Pletronics, Inc.
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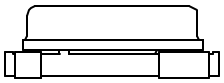


SM55, SM45, & SM40

- 4 PAD SURFACE MOUNT CRYSTALS (HC-49/S CRYSTAL ON SURFACE MOUNT PLATFORM)
- **SM55**: 5.5 mm high; **SM45**: 4.5 mm high, **SM40**: 4.0 mm high
- LAND PATTERN COMPATIBLE WITH OUR SM39S AND OTHER SM PLASTIC CRYSTALS FROM EPSON, MEIDEN & CITIZEN

STANDARD SPECIFICATIONS:

Frequency Range	3.1875 MHz - 72.000 MHz (Consult factory for specific available frequencies)	
Oscillation Modes	Fundamental (AT-cut)	3rd overtone (AT-cut)
	3.1875 - 30.000 MHz	27.000 - 72.000 MHz
Calibration Frequency Tolerance at 25°C	± 50 PPM is standard, but tighter tolerances also available for certain frequencies.	
Frequency Stability over Operating Temperature range	± 50 PPM is standard, but tighter tolerances also available for certain operating temperature ranges.	
Operating Temperature Range	0 - 70°C is standard, but can be extended to -40 - +85°C (just add 'E' after model number).	
Load Capacitance	10 pF - ∞ pF (∞ pF means Series Resonance). To be specified by customer.	
Equivalent Series Resistance (ESR)	See table on the next page.	
Drive Level	50μW is standard, but customer may specify different drive level	
Aging at 25°C	± 5 PPM per year.	
Shunt Capacitance	7 pF maximum	
Pullability	May be specified by customer in terms of frequency shift required over a certain range of load capacitance, (e.g.+100 PPM from CL=12 to CL=18 pF) This requirement may be expressed also in terms of motional capacitance in fanto-Farad (fF).	
Packaging (see page R1, Figure 2)	24 mm tape, 330 mm reel: 1000 parts per reel	

PART NUMBERING GUIDE:

- **The Pletronics part number for an SM crystal consists of the following 3 elements:**

1. **Model Number:** SM55, SM45, or SM40
2. **Load Capacitance:**

   When the load required is ∞ pF, that is, the calibration is at **series resonance**:

   SM55-SR , SM45-SR, or SM40-SR;

   When the load required is XX pF: SM55-XX, SM45-XX or SM40-XX.
3. **Frequency of Operation in MHz**

EXAMPLES: SM55-SR-10.000 MHz, SM45-18-20.000 MHz, SM40-20-10.000 MHz

- When customer's requirements are non-standard, a special engineering part number will be assigned.

(continued)

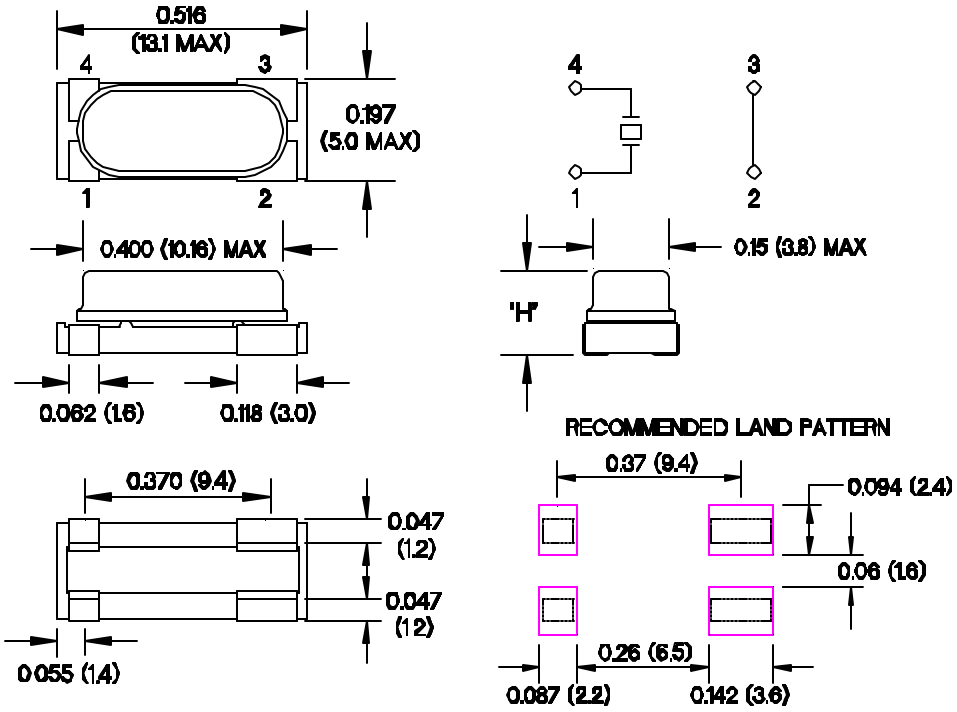
SM55, SM45, AND SM40

STANDARD EQUIVALENT SERIES RESISTANCE VALUES:

Oscillation Mode	Frequency Range	ESR **
Fundamental Mode (AT-cut)	3.1875 - 7.000 MHz	130 ohms maximum
	7.001 - 15.999 MHz	50 ohms maximum
	16.000 - 25.000 MHz	40 ohms maximum
	25.001 - 30.000 MHz	40 ohms maximum
3rd Overtone Mode (AT-cut)	27.000 - 56.000 MHz	100 ohms maximum
	56.001 - 72.000 MHz	100 ohms maximum

** ESR values lower than indicated may be available. Please contact factory for lower ESR values.

PACKAGE OUTLINE (NOT TO SCALE):



PIN CONNECTIONS	
PIN	CONNECTION
1	XTAL
2	CASE GROUND
3	CASE GROUND
4	XTAL

HEIGHT (H)	
SM55	0.217 (5.5mm)
SM45	0.177 (4.5mm)
SM40	0.157 (4.0mm)

INCHES (MILLIMETERS)

October 2000