MRT-001-32.768kHz — SMT LOW POWER REAL TIME OSCILLATOR

- Low Power Consumption
- +1.2 VDC to +5.50 VDC Operation
- Small SMT Ceramic Package
- RoHS Compliant
- Tight Frequency Tolerance

ELECTRICAL CHARACTERTICS

Parameter		Value
Frequency Output		32.768kHz
Frequency Tolerance (Tighter Tolerance on request)		±20 ppm
Supply Voltage (Vdd)		+1.20 VDC to +5.50 VDC
Supply Current (Vdd = +3.00 VDC)		0.30 µA typ / 0.50µA max
Output		CMOS
Output Current	I_{OH}	+1mA
	I_{OL}	-1mA
Symmetry		40%/60%
Logic "1" (V_{OH})		V_{DD} – 0.40 VDC min
Logic "0" (V_{OL})		GND + 0.40 VDC max
Rise / Fall Time		70 nSec max
Start Up Time		0.5 Sec max
Enable/Disable Enable (High)		80% V_{DD} min
Enable/Disable Enable (Low)		20% V_{DD} max
Voltage Coefficient		±1.5 ppm/V max
Aging first year max at +25°C		±3.0 ppm
Turnover Temperature		+25°C ±5°C typ
Frequency vs. Temperature		-.035 ppm/°C^2 $(T-T_o)^2$ ±10% ppm
Storage Temperature Range		-55°C to +125°C
Operating Temperature Range		-40°C to +85°C

ENVIRONMENTAL & MECHANICAL SPECIFICATION

Shock	MIL-STD-883, Method 2002, Cond B
Solderability	MIL-STD-883, Method 2003
Solvent Resistance	MIL-STD-202, Method 215
Vibration	MIL-STD-883, Method 2007, Cond A
Gross Leak Test	MIL-STD-883, Method 1014, Cond C
Fine Leak Test	MIL-STD-883, Method, Method 1014, Cond A2
MSL	Level 3 per IPC/JEDEC J-STD 20
Reflow Conditions	+260°C max 20 Sec per IPC/JEDEC J-STD 20

MMD Components, 30400 Esperanza, Rancho Santa Margarita, CA, 92688
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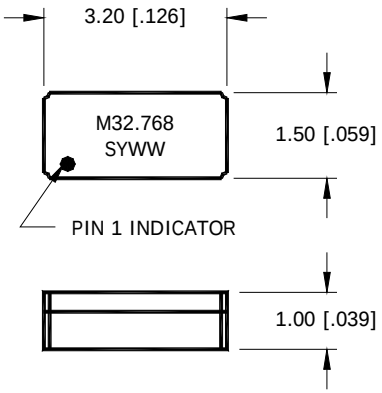
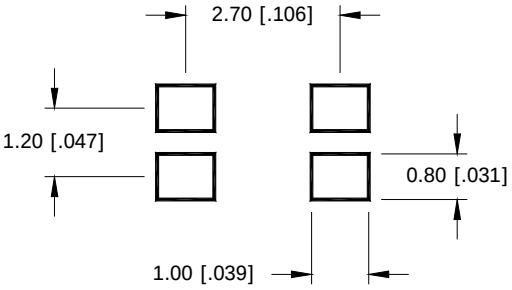
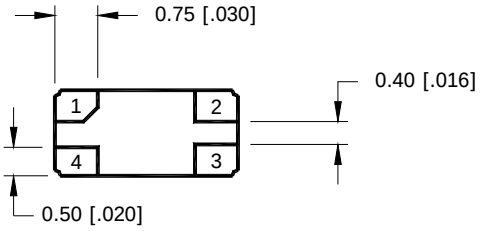
NOTES:
1. APPLICABLE STANDARDS / SPECIFICATION: ANSI Y14.5M, DIMENSIONS AND TOLERANCES.
2. DIMENSIONS ARE MILLIMETERS [INCHES]. MILLIMETERS ARE THE CONTROLLING DIMENSIONS, INCHES ARE FOR REFERENCE ONLY.
3. THE PINS NUMBERS ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED ON THE UNIT.
4. AN EXTERNAL BYPASS CAPACITOR IS RECOMMENDED.
5. TOLERANCES ARE ±0.25 [.010] FOR TWO PLACE DECIMALS AND ±0.5 [.02] FOR ONE PLACE DECIMALS.
6. PADS MATL
   - 6.1. BASE OR UNDER CONDUCTOR: NICKEL THICKNESS 1.3 MICRONS TO 1.8 MICRONS
   - 6.2. FINAL PLATING: GOLD (99.97%) 0.8 MICRONS TO 1.2 MICRONS





SUGGESTED SOLDER PADS

PIN CONNECTIONS	
PIN 1	ENABLE/DISABLE
PIN 2	GROUND
PIN 3	OUTPUT
PIN 4	SUPPLY

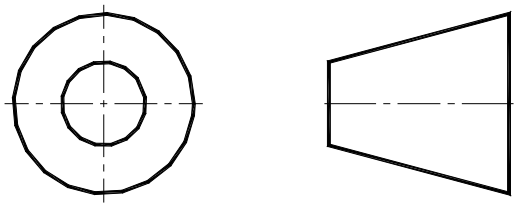


ENABLE/ DISABLE	
PIN 1	PIN 3
80% Vdd MIN	OUTPUT
20% Vdd MAX	HIGH IMPEDANCE

MARKING DETAIL

First Line = M32.768
M = MMD
32.768 = 32.768 kHz Output Frequency
Second Line = SYWW (Not be exceed 5 characters)
S = Internal Code (can be 1 or 2 characters)
YWW = Date Code (Year/Week)
Y = First digit of Year of Manufacture
WW = Week of Manufacture
Pin 1 Indicator

DO NOT SCALE DRAWING



THIRD ANGLE PROJECTION