

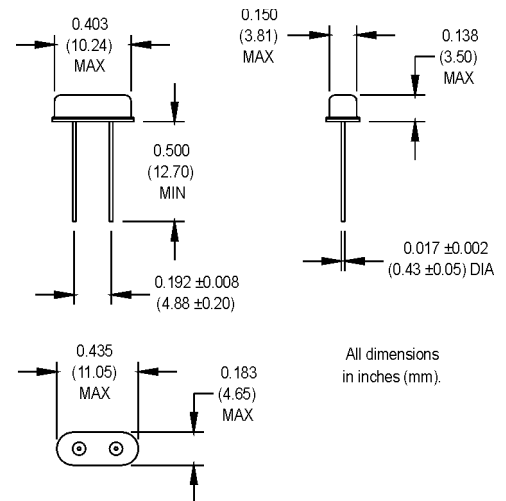
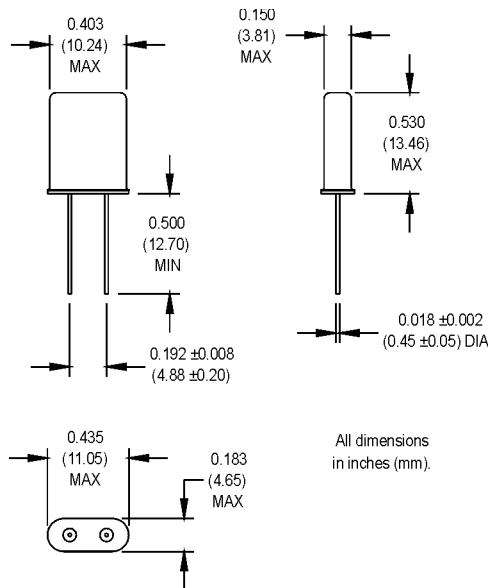
# ATS-49 and MP-1 Crystals



Equivalent Series Resistance (ESR), Max.	ATS-49
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

**MP-1 (HC-49/U) 00.0000 MHz** (customer specified frequency)

**MP-1-R (HC-49/U) 00.0000 MHz** (RoHS Compliant and customer specified frequency)



**\*ATS-49 00.0000 MHz** (customer specified)

**\*ATS-49-R 00.0000 MHz** (RoHS Compliant and customer specified frequency)

Equivalent Series Resistance (ESR), Max.	MP-1
Fundamental (AT-cut)	
1.8432 to 1.999 MHz	700 Ω
2.000 to 2.399 MHz	600 Ω
2.400 to 3.299 MHz	400 Ω
3.300 to 3.569 MHz	140 Ω
3.570 to 3.999 MHz	100 Ω
4.000 to 5.999 MHz	75 Ω
6.000 to 7.999 MHz	50 Ω
8.000 to 10.999 MHz	40 Ω
11.000 to 14.999 MHz	30 Ω
15.000 to 19.999 MHz	25 Ω
20.000 to 34.000 MHz	25 Ω
Third Overtones (AT-cut)	
20.000 to 49.999 MHz	40 Ω
50.000 to 75.000 MHz	50 Ω
Fifth Overtones (AT-cut)	
50.000 to 125.000 MHz	90 Ω
Seventh Overtones (AT-cut)	
125.000 to 200.000 MHz	150 Ω

Electrical Specifications	PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes	
	Frequency Range	F	1.8432		200	MHz	MP-1	
			3.579545		72	MHz	ATS-49	
	Frequency Tolerance	F/F			±30	ppm		
	Frequency Stability	ΔF/F			±50	ppm	See Note 1	
	Operating Temperature	T <sub>A</sub>	-10		+70	°C		
	Storage Temperature	T <sub>s</sub>	-55		+125	°C		
	Aging							
	Per Year			±5	±5	ppm		
	Load Capacitance	C <sub>L</sub>		18		pF	See Note 2	
	Shunt Capacitance	C <sub>0</sub>			7	pF		
	ESR		See ESR Tables					
	Drive Level	DL			1	mW	MP-1	
					500	μW	ATS-49	
Insulation Resistance	I <sub>R</sub>	500			MΩ			

Note 1: BT cut fundamentals from 24.000 to 40.000 MHz have a stability of ±100 ppm (ATS-49).

Note 2: Series resonant designated "SR" prefix (i.e., SRATS-49 or SRMP-1)

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# MtronPTI Lead Free Solder Profile

