

ATSM-49 and SX2050 Surface Mount Crystals

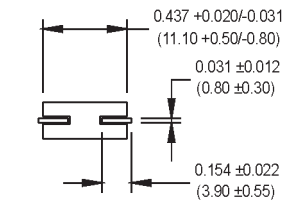
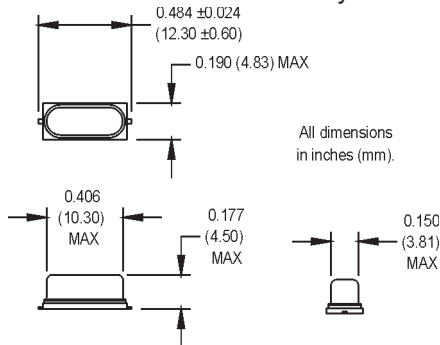


***SX2050-R 00.0000 MHz** (customer specified)
-R signifies RoHS compliant part

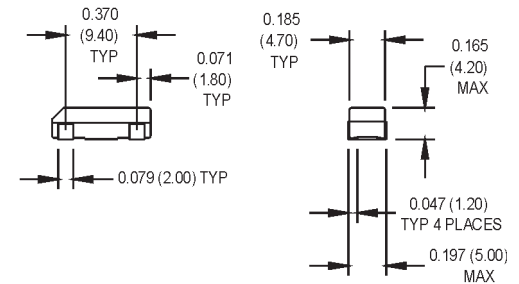
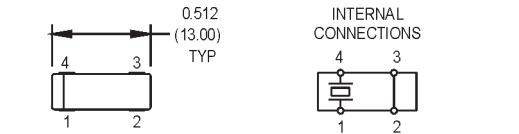
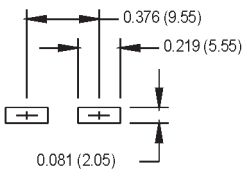
M1011Sxxx - Contact factory for datasheet

***ATSM-49-R 00.0000 MHz** (customer specified)
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M1001Sxxx - Contact factory for datasheet



SUGGESTED SOLDER PAD LAYOUT



SUGGESTED SOLDER PAD LAYOUT

MtronPTI ATSM-49 Options	
Order by part number listed followed by the desired frequency.	
Part No.	Description
520-010-R	Fundamental frequencies, -20°C to +70°C operating temperature
520-230-R	Fundamental frequencies, 20pF load capacitance
520-260-R	Fundamental frequencies, 32pF load capacitance
520-930-R	3 rd overtone frequencies, 20pF load capacitance
520-960-R	3 rd overtone frequencies, 32pF load capacitance
522-210-R	Fundamental frequencies, -40°C to +85°C operating temperature
522-215-R	3 rd overtone frequencies, -40°C to +85°C operating temperature
Balance of specifications same as shown in "Electrical Specifications"	
Contact the factory for options not listed above.	
520-330-R-24.000 datasheet – Consult Factory	

Equivalent Series Resistance (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)	
24.000 to 50.000 MHz	100 Ω
Third Overtones (AT-cut)	
25.000 to 39.999 MHz	100 Ω
40.000 to 72.000 MHz	80 Ω

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Electrical Specification	Frequency Range	F	3.579545	72	MHz	ATSM-49
			3.579545	60	MHz	SX2050
	Frequency Tolerance	F/F		±30	ppm	ATSM-49
				±50	ppm	SX2050
	Frequency Stability	ΔF/F		±50	ppm	ATSM-49 (See Note 1)
				±100	ppm	SX2050 (See Note 1)
	Operating Temperature	T _A	-10	+70	°C	ATSM-49
			-20	+70	°C	SX2050
	Storage Temperature	T _S	-55	+125	°C	
	Aging					
1 st Year				+3	ppm	
Thereafter (per year)				+5	ppm	Up to 3 rd year
Load Capacitance	C _L		18		pF	See Note 2
Shunt Capacitance	C ₀			7	pF	ATSM-49
				5	pF	SX2050
ESR		See ESR Table				
Drive Level	D _L	25	100	500	μW	ATSM-49
		25	50	100	μW	SX2050
Insulation Resistance	I _R	500			MΩ	
Environmental	Mechanical Shock	MIL-STD-202, Method 213, C (100 g's)				
	Vibration	MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)				
	Thermal Cycle	MIL-STD-883, Method 1010, B (-55°C to 125°C, 15 min dwell, 10 cycles)				
	Hermeticity	MIL-STD-202, Method 112 (must meet 1 x 10 ⁻⁸)				
	Solderability	Per EIAJ-STD-002				
Max Soldering Conditions	See solder profile, Figure 1					

Note 1: BT Cut Fundamentals from 24.000 to 40.000 MHz have a stability of ±100 ppm
Note 2: Series resonant designated by "SR" prefix (ie., SRATSM-49 or SRSX2050)

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MtronPTI Lead Free Solder Profile



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