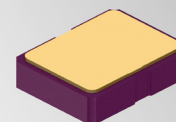


M90

SERIES : Low Jitter - Low Phase Noise - Best Frequency Stability
 Crystal Oscillator | 10 to 70 MHz | 2.5V & 3.3V | CMOS | 3.2x2.5 mm Ceramic SMD



3.2x2.5 mm Ceramic SMD Package

- Features**
- Industry Standard Package
 - Shortest Lead Time
 - Tightest Stability Over Temperature
 - ECCN - EAR 99
 - Smallest Hi-Rel Package
 - Customer Support & Service

Electrical SPECIFICATIONS

Supply Voltage Options	Voltage CODE	Frequency Range (MHz)	Supply Current @ Vcc ±10% (mA)		Rise/Fall Time (tr/TF) max 1/ (nsec)	Symmetry min / max (%)	Aging per year max 2/ (ppm)	Operating Temperature vs. Stability*		
			@2.5V	@3.3V				-55°C to +125°C (ppm)	-55°C to +105°C (ppm)	-40°C to +85°C (ppm)
2.5V ±10%	25							CODE A	CODE B	CODE C
3.3V ±10%	33									
		10 to 70	2.8	3.0	5	45/55	±2	-	-	±5
		10 to 70	2.8	3.0	5	45/55	±2	-	±10	-
		10 to 70	2.8	3.0	5	45/55	±2	±20	-	-

* includes initial accuracy

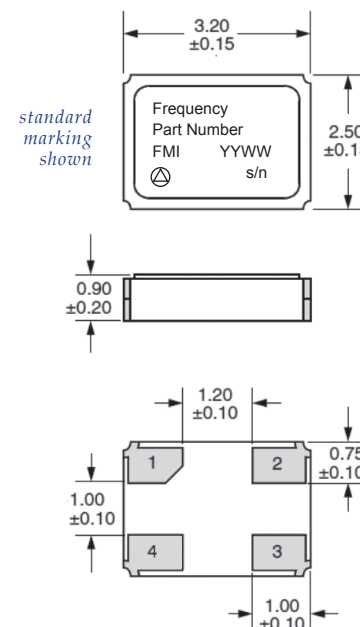
Phase Noise PERFORMANCE

Phase @ 25 MHz Noise	Offset (Hz)	Phase Noise (dBc/Hz)
	100	-110
	1K	-139
	10K	-155
RMS Jitter: 0.3 psec	100K	-158
	1M	-160

notes:
 1/ Rise/FallTime measured 10/90% & 90/0% nominal Vcc Levels
 2/ Frequency Aging Limits, 1 ppm per year

CMOS Output, 15 pF Load
 Output Voltage - Voh is Vcc -0.4 Vdc
 Output Voltage - Vol is Vcc 0.4 Vdc
 Start-up Time: 10 msec max

Package OUTLINE DRAWING



Mechanical SPECIFICATIONS

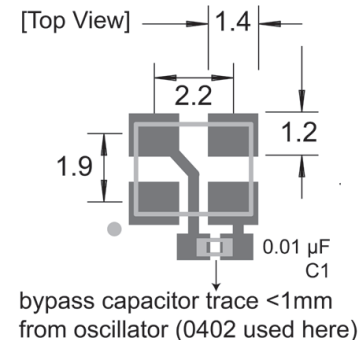
TriState Function Pad 1
 VIH: 0.7 * Vcc (min); VIL: 0.3 *Vcc (max)
 Output is disabled and high-Z impedance when logic low and oscillator is stopped.
 Enabled with lock operational with either logic high or no connect.

Solder Reflow Profile, 10 seconds max at peak temp ≤260°C.

Standard PIN CONFIGURATION

Pin Number	Function
1	TriState Output Enable
2	Ground (case)
3	Output
4	Supply V (Vcc)

Recommended Land Pattern



dimensions: inches / (mm)

Pad 1, ESD Symbol

How To ORDER



example:
M90C25A-10M0000

ISO 9001:2015
 MIL-STD-790 Certified
 Pb-free RoHS Certified
 QPL per MIL-PRF-55310

Features

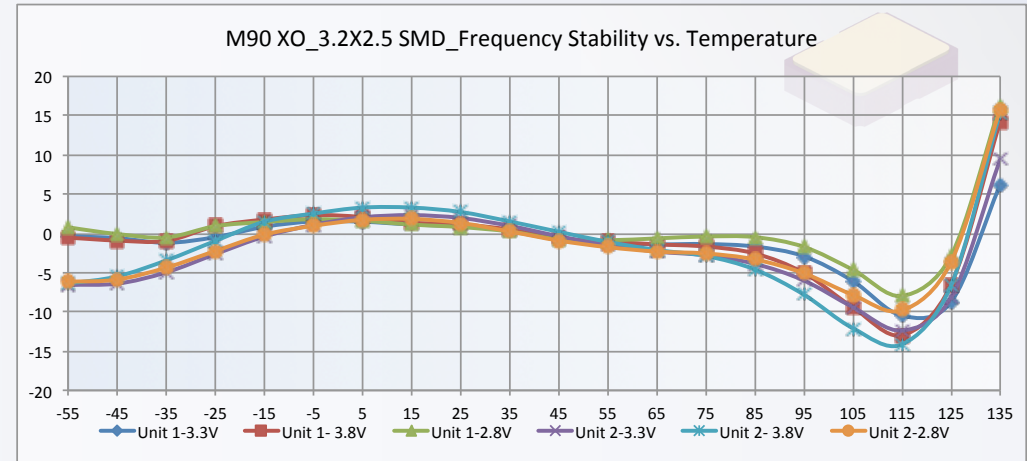
- Best Frequency Stability vs. Temperature in its class
- Ultra Small Form Factor
- Ruggedized Design
- High-Shock & Vibration
- Best Service
- ECCN - EAR 99
- Highest Temperature Ranges
- Wider Frequency Ranges
- Higher Reliability
- Smaller Packages
- Very Low Power

Applications

- Mobile and Stationary Systems
- UAV, Drone
- Radar DSP
- Vision Systems
- Position Sensors
- Smart Ammunition
- Navigation Systems
- Guidance Systems
- Aircraft Control

Environmental COMPLIANCE

Environmental	Specification	Method	Condition
Thermal Shock	MIL-STD-883	Method 1011	Condition A
Moisture Resistance	MIL-STD-883	Method 1004	
Terminal Strength	MIL-STD-883	Method 2004	Condition D
Solderability	MIL-STD-883	Method 2003	
Resistance to Soldering Heat	MIL-STD-202	Method 210	Condition I or J
Mechanical Shock	MIL-STD-883	Method 2002	Condition B
Mechanical Vibration	MIL-STD-883	Method 2007	Condition A
Gross Leak	MIL-STD-883	Method 1004	Condition C
Fine Leak	MIL-STD-883	Method 1004	Condition A2, R1=2x10E-8 atm cc/s
Moisture Sensitivity Level	MSL 1		



Screening, B & C LEVELS

Screening	Method	Level:	CODE	
			B	C
Temperature Cycling	MIL-STD-883, Method 1010, Condition B		•	
Constant Acceleration	MIL-STD-883, Method 2001, Condition A (Y1 only, 5000 g's)		•	
Seal: Fine Leak	MIL-STD-883, Method 1014, Condition A1		•	
Seal: Gross Leak	MIL-STD-202, Method 112, Condition D		•	•
Electrical Test	Functional Test Only		•	•
Marking & Serialization	MIL-STD-1285		•	•
Electrical Test	Nominal Vcc & Extremes and Nominal Temp and Extremes		•	
Burn-in (no-load)	+125°C, Nominal Supply Voltage and Burn-in load, 48 hours min			•
Burn-in (load)	+125°C, Nominal Supply Voltage and Burn-in load, 160 hours min		•	
External Visual & Mechanical	MIL-STD-883, Method 2009.10		•	•
Final Electrical Test			•	•
a) Input current, output frequency, output waveform, are tested at +23°C ±2°C b) Frequency stability is tested over the specified temperature range; at both extremes and at +25°C at a minimum of 5 temperature increments note: Recording of test data is by lot # and then serial #				

note: other screening levels and custom test plans available.

Military Reference Specifications

MIL-PRF-55310 Oscillators, Crystal Controlled, General Specification For
 MIL-PRF-38534 Hybrid Microcircuits, General Specification For
 MIL-STD-202 Test Method Standard, Electronic and Electrical Components
 MIL-STD-883 Test Methods and Procedures for Microelectronics
 MIL-STD-1686 Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment

Materials

1. Package Materials:
Ceramic, Alumina 90% min
2. Pad Plating Material:
Gold Plate 0.3 µm (12 µ inch)
over 2 µm (80 µ inch) min. Nickel

Products for Space Applications

Contact us for assistance with your specification. We will provide you with the technical support and the required documentation.

issue 5, 11052020



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