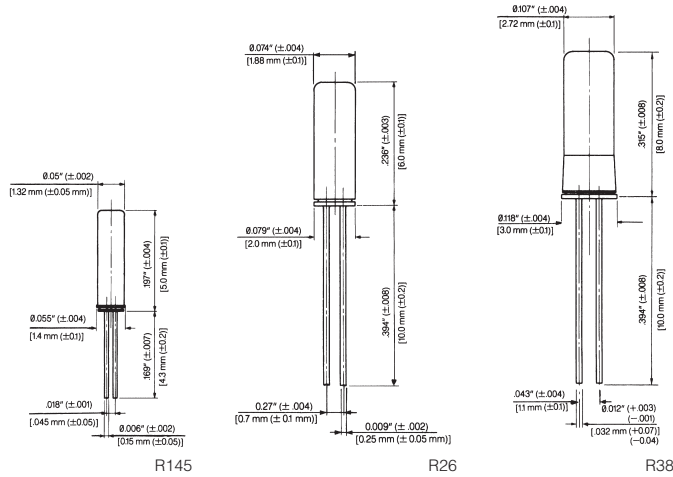


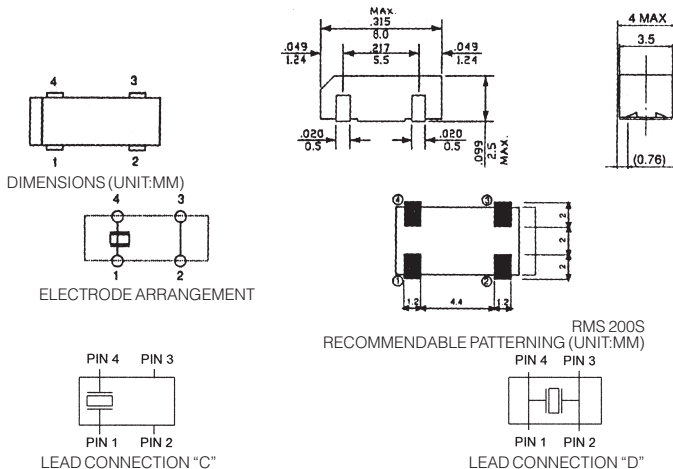
WATCH CRYSTAL TUNING FORKS



SPECIFICATIONS

Holder Type/Item	R38	R26	R145
Nominal Frequency (24°C)	32.768 KHz ±20 ppm	32.768 KHz ±20 ppm	32.768 KHz ±20 ppm
Turnover Temperature	24°C ±4°C	24°C ±4°C	22.5°C ±4°C
Parabolic Curvature Constant	-0.035 ppm/°C typ	-0.035 ppm/°C typ	-0.035 ppm/°C typ
Quality Factor	80,000 typ/ 50,000 min	70,000 typ/ 50,000 min	80,000 typ/ 60,000 min
Equivalent Series Resistance R ₁	18K Ω typ	23K Ω typ/ 35K Ω max	25K Ω typ/ 40K Ω max
Motional Capacitance C ₁	0.0035 pF typ	0.003 pF typ	0.0025 pF typ
Shunt Capacitance C ₀	1.7 pF typ	1.4 pF typ	1.0 pF typ
Capacitance Ratio	490 typ	470 typ	400 typ
Motional Inductance L ₁	7 mH typ	8 mH typ	9.5 mH typ
Aging (First Year)	±3 ppm max	±3 ppm max	±3 ppm max
Operating Temp. Range	-10°C to +60°C	-10°C to +60°C	-10°C to +60°C
Storage Temp. Range	-30°C to +100°C	-30°C to +80°C	-30°C to +80°C
Part Numbering System	R38—32.768 KHz	R26—32.768 KHz	R145—32.768 KHz

SURFACE MOUNT TUNING FORK CRYSTALS



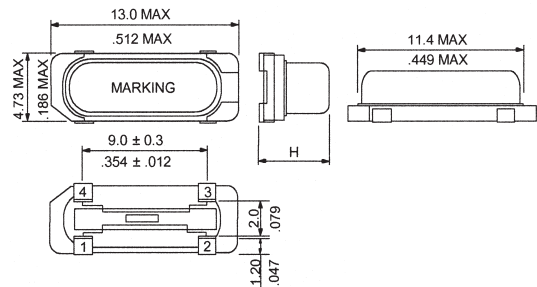
Nominal Frequency	32.768 KHz
Frequency Tolerance	±20 PPM Maximum (±50 PPM and ±100 PPM available)
Turnover Temperature	±25°C ±5°C
Temperature Coefficient	(-0.035 ±0.8) PPM/Δ°C ²
Load Capacitance	6.0 to 12.5 pF
Equivalent Series Resistance (ESR)	50 K Ohm Maximum
Drive Level	1.0 μW Maximum
Shunt Capacitance	1.0 pF Typical
Aging (First Year)	±5 PPM Maximum
Operating Temperature Range	-40°C to +85°C
Storage Temperature Range	-55°C to +125°C
Shock Resistance	±5 PPM Maximum 75 cm Drop Test in 3 Axes onto a hard surface or 3000 g x 0.3 ms x 1/2 Sinewave in 3 Axes
Solder Reflow Conditions	230°C Maximum for 20 s Maximum

RALTRON TUNING FORK QUARTZ CRYSTALS

Cat. No.	Frequency* (KHz)	Net Price
HOLDER TYPE R26, LEADED VERSION		
R26-32.768KHz	32.768	\$.25
HOLDER TYPE R38, LEADED VERSION		
R38-32.768KHz	32.768	.18
HOLDER TYPE R145, LEADED VERSION		
R145-32.768KHz	32.768	2.39
HOLDER TYPE RSM200, SURFACE MOUNT VERSION		
RSM200S-32.768KHz	32.768	6.50

*Other frequencies are available to special order. Minimum quantities may apply. RSM200S available on 16 mm taping, 8 mm pitch, 3000 pcs per 330 mm Reel.

SURFACE MOUNT MICROPROCESSOR CRYSTALS



Frequency Range	3.20 MHz to 70.00 MHz
Mode of Oscillation	
Fundamental	3.20 MHz to 40.320 MHz
Third Overtone	24.576 MHz to 70.00 MHz
Frequency Tolerance at 25°C	±30 PPM Typical ±50 PPM Maximum
Frequency Stability over Temperature Range	±50 PPM Typical ±100 PPM Maximum
Operating Temperature Range	-20°C to +70°C Standard -40°C to +85°C Extended
Storage Temperature Range	-55°C to +125°C
Aging	±5 PPM Per Year Maximum
Load Capacitance	10 pF to 32 pF or Series
Equivalent Series Resistance (ESR)	See Table
Drive Level	0.1 mW Typical
Crystal Cut	At Strip

RALTRON MICROPROCESSOR SURFACE MOUNT CRYSTALS

Cat. No.	Frequency* (MHz)	Net Price
HOLDER TYPE TT-SMDC, ECONOMICAL, AND SLIGHTLY SMALLER		
AS-3.579545-18-4PD-TR	3.579545	\$.70
AS-4.000-18-4PD-TR	4.000000	.70
AS-6.000-18-4PD-TR	6.000000	.70
AS-8.000-18-4PD-TR	8.000000	.70
AS-12.000-18-4PD-TR	12.000000	.70
AS-16.000-18-4PD-TR	16.000000	.70

*Other frequencies are available to special order. Minimum quantities may apply.

NOTE: Load capacitance (12pF-32pF), for parallel resonance.

TT-SMDC Tape/Reel Specifications: 330mm reel, 24mm taping width, 12mm pitch, 3000 pcs. per reel.