EUROQUARTZ

CX11SM CRYSTAL

Ultra-Miniature SMD Crystal — 32.768kHz, 100kHz to 180kHz

FEATURES

- **Frequency Range 32.768kHz and 100kHz to 180kHz**
- **High shock resistance**
- **Ultra-small ceramic package**
- **Low ageing**
- **Designed for low power applications**
- **Full MIL testing available**

DESCRIPTION

CX11SM crystals are leadless devices designed for surface mounting on PCBs or hybrid substrates. The crystals have very small outline and low-profile and are suited for all low frequency applications.

SPECIFICATION

Specifications stated are typical at 25°C unless otherwise indicated.
Specifications may change without notice.

Parameters	Fundamental	
Frequency (kHz):	32.768	100.0
Motional Resistance R1 (kΩ):	50	20
Motional Capacitance C1 (fF):	3.5	1.0
QualityFactor Q (k):	25	70
Shunt Capacitance C0 (pF):	1.0	0.8
Load Capacitance (pF)[1]:	9	9
Mass (Ceramic lid, SM1)	12mg	12mg
Turover Temperature (°C)[2,3]:	25	18
Calibration Tolerance[4]:	±20ppm	±100ppm

Drive Level:	0.5μW max.
Freq./Temperature Constant (k):	-0.035ppm/°C²
Ageing, first year:	3ppm maximum
Shock, Survival:	5,000g, 0.3ms, ½ sine
Vibration, survival:	20g rms, 10~2000Hz swept sine
Operating Temperature Range	
Commercial:	-10° to +70°C
Industrial:	-40° to +85°C
Military:	-55 to +125°C
Storage Temperature Range:	-55° to +125°C
Maximum Process Temperature:	+260°C for 20 seconds

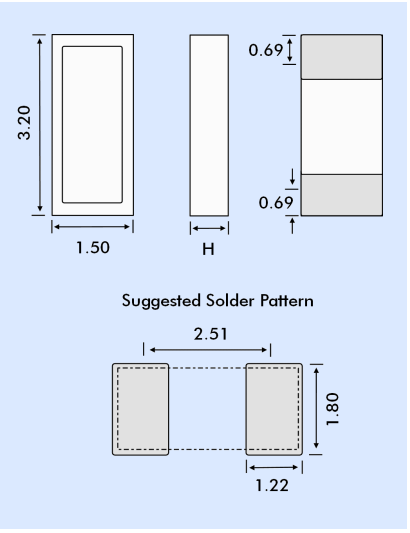
1. *Other load capacitance values are available.*
2. *The crystal frequency f as a function of temperature T follows the parabolic relationship:*
   $f(T)=f(T_0)\ [1 + k(T\ T_0)^2]$
   where T0 is the turnover tmperature na dk is the frequency-temperature constant.
3. *Other turnover temperature available.*
4. *Tighter tolerances available.*

PACKAGING OPTIONS

CX11SM crystals are available either tray packed (<250pcs) or tape and reel (>250 pieces).
12mm tape, 178mm or 330mm reels (EIA 418).

OUTLINE & DIMENSIONS



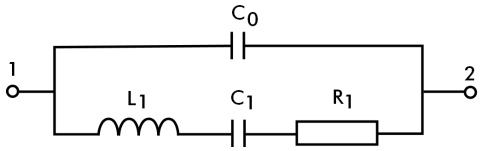


Dim. H	Glass Lid	Ceramic Lid	Thin Glass Lid
SM1	0.74	0.77	0.77
SM2	0.77	0.79	0.79
SM3	0.81	0.84	0.71
SM4	0.77	0.79	0.79
SM5	0.81	0.84	0.71

TERMINATIONS - PLATING

Designation	Termination
SM1	Gold Plated (Lead Free)
SM2	Solder Plated
SM3	Solder Dipped
SM4	Solder Plated (Lead Free)
SM5	Solder Dipped (Lead Free)

CRYSTAL EQUIVALENT CIRCUIT



R1 Motional Resistance
C1 Motional Capacitance
L1 Motional Inductance
C0 Shunt Capacitance

HOW TO ORDER CX11SM CRYSTALS

CX11 - S - C - SM1 - 32.768K, 100 / I

- **S**: 'S' if special, custom design. Otherwise leave blank
- **C**: Blank = glass lid; C = ceramic lid
- **SM1**: Terminations — SM1 = Gold plated *; SM2 = Solder plated; SM3 = Solder dipped; SM4 = Solder plated *; SM5 = Solder dipped *; * = Lead free
- **32.768K**: Frequency K = kHz
- **100**: Calibration Tolerance* — A; B; C
- **I**: Temp. Range — C = -10° ~ +70°C; I = -40° ~ +85°C; M = -55° ~ +125°C; S = Customer specified

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