



M53 SERIES

Crystal Oscillator | 3.3V | CMOS | 5x3.2mm Ceramic SMD | Military Grade



5x3.2 mm Ceramic SMD Package



Features

- Ruggedized Design
- High-Shock & Vibration
- Industry Standard Package
- Shortest Lead Time
- Smallest Hi-Rel Package
- ECCN - EAR 99
- Robust Crystal Mount
- Best Stability Over Temperature
- Customer Support & Service
- See M54 Datasheet for 5V Operation

Electrical SPECIFICATIONS

Dash Number No TriState	With TriState	Frequency Range (MHz)	Supply Current @ 3.3V ±10% (mA)	Rise/Fall Time (tr/ff) max (nsec)	Symmetry min / max (%)	Aging per year max 1/ (ppm)	Stability over Operating Temperature			
							-55°C to +150°C (ppm)	-55°C to +125°C (ppm)	-55°C to +105°C (ppm)	-40°C to +85°C (ppm)
CODE	CODE						CODE H	CODE A	CODE B	CODE C
01	02	0.5 to 0.9	1.1	3	45/55	±10	±100	±75	±60	±50
03	04	1 to 7.9	1.3	3	40/60	±10	±100	±75	±60	±50
05	06	8 to 15.9	3	3	40/60	±10	±100	±75	±60	±50
07	08	16 to 49.9	6	2	40/60	±10	±100	±75	±60	±50
09	10	50 to 74.9	8	2	40/60	±10	±100	±75	±60	±50
11	12	75 to 94.9	16	2	40/60	±10	±100	±75	±60	±50
13	14	95 to 130	25	2	40/60	±10	±100	±75	±60	±50

Please Contact Us for Specification Options that are Outside of or beyond those Shown in the Table Above

CMOS Output, 10 kΩ || 15 pF Load
 Output Voltage - Logic "0" is Vcc x 0.1 Vdc
 Output Voltage - Logic "1" is Vcc is 0.9 Vdc
 Start-up Time: 10 msec max

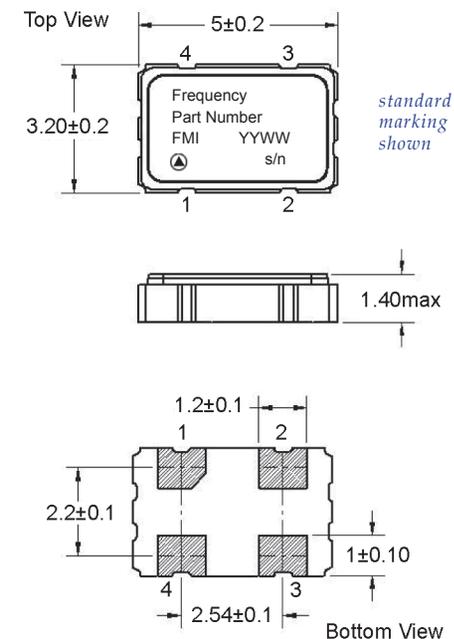
1/ Frequency Aging Limits

Max change over 30 days	±1.5 ppm
Max change over 90 days	±3 ppm

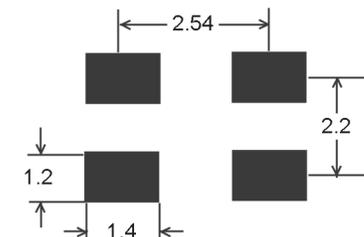
Standard PIN CONFIGURATION

Pin Number	Function
1	No Connect or TriState Enable
2	Ground (case)
3	Output
4	Supply V (Vcc)

Mechanical SPECIFICATIONS



Recommended Land Pattern

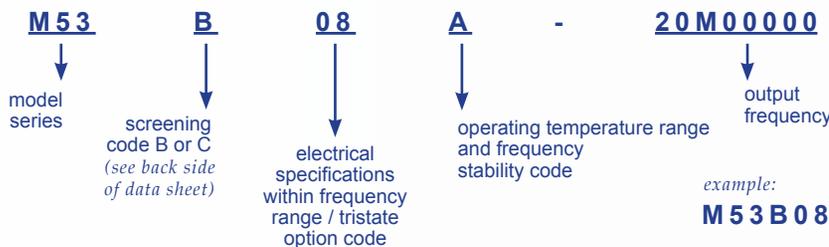


dimensions: mm

Pad 1, ESD Symbol

How To ORDER

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



FREQUENCY MANAGEMENT | International
 15302 Bolsa Chica Street
 Huntington Beach, CA 92649

FrequencyManagement.com

Ph. 714 373 8100
 Fx. 714 373 8700
Sales@FrequencyManagement.com



Screening, B & C LEVELS			CODE	
Screening	Method	Level:	B	C
Non-Destruct Bond Pull	MIL-STD-883, Method 2023		•	•
Internal Visual	MIL-STD-883, Method 2017, Class H; Method 2032, Class H		•	•
Stabilization (Vacuum) Bake	MIL-STD-883, Method 1008, Condition C, 150°C, 24 hours min		•	•
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.

Features

- Ruggedized Design
- High-Shock & Vibration
- Made in the USA
- ECCN - EAR 99
- Industry Standard Packages
- Highest Temperature Ranges
- Wider Frequency Ranges
- Higher Reliability
- Smaller Packages
- Lowest Current
- Best Service

Applications

- Mobile and Stationary Systems
- Aircraft Engine
- Radar DSP
- Vision Systems
- Aircraft Control
- Position Sensors
- Drone
- Smart Ammunition
- Deep Space Robotic
- Navigation Systems
- Guidance Systems
- Short & Long Earth Orbit Missions
- Commercial Satellites
- Reusable Rockets

Environmental COMPLIANCE

Environmental	Specification	Method Condition		
Vibration – Sine	MIL-STD-202	Method 204	Condition D	20g, 10 to 2 KHz
Vibration – Random	MIL-STD-202	Method 214	Condition 1	30g rms, 10 to 2 KHz Random
Shock	MIL-STD-202	Method 213	Condition I	100g, 6 ms, F:1500, 0.5 ms
Seal Test	MIL-STD-883	Method 1014	Condition A1	Fine Leak
Seal Test	MIL-STD-883	Method 1014	Condition C1	Gross Leak
Temperature Cycling	MIL-STD-883	Method 1010	Condition B	10 Cycles Minimum
Constant Acceleration	MIL-STD-883	Method 2001	Condition A	5000g, Y1 Axis
Thermal Shock	MIL-STD-202	Method 107	Condition B	

continued...

Environmental	Specification	Method	Condition
Ambient Pressure	MIL-STD-202	Method 105	Condition C
Resistance to Soldering Heat	MIL-STD-202	Method 210	Condition C
Moisture Resistance	MIL-STD-202	Method 106	with 7B Sub-cycle
Salt Atmosphere	MIL-STD-883	Method 1009	Condition A (24 hrs)
Terminal Strength	MIL-STD-202	Method 211	Test Condition D
Solderability	MIL-STD-883	Method 2003	
Resistance to Solvents	MIL-STD-202	Method 215	

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

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

Products for Military Applications

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

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