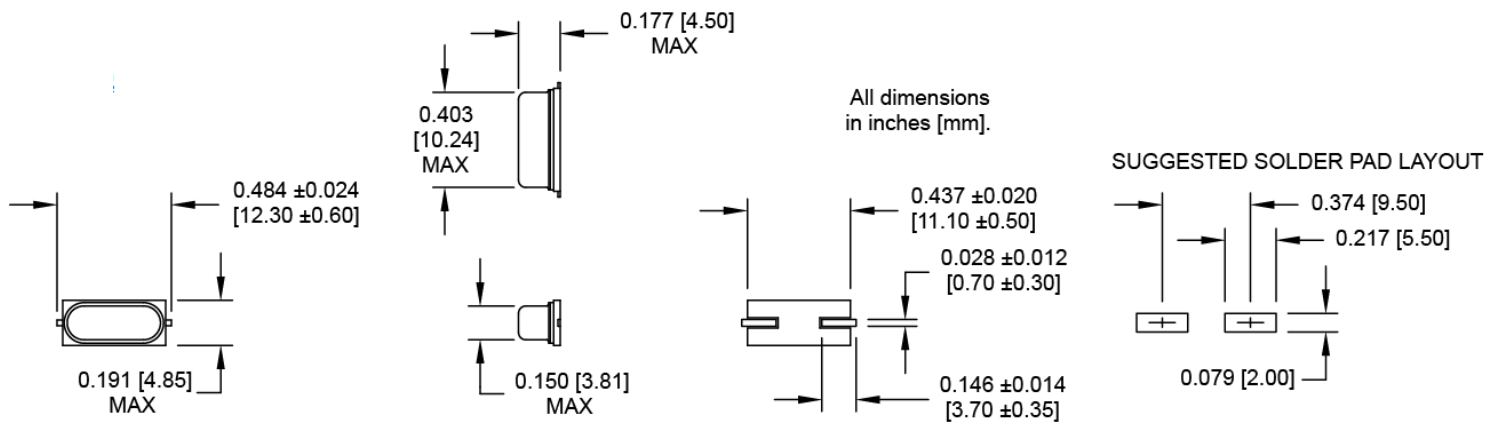
ENVIRONMENTAL CONDITIONS

Aging	Internal Specification, 168 hrs. at +55°C
Physical Dimensions	MIL-STD-883, Method 2016
Shock	MIL-STD-202, Method 213 Condition C, 100 g
Vibration	MIL-STD-202, Methods 201 & 204, 10 g from 10-2000 Hz
Thermal Cycle	MIL-STD-883, Method 1010, Condition B, -55°C to +125°C
Gross Leak	MIL-STD-202, Method 112, 30 sec. Immersion
Fine Leak	MIL-STD-202, Method 112, 1 x 10 ⁻⁸ atm cc/sec. min.
Resistance to Solvents	MIL-STD-883, Method 2015, Three 1-minute soaks
Max Soldering Conditions	See solder profile

LEAD FREE SOLDER PROFILE



MECHANICAL AND PIN OUT INFORMATION



MtronPTI reserves the right to make changes to the product(s) and service(s) described herein without notice.
No liability is assumed as a result of their use or application.