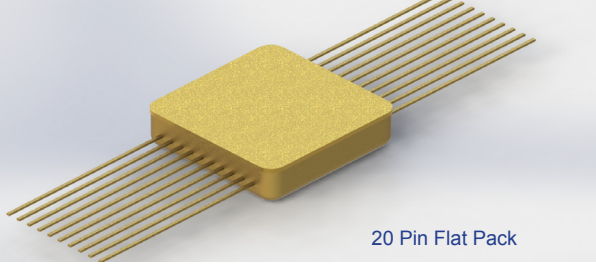
FMI Model Number

S63 SERIES - 100 krad SI

Crystal Oscillator | 5.0V | CMOS | 20 Pin Flat Pack | SPACE Grade



20 Pin Flat Pack

Electrical SPECIFICATIONS

Dash Number No TriState	Dash Number With TriState	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 -55ºC to +125ºC (ppm)	-55ºC to +105ºC (ppm)	-20ºC to +70ºC (ppm)
CODE	CODE						CODE A	CODE B	CODE C
02	03	.01 to 1	10	10	45/55	±5	±65	±55	±40
06	07	.01 to 1	10	10	45/55	±10	±100	±75	±50
22	23	1 to 4	15	10	45/55	±5	±65	±55	±40
26	27	1 to 4	15	10	45/55	±10	±100	±75	±50
32	33	4 to 20	20	10	40/60	±5	±65	±55	±40
36	37	4 to 20	20	10	40/60	±10	±100	±75	±50
42	43	20 to 35	35	5	40/60	±5	±65	±55	±40
46	47	20 to 35	35	5	40/60	±10	±100	±75	±50
52	53	35 to 50	40	5	40/60	±5	±65	±55	±40
56	57	35 to 50	40	5	40/60	±10	±100	±75	±50
62	63	50 to 65	70	5	40/60	±5	±65	±55	±40
66	67	50 to 65	70	5	40/60	±10	±100	±75	±50
72	73	65 to 80	80	5	40/60	±5	±65	±55	±40
76	77	65 to 80	80	5	40/60	±10	±100	±75	±50
82	83	80 to 135	90	5	40/60	±5	±65	±55	±40
86	87	80 to 135	90	5	40/60	±10	±100	±75	±50

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

CMOS Output, 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	5 ppm per year	10 ppm per year
Max change over 30 days	±0.7 ppm	±1.5 ppm
Projected max change for 1 year after 30 days	±0.7 ppm	±1.5 ppm

How To ORDER

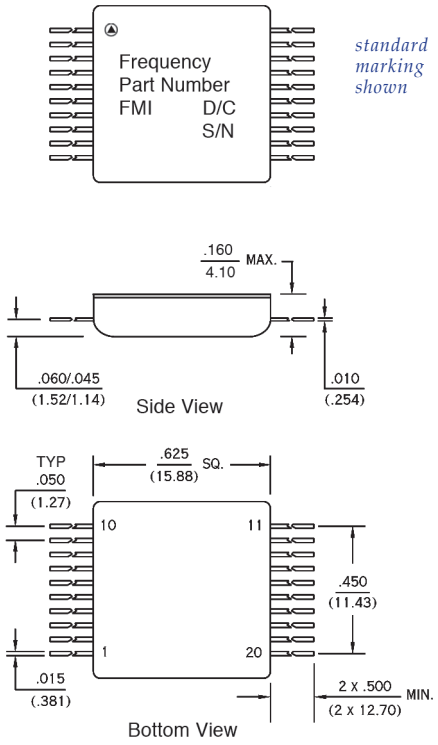
S63 S 02 A - 1M000000

- S63 — model series
- S — screening code S, B or C *(see back side of data sheet)*
- 02 — electrical specifications within frequency range / tristate option code
- A — operating temperature range and frequency stability code
- 1M000000 — output frequency

example: **S63S02A-1M000000**

MIL-STD-790 Certified
QPL per MIL-PRF-55310
ISO 9001:2008
Pb-free RoHS Certified

Mechanical SPECIFICATIONS



Pin 1 ID / ESD Symbol

dimensions: inches / (mm)

Standard PIN CONFIGURATION

Pin Number	Function
1	No Connect or TriState Enable
10	Ground (case)
11	Output
13	Supply V (Vcc)

All Other Pins N/C

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

FrequencyManagement.com

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

S63

FMI

Features

- Ruggedized Design
- High-Shock & Vibration
- Industry Standard Package
- Shortest Lead Time
- Smallest Hi-Rel Package
- ECCN - EAR 99
- Best Stability Over Temperature
- Customer Support & Service
- See S62 Datasheet for 3.3V Operation
- Robust, Rugged, High Shock Crystal Support (3 or 4 point crystal mount)

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

Screening- S, B & C LEVELS *(per FMI General Specification for Class S Oscillators)*

Screening	Method	Level:	CODE 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, 150ºC, 48 hours min		•		
	MIL-STD-883, Method 1008, Condition C, 150ºC, 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 +23ºC		•	•	•
Marking & Serialization	MIL-STD-1285		•	•	•
Electrical Test	Nominal Vcc & Extremes and Nominal Temp and Extremes		•	•	
Burn-in (load)	+125ºC, Nominal Supply Voltage and Burn-in load, 160 hours min		•	•	
Burn-in (no-load)	+125ºC, Nominal Supply Voltage and Burn-in load, 48 hours min				•
Interim Electrical	Functional Test Only		•		
Burn-in (load)	+125ºC, Nominal Supply Voltage and Burn-in load, 160 hours min		•		
Final Electrical Test a) Input current, output frequency, output waveform, are tested at +23ºC ±2ºC b) Frequency stability is tested over the specified temperature range; at both extremes and at +25ºC 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, +70ºC 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.

Options Available for FLIGHT MODELS

- Groups B, C, & D per MIL-PRF-38534 (QCI or Qualification)
- Groups B & C per MIL-PRF-55310
- Data Packages
- Swept Quartz Crystals
- Lead Forming
- Single Lot Date Code
- Source Inspection
- HiRes Photography
- EM and EQM Versions

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	

MIL-STD-790 Certified
QPL per MIL-PRF-55310
ISO 9001:2008
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

Materials

1. Package Materials:
   Eyelet & Leads: ASTM F-15 Kovar
   Glass: 7052 or Equivalent
2. Plating Material:
   100-300 µ Inch Electrolytic Nickel under
   50 µ Inch min. Gold

Products for Space Applications

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

Issue 1-02252019

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

FrequencyManagement.com

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

Dash Number		Frequency	Supply	Rise/Fall	Symmetry	Aging	Stability over Operating Temperature		
No TriState	With TriState	Range	Current @ 3.3V	Time (tr/tf)	min/max	per year max	-55ºC to +125ºC	-55ºC to +105ºC	-20ºC to +70ºC
CODE	CODE		±10%	max			CODE A	CODE B	CODE C
02	03	.01 to 1 MHz	8 mA	10 ns	45/55%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
06	07	.01 to 1 MHz	8 mA	10 ns	45/55%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
22	23	1 to 4 MHz	8 mA	10 ns	45/55%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
26	27	1 to 4 MHz	8 mA	10 ns	45/55%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
32	33	4 to 20 MHz	8 mA	10 ns	40/60%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
36	37	4 to 20 MHz	8 mA	10 ns	40/60%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
42	43	20 to 35 MHz	12 mA	10 ns	40/60%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
46	47	20 to 35 MHz	12 mA	10 ns	40/60%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
52	53	35 to 50 MHz	15 mA	5 ns	40/60%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
56	57	35 to 50 MHz	15 mA	5 ns	40/60%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
62	63	50 to 65 MHz	18 mA	5 ns	40/60%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
66	67	50 to 65 MHz	18 mA	5 ns	40/60%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
72	73	65 to 80 MHz	20 mA	5 ns	40/60%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
76	77	65 to 80 MHz	20 mA	5 ns	40/60%	±10 ppm	±100 ppm	±75 ppm	±50 ppm
82	83	80 to 100 MHz	30 mA	5 ns	40/60%	±5 ppm	±65 ppm	±55 ppm	±40 ppm
86	87	80 to 100 MHz	30 mA	5 ns	40/60%	±10 ppm	±100 ppm	±75 ppm	±50 ppm

Environmental	Specification	Method	Condition

Dash Number		Frequency Range	Supply Current @ 3.3V ±10%	Rise/Fall Time (tr/tf) max	Symmetry min/max	Accuracy @ 23ºC ±1ºC	Aging per year max	Stability over Operating Temperature		
No TriState CODE	With TriState CODE							-55ºC to +125ºC CODE A	-55ºC to +105ºC CODE B	-20ºC to +70ºC CODE C
02	03	.01 to 1 MHz	8 mA	10 ns	45/55%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
06	07	.01 to 1 MHz	8 mA	10 ns	45/55%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
22	23	1 to 4 MHz	8 mA	10 ns	45/55%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
26	27	1 to 4 MHz	8 mA	10 ns	45/55%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
32	33	4 to 20 MHz	8 mA	10 ns	40/60%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
36	37	4 to 20 MHz	8 mA	10 ns	40/60%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
42	43	20 to 35 MHz	12 mA	10 ns	40/60%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
46	47	20 to 35 MHz	12 mA	10 ns	40/60%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
52	53	35 to 50 MHz	15 mA	5 ns	40/60%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
56	57	35 to 50 MHz	15 mA	5 ns	40/60%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
62	63	50 to 65 MHz	18 mA	5 ns	40/60%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
66	67	50 to 65 MHz	18 mA	5 ns	40/60%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
72	73	65 to 80 MHz	20 mA	5 ns	40/60%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
76	77	65 to 80 MHz	20 mA	5 ns	40/60%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm
82	83	80 to 100 MHz	30 mA	5 ns	40/60%	±15 ppm	±5 ppm	±65 ppm	±55 ppm	±40 ppm
86	87	80 to 100 MHz	30 mA	5 ns	40/60%	±25 ppm	±10 ppm	±100 ppm	±75 ppm	±50 ppm