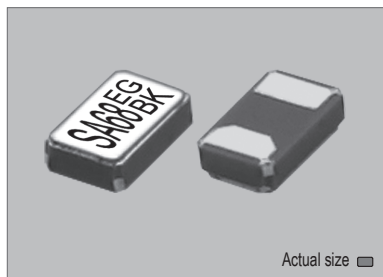
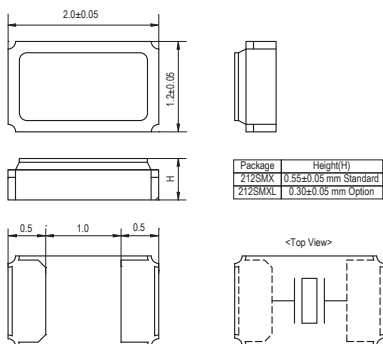


212SMX

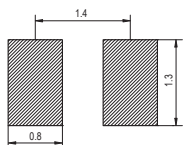


Actual size  
0.0055 gm (wt.)

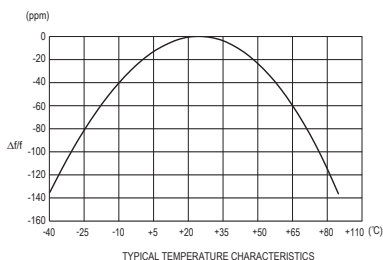
212SMX



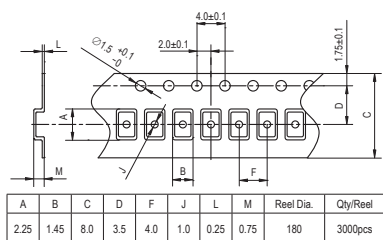
SOLDERING PATTERN



XY-CUT



TAPE SPECIFICATIONS



STANDARD SPECIFICATIONS

Item	Symbol	Specifications
Part number	P/N	212M327*
Package Type		212SMX
Nominal frequency	F	32.768 kHz
Frequency tolerance (at +25°C)	$\Delta f/F$	AA : ±10 ppm A : ±15 ppm B : ±20 ppm C : ±30 ppm (Standard)
Load capacitance	CL	12.5 pF : 212M327 (Standard) 9.0 pF : 212M327-9 7.0 pF : 212M327-7
Equivalent series resistance	ESR	90k $\Omega$ max. (To : -40°C to +85°C)
Drive level	P	0.1 $\mu$ W (0.5 $\mu$ W for max.)
Turnover temperature	Tt	+25°C ±5°C
Temperature coefficient	$\beta$	-0.034 ppm / °C <sup>2</sup> , Typical
Quality factor	Q	20000 min.
Shunt capacitance	C0	1.2 pF, Typical
Motional capacitance	C1	0.003 pF, Typical
Capacitance ratio	$\gamma$	400, Typical
Aging (for first year)	$\Delta f/F$	±3 ppm max. at +25°C ±3°C
Insulation resistance	Ri	500 M $\Omega$ min. at 100V DC ±15V
Cut		XY-Cut
Operating temperature range	To	-40°C to +85°C
Storage temperature range	Ts	-55°C to +125°C
Shock resistance	$\Delta f/F$	±5 ppm max.
Vibration resistance	$\Delta f/F$	±5 ppm max.
IR reflow resistance	$\Delta f/F$	±10 ppm max.
Reflow condition		10 seconds max. at +250°C ±10°C

(\*) No pattern path underneath the 212SMX

PACKAGE DATA

Item	Package	212SMX
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

XTAL

CLK OSC

VCXO

TCXO

OCXO

MCF