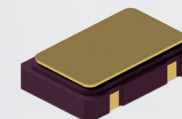


S55

**SERIES - 100 krad (Si) TID | 75 MeV cm²/mg min.
Element Evaluation MIL-PRF-38534, Class K**

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



5x3.2 mm Ceramic SMD Package



Features

- Ruggedized Design
- Shortest Lead Time
- Best Stability Over Temperature
- High-Shock & Vibration
- Smallest Hi-Rel Package
- Customer Support & Service
- Industry Standard Package
- ECCN - EAR 99
- 1.8V & 5V Operations Available
- 20 to 60 MHz

Electrical SPECIFICATIONS

| EM | Dash Number | | Frequency Range (MHz) | Supply Current @ 3.3V ±10% (mA) | Rise/Fall Time (tr/tf) max (nsec) | Symmetry min / max (%) | Aging per year max 1/ (ppm) | Stability over Operating Temperature | | |
|------|-------------|------|-----------------------|---------------------------------|-----------------------------------|------------------------|-----------------------------|--------------------------------------|----------------------|----------------------|
| | EQM | FM | | | | | | -55°C to +125°C (ppm) | -40°C to +85°C (ppm) | -20°C to +70°C (ppm) |
| CODE | CODE | CODE | | | | | | CODE A | CODE B | CODE C |
| 11 | 12 | 13 | 20 to 29.9 | 10 | 4 | 45/55 | ±10 | ±65 | ±40 | ±30 |
| 14 | 15 | 16 | 30 to 39.9 | 10 | 4 | 40/60 | ±10 | ±65 | ±40 | ±30 |
| 17 | 18 | 19 | 40 to 49.9 | 15 | 3 | 45/55 | ±10 | ±75 | ±50 | ±40 |
| 21 | 22 | 23 | 50 to 60 | 15 | 2 | 40/60 | ±10 | ±75 | ±50 | ±40 |

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

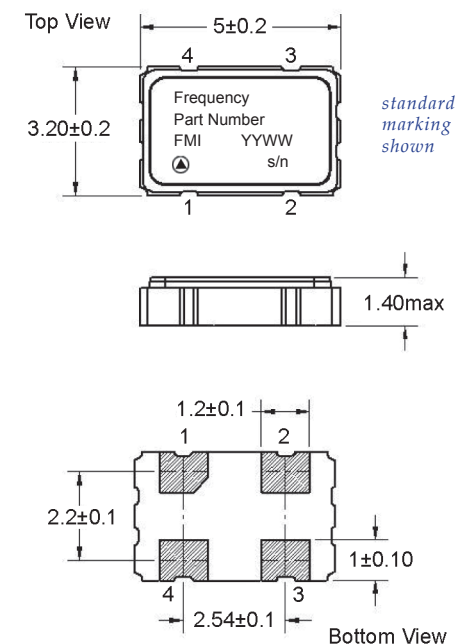
Standard MODEL TYPES

| Model | Description |
|---------------------------------------|---|
| EM: Engineering Models | Same as FM, not with Class K radiation tolerant die commercial screening only |
| EQM: Engineering Qualification Models | Same as FM with Class K radiation tolerant die, B or C level screening only |
| FM: Flight Models | Class K radiation tolerant die*, screening & Group A *unless specified otherwise |

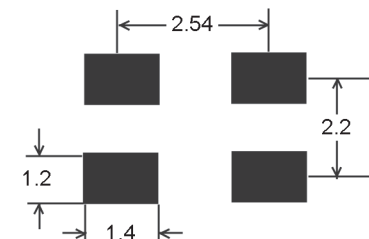
Standard PIN CONFIGURATION

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

Mechanical SPECIFICATIONS



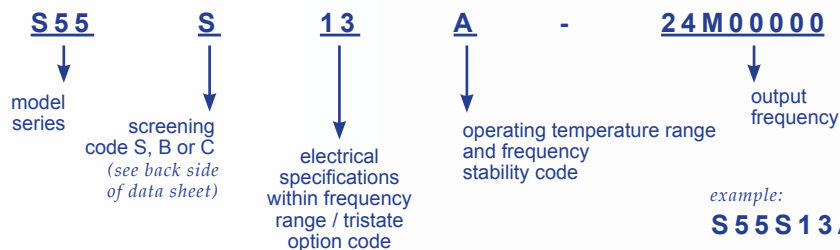
Recommended Land Pattern



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@FrequencyManagment.com

Please request our General Specification for Class S Oscillators Document # QP1100100

| Screening- S, B & C LEVELS (per FMI General Specification for Class S Oscillators) | | | CODE | | |
|--|---|--------|------|---|---|
| Screening | Method | Level: | S | B | C |
| Non-Destruct Bond Pull | MIL-STD-883, Method 2023 | | • | • | • |
| Internal Visual | MIL-STD-883, Method 2017, Class K; Method 2032 | | • | | |
| | MIL-STD-883, Method 2017, Class H; Method 2032 | | | • | • |
| Stabilization (Vacuum) Bake | MIL-STD-883, Method 1008, Condition C, 150°C, 48 hours min | | • | | |
| | MIL-STD-883, Method 1008, Condition C, 150°C, 24 hours min | | | • | • |
| Temperature Cycling | MIL-STD-883, Method 1010, Condition B, 10 Cycles | | • | • | |
| Constant Acceleration | MIL-STD-883, Method 2001, Condition A (Y1 only, 5000 g's) | | • | • | |
| PIND Test | MIL-STD-883, Method 2020, Condition B, 5 passes max | | • | | |
| Seal: Fine Leak | MIL-STD-883, Method 1014, Condition A1 | | • | | |
| | MIL-STD-202, Method 112, Condition C, 111A | | | • | |
| Seal: Gross Leak | MIL-STD-202, Method 112, Condition D | | • | • | • |
| Electrical Test | Functional Test Only at +23°C | | • | • | • |
| Marking & Serialization | MIL-STD-1285 | | • | • | • |
| Electrical Test | Nominal Vcc & Extremes and Nominal Temp and Extremes | | • | • | |
| Burn-in (load) | +125°C, Nominal Supply Voltage and Burn-in load, 160 hours min | | • | • | |
| Burn-in (no-load) | +125°C, Nominal Supply Voltage and Burn-in load, 48 hours min | | | | • |
| Interim Electrical | Functional Test Only | | • | | |
| Burn-in (load) | +125°C, Nominal Supply Voltage and Burn-in load, 160 hours min | | • | | |
| 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 # | | | | |
| Radiography | MIL-STD-883, Method 2012 | | • | | |
| Frequency Aging | MIL-PRF-55310, +70°C Condition | | • | | |
| Frequency/Temperature Stability | MIL-PRF-55310, Over temperature extremes, 20 points equally spaced | | • | | |
| External Visual & Mechanical | MIL-STD-883, Method 2009 | | • | • | • |

note: other options, screening levels and custom test plans available.

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

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

Options Available for FLIGHT MODELS

- Screening, Groups A, B, C, & D per MIL-PRF-38534 (QCI or Qualification)
- Screening, Groups A, B & C per MIL-PRF-55310
- Data Packages
- Swept Quartz Crystals
- Single Lot Date Code
- Source Inspection
- HiRes Photography

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 (corrosion) | 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 | | |

Materials

1. Package Materials:
Ceramic, Alumina 90% min
2. External Lead Plating Material:
Gold plated Kovar, 0.15 µm (60 µ inch) min,
over 2.0 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 10_11212022



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