



Quartz Crystal Resonator

Through-Hole Mounted Quartz Crystal

Cylindrical Tuning Fork Crystal 3x8mm - 2x6mm & 1.5x5mm



Current production part - Recommended for new designs

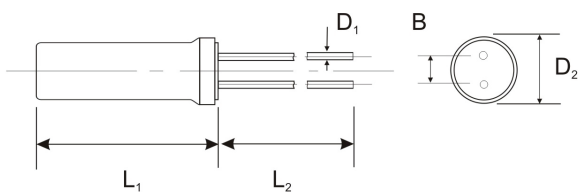
Standard Specifications

Parameter	Symbol	Specification	Remarks
Frequency Range	f_0	32.768 kHz to 120.00kHz	Also 192 kHz & 307.2 kHz
Frequency Tolerance	$\Delta f/f$	$\pm 10\text{PPM} \sim \pm 100\text{PPM}$	at 25°C with 0.1μW
Frequency Stability	Over Operating Temp. Range	-0.038PPM/°C ²	
Operating Temperature Range	T_{OPR}	-10°C to +60°C	
Storage Temperature Range	T_{STG}	-40°C to +85°C	
Load Capacity	C_L	12.5pF (Std value)	Please specify
Drive-Level	D_L	1.0μW Max.	
Shunt Capacitance	C_0	1.5pF Max.	
Dynamic Capacitance	C_1	3.0fF Max.	
Ageing	Fa	$\pm 1.0\text{PPM}$	at 25°C $\pm 3^\circ\text{C}$ 1st Year

ESR vs Frequency Range

Frequency Range (kHz)	Oscillation Mode	Max. ESR
32 kHz to 38 kHz	Fundamental	50K Ω
38 kHz to 50 kHz	Fundamental	30K Ω
50 kHz to 74 kHz	Fundamental	25K Ω
74 kHz to 100 kHz	Fundamental	22K Ω
100 kHz to 120 kHz	Fundamental	15K Ω
192 kHz	Fundamental	10K Ω
307.2 kHz	Fundamental	6K Ω

Dimensions (mm)



Crystal Dimensions (mm)	L1	L2	D1	B	D2
3x9mm	9.3	10.0	0.3	1.1	3.1
2x6mm	6.3	8.0	0.2	0.7	2.1
1.5x5mm	5.0	4.0	0.2	0.5	1.5

X-Cut Temperature Characteristics

