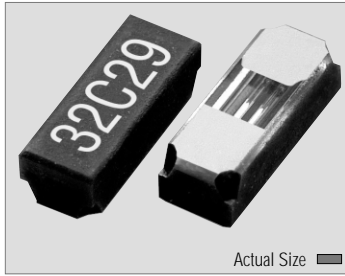


# Quartz Crystal Units

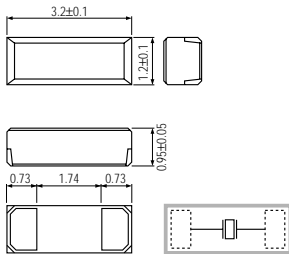
31SMX

STANDARD LOW FREQUENCY SMD CRYSTALS

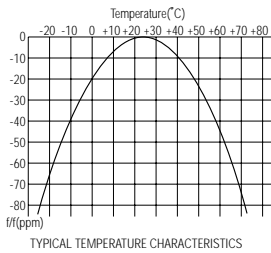
31SMX



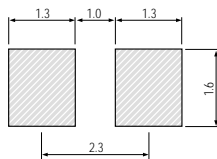
31SMX



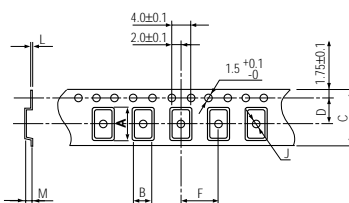
XY-CUT



SOLDERING PATTERN



TAPE SPECIFICATIONS



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
3.7	1.5	12.0	5.5	4.0	1.0	0.3	1.2	180	3000pcs

## STANDARD SPECIFICATIONS

Item	Symbol	Specifications
Part number	P/N	31M327
Package type		31SMX
Nominal frequency	F	32.768 kHz
Frequency tolerance at +25°C	f/F	B: ± 20 ppm C: ± 30 ppm (standard) D: ± 50 ppm
Load capacitance	CL	12.5 pF-----31M327 9pF-----31M327-9 7pF-----31M327-7
Equivalent series resistance	Rs	50 k max.
Drive level	P	0.1 μW (1.0 μW max.)
Turnover temperature	Tt	+ 25°C ± 5°C
Temperature coefficient		-0.035 ppm/°C <sup>2</sup> , Typical
Quality factor	Q	30000 min.
Shunt capacitance	Co	1.7 pF, Typical
Motional capacitance	C1	0.0029 pF, Typical
Capacitance ratio		580, Typical
Aging (for first year)	f/F	± 3 ppm max. at + 25°C ± 3°C
Insulation resistance	Ri	500M 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	f/F	± 10 ppm max.
Vibration resistance	f/F	± 5 ppm max.
IR reflow resistance	f/F	± 5 ppm max.
Reflow soldering condition		20 seconds max. at + 230°C

## PACKAGE DATA

Item	Package	31SMX
Lid		Glass
Base		Glass
Sealing		Anode
Terminal plating		Gold