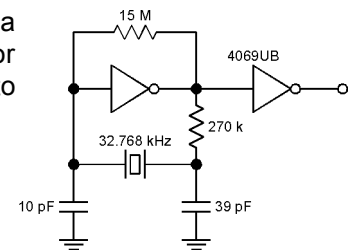


# MMCC-1, MMCC-2, and MMCC-3 Tuning Fork Crystals

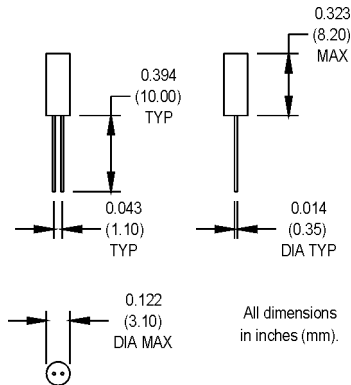


## Precision 32.768 kHz quartz crystals for realtime applications

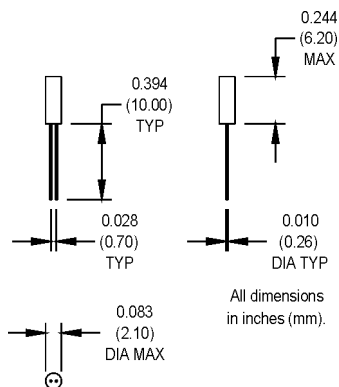
The majority of applications use a 32.768 kHz crystal in an oscillator circuit incorporating binary division to produce a 1 Hz output.



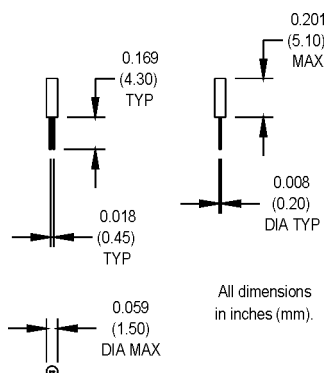
### \*MMCC-1-R



### \*MMCC-2-R



### \*MMCC-3-R

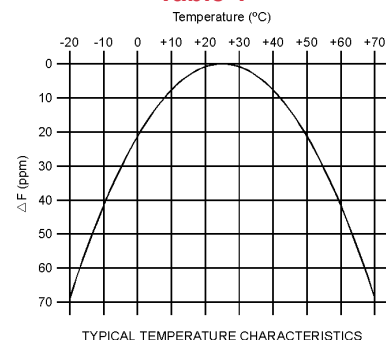


## Electrical/Environmental Specifications

PARAMETERS	VALUE
Frequency	32.768 kHz
Tolerance @ +25°C	±30 ppm
Aging	±3 ppm/yr. Max.
Shunt Capacitance	MMCC-1 1.60 pF, Typical MMCC-2 1.35 pF, Typical MMCC-3 1 pF, Typical
Load Capacitance	MMCC-1/MMCC-2 12.5 pF, Typical MMCC-3 8.0 pF, Typical
Standard Operating Conditions	See Table 1
Storage Temperature	-40°C to +85°C
Equivalent Series Resistance (ESR), Max.	MMCC-1/MMCC-2 35K Ω MMCC-3 40K Ω
Resonance	Parallel
Quality Factor	70,000 Min.
Turnover Temperature	+25°C ±5°C
Parabolic Curvature Constant	-0.034 ppm/°C <sup>2</sup> , Typical
Drive Level	1.0 μW Max.
Holder	Compression seal
Mechanical Shock	MIL-STD-202, Method 213, C
Vibration	MIL-STD-202, Method 201 & 204
Thermal Cycle	MIL-STD-883, Method 1010, B

\* Series resonant designated by "SR" prefix (i.e., **SRMMCC-1**).  
Use MtronPTI part number **374-005** for ± 20 ppm tolerance (MMCC-1).  
Use MtronPTI part number **375-05A** for ± 20 ppm tolerance (MMCC-2).  
Contact the factory for specifications not listed.

**Table 1**



MtronPTI reserves the right to make changes to the product(s) and service(s) described herein without notice. No liability is assumed as a result of their use or application.

Please see [www.mtronpti.com](http://www.mtronpti.com) for our complete offering and detailed datasheets. Contact us for your application specific requirements: MtronPTI 1-800-762-8800.

# MtronPTI Lead Free Solder Profile

