

## 49SM SURFACE-MOUNT CRYSTAL

### FEATURES

- SMD package, 2 pad version
- Low cost, short delivery.
- Wide Frequency Range
- Applications: Computers, Modem, Microprocessor Crystal,...

11.4 x 4.7 x 4.2 MM



Item	Symbol	Specification
Frequency Range	Fo	3.2 MHz ~ 70.0 MHz
Operation Mode		3.2 MHz ~ 48.0 MHz Fundamental / AT-cut (see options) 27.0 MHz ~ 70.0 MHz 3rd-overtone / AT-cut (see options) 24.0 MHz ~ 54.0 MHz Fundamental / BT-cut (see options)
Operating temperature Range	To	-20° to +70°C (see options)
Frequency Tolerance at 25°C	Δf/F	± 50ppm max. (see options)
Temperature Stability	Δf/F	± 50ppm max. (see options)
Load Capacitance (CL)	CL	series or 8 pF to 50 pF (see options)
Equivalent Series Resistance	ESR	See Table 1
Shunt Capacitance (Co)	Co	7pF Max
Insulation Resistance	Ri	500 MΩ min. (at 100Vdc)
Drive Level	DL	100μW typical , 500μW max.
Aging	Δf/F	±5ppm max (at 25°C, first year)
Packing Unit		1000pcs / reel
Soldering Condition		260°C, 10 sec x2 max
		<b>Customer specifications on request</b>

### TABLE 1: Standard ESR

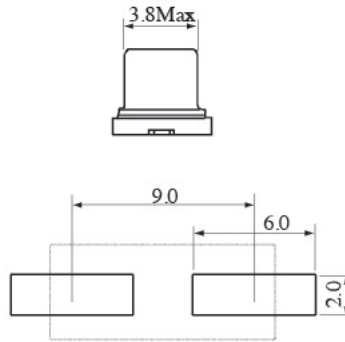
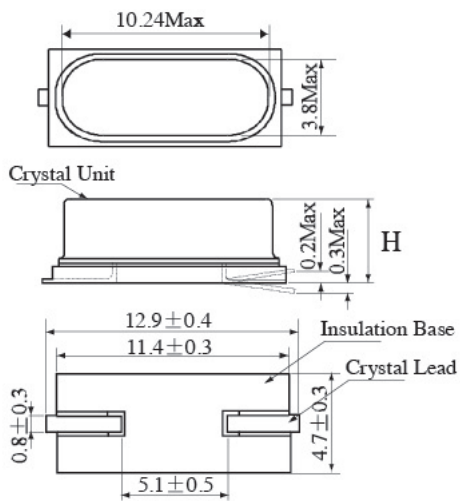
Frequency (MHz)	ESR (Ω) max.	Frequency (MHz)	ESR (Ω) max.
3.2 - 4.499	150	13.0 - 48.0	40
4.5 - 6.9	100	27.0 - 31.99, 3rd overtone	100
7.0 - 9.9	80	32.0 - 70.0, 3rd overtone	80
10.0 - 12.99	50	24.0 - 54.0 , Fund. BT-cut	40

### OPTIONS & ORDERING INFORMATION

49SM-	.....	.....	.....	.....	.....	.....	..... MHz
	Freq. Tolerance	Freq. Stability*	Operating Temp.*	Load Capacitance	Mode	ESR if other than STD	Frequency in MHz
	10 = ±10 ppm	10 = ±10 ppm	D = -10° / +60°C	Please specify CL in	F = Fundamental	Specify a value in Ω	Please specify the
	15 = ±15 ppm	15 = ±15 ppm	E = 0° / +70°C	pF or S for Series	D = 3rd overtone		frequency in MHz
	20 = ±20 ppm	20 = ±20 ppm	F = -20° / +70°C		FB = Fundamental,		
	25 = ±25 ppm	25 = ±25 ppm	G = -30° / +75°C		BT-cut		
	30 = ±30 ppm	30 = ±30 ppm	H = -30° / +85°C				
	50 = ±50 ppm	50 = ±50 ppm	K = -40° / +85°C				

\* Note : Not all combinations are possible, please consult us.

## OUTLINE DIMENSIONS



49SM :  $H = 4.2\text{mm max.}$

49SSM :  $H = 3.2\text{mm max.}$