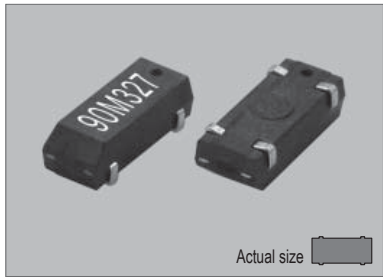
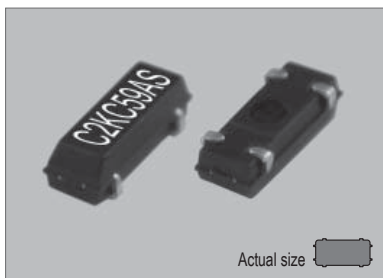


90SMX(N)



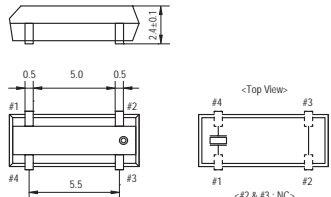
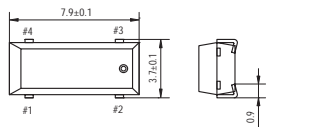
0.125 gm (wt.)

90SMX(S)

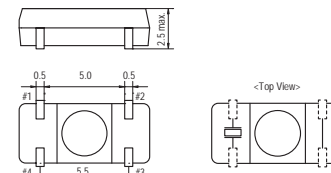
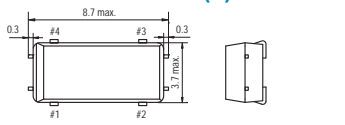


0.121 gm (wt.)

90SMX(N)

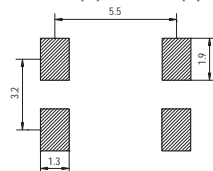


90SMX(S)



SOLDERING PATTERN

90SMX(N) & 90SMX(S)



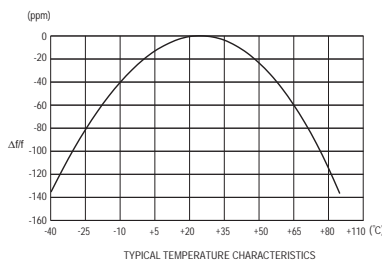
STANDARD SPECIFICATIONS

Item	Symbol	Specifications	
Part number	P/N	90M327(N)	90M327(S)
Package type		90SMX(N)	90SMX(S)
Nominal frequency	F	32.768 kHz	
Frequency tolerance (at +25°C)	$\Delta f/F$	AAA : $\pm 5$ ppm AA : $\pm 10$ ppm A : $\pm 15$ ppm B : $\pm 20$ ppm C : $\pm 30$ ppm (Standard)	
Load capacitance	CL	12.5 pF : 90M327(N) & 90M327(S) (Standard) 6.0 pF : 90M327-6(N) & 90M327-6(S)	
Equivalent series resistance	ESR	50 k $\Omega$ max. (To : -40°C to +85°C)	
Drive level	P	1 $\mu$ W max.	
Turnover temperature	Tt	+25°C $\pm 5$ °C	
Temperature coefficient	$\beta$	-0.034 ppm / °C <sup>2</sup> , Typical	-0.035 ppm / °C <sup>2</sup> , Typical
Quality factor	Q	50000 min.	
Shunt capacitance	C0	1.35 pF, Typical	1.0 pF, Typical
Motional capacitance	C1	0.003 pF, Typical	0.0019 pF, Typical
Capacitance ratio	$\gamma$	450, Typical	520, Typical
Aging (for first year)	$\Delta f/F$	$\pm 3$ ppm max. at +25°C $\pm 3$ °C	
Insulation resistance	Ri	500 M $\Omega$ min. at 100V DC $\pm 15$ V	
Cut		XY-Cut	
Operating temperature range	To	-40°C to +85°C	
Storage temperature range	Ts	-55°C to +125°C	
Shock resistance	$\Delta f/F$	$\pm 5$ ppm max.	
Vibration resistance	$\Delta f/F$	$\pm 5$ ppm max.	
IR reflow resistance	$\Delta f/F$	$\pm 10$ ppm max.	
Reflow condition		10 seconds max. at +250°C $\pm 10$ °C	

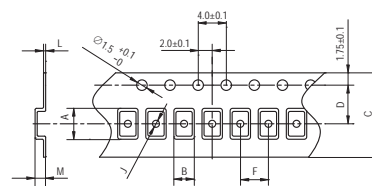
PACKAGE DATA

Item	Package	90SMX(N)	90SMX(S)
Outer package		Epoxy compound	Plastic
Sealing		Press-fit (2x6 mm built in)	Press-fit (2x6 mm built in)
Terminal lead frame		Brass (CuZn)	42 alloy
Terminal plating		SnAg	Sn
RoHS		Compliant	Compliant

XY-CUT



TAPE SPECIFICATIONS



90SMX(N)

A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
8.3	4.0	16.0	7.5	8.0	1.6	0.3	2.7	330	3000pcs

90SMX(S)

A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
8.7	3.9	16.0	7.5	8.0	-	0.4	2.7	330	3000pcs