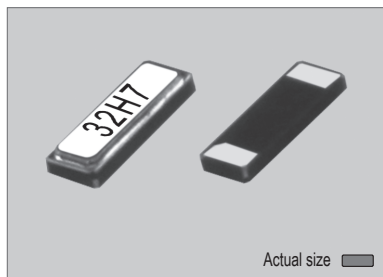
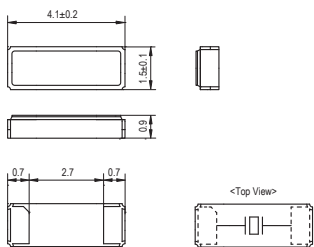


415SMX

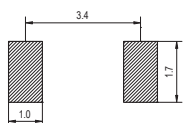


0.017 gm (wt.)

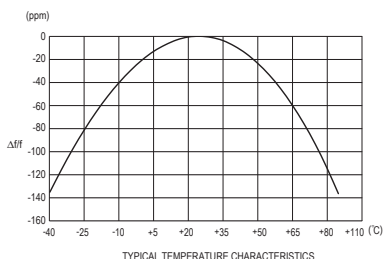
415SMX



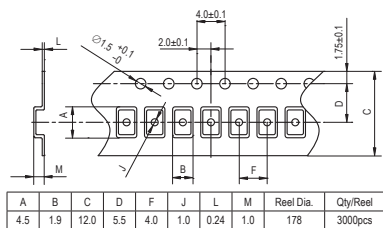
SOLDERING PATTERN



XY-CUT



TAPE SPECIFICATIONS



STANDARD SPECIFICATIONS

Item	Symbol	Specifications
Part number	P/N	415M327*
Package type		415SMX
Nominal frequency	F	32.768 kHz
Frequency tolerance (at +25°C)	$\Delta f/F$	B : ± 20 ppm C : ± 30 ppm (Standard)
Load capacitance	CL	12.5 pF : 415M327 (Standard) 9.0 pF : 415M327-9 7.0 pF : 415M327-7
Equivalent series resistance	ESR	70 k Ω max.
Drive level	P	1 μ W max.
Turnover temperature	T _t	+25°C \pm 5°C
Temperature coefficient	β	-0.034 ppm / °C ² , Typical
Quality factor	Q	30000 min.
Shunt capacitance	C ₀	1.1 pF, Typical
Motional capacitance	C ₁	0.002 pF, Typical
Capacitance ratio	γ	550, Typical
Aging (for first year)	$\Delta f/F$	± 3 ppm max. at +25°C ± 3 °C
Insulation resistance	R _i	500 M Ω min. at 100V DC ± 15 V
Cut		XY-Cut
Operating temperature range	T _o	-40°C to +85°C
Storage temperature range	T _s	-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 415SMX

PACKAGE DATA

Item	Package	415SMX
Lid		Metal
Base		Ceramic
Sealing		AuSn
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

XTAL

CLK OSC

VCXO

TCXO

OCXO

MCF