

## Cylindrical 'watch' crystal

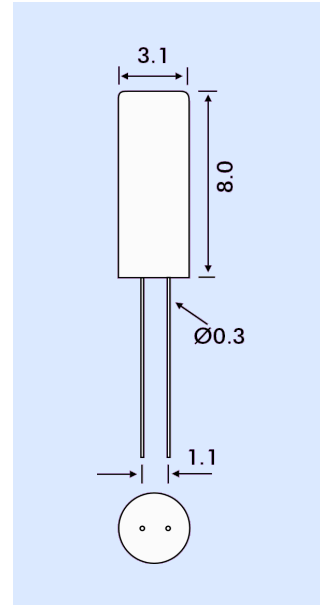
- An industry-standard source of 32.768kHz clock signals
- Fully RoHS compliant
- Excellent shock resistance and environmental capability
- A high build quality component at low cost



### SPECIFICATION

Frequency:	32.7680kHz
Calibration Tolerance at 25°C:	from ±5ppm to ±50ppm
Temperature Coefficient:	Inverse Parabolic -0.035 ppm/°C <sup>2</sup>
Peak Temperature:	25°C ±5°C
Operating Temperature Range:	-40 to +85°
Storage Temperature:	-55°~+105°C
Effective Series Resistance:	45kΩ max.
Shunt Capacitance (C0):	0.8pF typical
Motional Capacitance:	4.0fF max.
Load Capacitance (CL):	6pF or 12.5pF
Ageing:	<±5ppm per year at +25°C
Maximum Drive level:	1.0 microW max.
Reflow Soldering:	10s maximum at 250°C twice or 180s at 230°C, once.
Insulation Resistance:	100MΩ min.
Shock Resistance:	±5ppm max. (Drop test 3 times onto a hard board from 75cm)

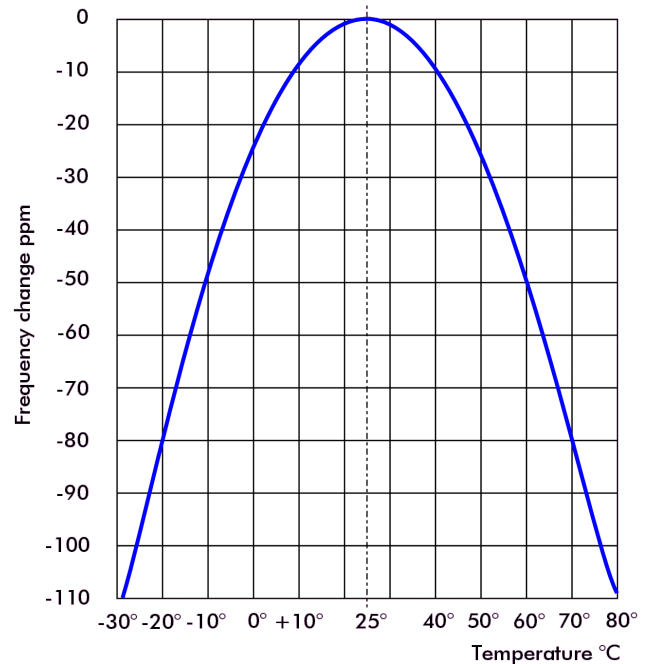
### OUTLINE & DIMENSIONS



### STOCK NUMBERS/SPECIFICATIONS

Stock Number	Frequency	Calibration	CL (pF)
MH32768A	32.768kHz	±15ppm	12.5
MH32768B	32.768kHz	±20ppm	12.5
MH32768M	32.768kHz	±5ppm	12.5
MH32768P	32.768kHz	±5ppm	6.0

Frequency Change vs. Temperature  
X-Cut Crystal



$$\text{Function} = \Delta f / f_0 = -0.035(T - T_0)^2 \pm 10\%$$