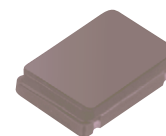




FIXED/TRISTATE OSCILLATORS

Industrial Temperature -40 to +85°C

SURFACE MOUNT
T1210, T1212,
T3210, T3212



Low Jitter Surface Mount, 5 V 20 KHz to 100 MHz

Surface Mount, 5 V Industrial Range

MF Electronics' creation of a proprietary multi-layer gold-ceramic package has ushered in a new generation of tiny, robust surface mount oscillators

Measuring only 5 x 7 x 1.9 mm, the T-Oscillators' multi-layer gold-ceramic package is characterized for the Industrial Temperature Range of -40°C to +85°C. Internal components are all selected for extended temperature operation, and are attached to the carrier's conducting traces at 420°C. After final frequency calibration and testing, the SMD oscillators' ceramic cover is glass sealed at 420°C for rugged hermeticity.

All SMD oscillators undergo a temperature cycling from -55 to +125°C, followed by a 4 hour conditioning burn-in at 125° to complete the elimination of early mortalities and ensure accelerated first-year aging. They are then centrifuged and fully tested at three temperature-voltage corner combinations using the difficult voltage-ramp start

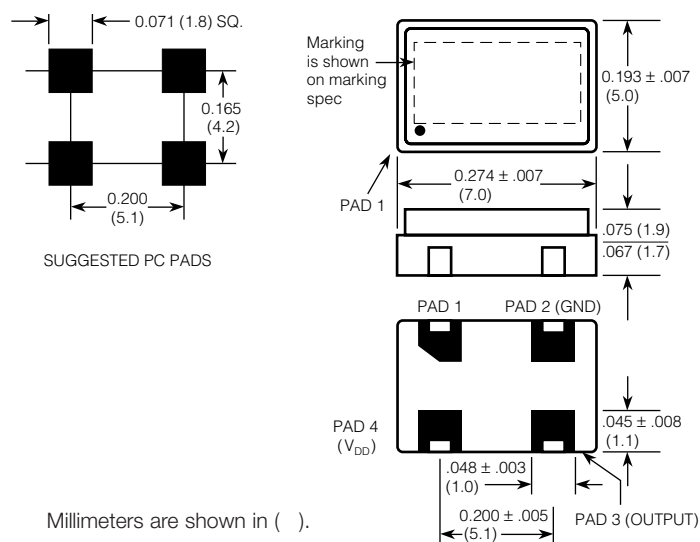
Operating at 5.V, they provide the extra performance and reliability which is demanded when upgrading to the -40 to +85°C industrial temperature range.

Guaranteed Jitter is less than 5 ps RMS from positive peak to positive peak. No multipliers are used.

Advanced packaging in a 5 x 7mm size is now available in these Industrial Temperature Range versions of our popular HCMOS/TTL models. Each unit undergoes rigorous testing to ensure full compliance with the specification.

FEATURES

- Surface Mount T package available
- Hermetically sealed
- Low supply current
- Rugged processing at 420°C for extra reliability

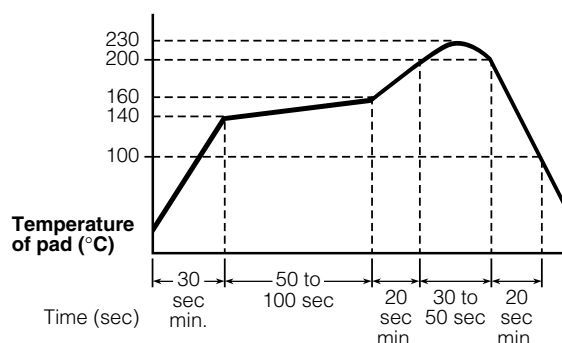


FIXED OUTPUT			
MODEL	Marking Letter ID*	Frequency Stability	Temperature
T1210	GK	±100 ppm	-40 to +85°C
T1212	GL	±50 ppm	-40 to +85°C

TRISTATE			
MODEL	Marking Letter ID*	Frequency Stability	Temperature
T3210	G0	±100 ppm	-40 to +85°C
T3212	GP	±50 ppm	-40 to +85°C

* See Marking Specification

"T" Package



Recommended Reflow Soldering Profile

MF ELECTRONICS

FIXED/TRISTATE OSCILLATORS

Industrial Temperature -40 to +85°C

Surface Mount, 5 V

20 KHz to 100 MHz

SPECIFICATIONS

Frequency	20 KHz to 100 MHz		
Frequency Stability	Includes calibration at 25°C, operating temperature, change of input voltage, change of load, shock and vibration.		
Jitter	Less than 5 ps from positive peak to positive peak		
Input Voltage	5 ± 0.5 V		
Input Current	45 ma., max.		
Output	3 TLL loads, or 10 LSTTL loads, or 15 pF CMOS		
Rise and Fall Time, max			
CMOS, 15pF, from 0.4 to (V _{DD} - 0.4) V	4	ns, max	
Symmetry			
CMOS @50% V _{DD}	45/65	percent	

ENVIRONMENTAL SPECIFICATIONS

Temperature Cycle

Not to exceed ±5 ppm change when exposed to 2 hours maximum at each temperature from 0 to 120°C, with 25°C reference.

MECHANICAL SPECIFICATIONS

Gross Leak

Each unit checked in 125°C fluoro-carbon

Case

Ceramic with glass hermetic seal, sealed in 420°C furnace

Pads

60 microinch of gold over nickel

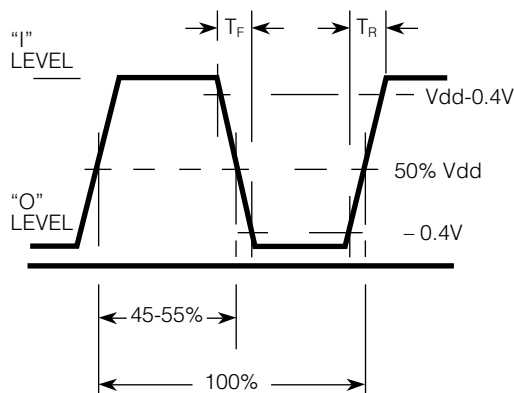
Marking

Print is permanent white ink

AGING

3 ppm, first year, typ.

1 ppm per year thereafter, typ.



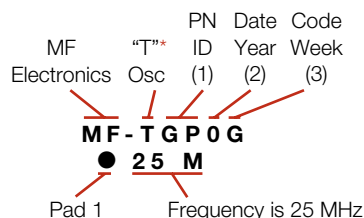
WAVEFORMS

CONNECTIONS

	Fixed Output Models	Tristate Models
PAD 1	NOT USED	Floating or "1": Oscillator runs Ground or "0": Disable or Tristate
PAD 2	Ground and Case	
PAD 3	Output	
PAD 4	+5V, V _{DD}	

MARKING SPECIFICATION

The format for the marking is:



NOTES

- (1) One or two letters are used to identify the model. See Table 1.
- (2) Number in date code is year. In example, "0" is 2000.
- (3) Letter in date code is one two-week period. Year is divided into 26 two-week intervals. Each two-week interval is represented by one letter of the alphabet, in sequence.

* When Marking Letter ID is two letters, the "T" is deleted.

CRYSTALS

All crystals are processed in-house with tight angle control to assure best frequency-temperature characteristics.

HOW TO ORDER

For Part Number, put package type before model number, and add frequency in MHz, for example:

