EUROQUARTZ EQXO-1000BM and 3000BM OSCILLATORS

14 pin Dual-in-Line MIL SPECIFICATION 30kHz to 70MHz

FEATURES

- **Ceramic substrate and ruggedized mounts for high reliability**
- **Industry-standard 14 pin DIL package, 4 pin or 14 pin**
- **Screening to MIL-O-55310C, Class B available**
- **Radiation tolerant version available for space applications**

DESCRIPTION

EQXO-1000BM and 3000BM series oscillators are designed and manufactured by Euroquartz Ltd for aerospace, defence and similar applications where high-reliability clock oscillators are required. The oscillator is produced in the industry-standard 14 pin DIL oscillator package. EQXO-1000BM series oscillators incorporates a custom designed, all-ceramic oscillator substrate and a ruggedized three-point crystal mounting system inside a hermetically-sealed metal package. The specification ensures that the oscillators provide an accurate and reliable source of clock signals regardless of the severity of the environment in which it operates. EQXO-3000BM series oscillators are otherwise identical to EQXO-1000BM series oscillators but have 14 pins for extra mechanical security.

RADIATION TOLERANCE

For equipment to be used in space or the upper atmosphere the EQXO-1000BM and 3000BM series oscillators may be produced in a radiation tolerant version. Designated EQXO-x000BMH, this variant of the oscillator will withstand ionizing radiation to resist electrical failures for a total radiation dose of 40krad(SI).

SPECIFICATION

Model No:	EQXO-1000BM or 3000BM
Frequency Range:	30kHz to 70.0MHz
Calibration Tolerance at 25°C:	±10ppm to ±25ppm
Frequency Stability*	
EQXO-1100BM:	±100ppm over -55° to +125°C
EQXO-1050BM:	±50ppm over -55° to +125°C
Supply Voltage:	+5.0 Volts DC±10%
Output:	CMOS, 50pF/10 TTL loads
Ageing:	±3pm max in first year
Symmetry:	45%/55%
Operating Temperature Range:	-55° to +125°C
Storage Temperature Range:	-55° to +125°C
Construction:	Ceramic substrate, resistance welded can.

* Frequency stability is inclusive of frequency adjustment at 25°C and any variations due to load change, ageing, supply voltage change (±10%) and variations attributable to shock and vibration, (*see Qualification Approval and Environmental Specification.*)

CURRENT CONSUMPTION /RISE & FALL TIMES

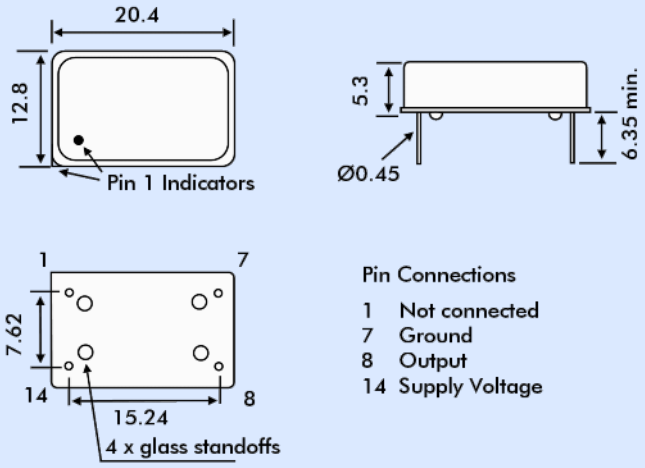
Frequency Range	Supply Current (mA max.)	Rise/Fall Time (ns max.)
30kHz ~ 1.0MHz	10	10
1.0MHz ~ 4.0MHz	15	10
4.0MHz ~ 20MHz	20	10
20MHz ~ 35MHz	35	10
35MHz ~ 50MHz	40	5
50MHz ~ 65MHz	70	5

MIL SCREENING

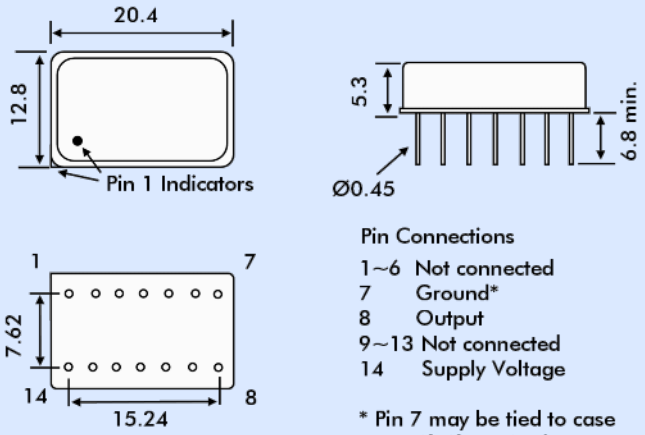
EQXO-1000BM series oscillators may be ordered screened i.a.w. the schedules detailed in 'Qualification Approval and Environmental Specification' detailed on page 2 of this specification.

OUTLINE & DIMENSIONS

EQXO-1000 Series



EQXO-3000 Series



MODEL NUMBERS

Model Number	Calibration Tolerance at 25°C	Frequency Stability -55° to +125°C	Radiation Tolerant	No. of Pins
EQXO-1050BM	±10ppm	±50ppm	No	4
EQXO-1100BM	±25ppm	±100ppm	No	4
EQXO-1050BMH	±10ppm	±50ppm	Yes	4
EQXO-1100BMH	±25ppm	±100ppm	Yes	4
EQXO-3050BM	±10ppm	±50ppm	No	14
EQXO-3100BM	±25ppm	±100ppm	No	14
EQXO-3050BMH	±10ppm	±50ppm	Yes	14
EQXO-3100BMH	±25ppm	±100ppm	Yes	14

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STANDARD FREQUENCIES & SPECIFICATIONS

(EQXO-1000BM series parts)

Stock Number	Frequency	Specification
OK00032A	32.7680kHz	±100ppm -55~+125°C
OK00080A	80.0000kHz	±100ppm -55~+125°C
OK00100A	100.000kHz	±100ppm -55~+125°C
OK00307A	307.200kHz	±100ppm -55~+125°C
OK00500A	500.000kHz	±100ppm -55~+125°C
OK01000A	1.00000MHz	±100ppm -55~+125°C
OK01228A	1.22880MHz	±100ppm -55~+125°C
OK03686A	3.68640MHz	±100ppm -55~+125°C
OK04915A	4.91520MHz	±100ppm -55~+125°C
OK06000A	6.00000MHz	±100ppm -55~+125°C
OK06400A	6.40000MHz	±100ppm -55~+125°C
OK08000A	8.00000MHz	±100ppm -55~+125°C
OK09216A	9.21600MHz	±100ppm -55~+125°C
OK10000A	10.0000MHz	±100ppm -55~+125°C
OK12000A	12.0000MHz	±100ppm -55~+125°C
OK14745A	14.7456MHz	±100ppm -55~+125°C
OK15375A	15.3750MHz	±100ppm -55~+125°C
OK16000A	16.0000MHz	±100ppm -55~+125°C
OK18000A	18.0000MHz	±100ppm -55~+125°C
OK20000A	20.0000MHz	±100ppm -55~+125°C
OK24000A	24.0000MHz	±100ppm -55~+125°C
OM025A00	25.0000MHz	±100ppm -55~+125°C
OM030A00	30.0000MHz	±100ppm -55~+125°C
OM032A00	32.0000MHz	±100ppm -55~+125°C
OM033A33	33.3330MHz	±100ppm -55~+125°C
OM040A00	40.0000MHz	±100ppm -55~+125°C
OM050Z00	50.0000MHz	±100ppm -55~+125°C
OM064Z00	64.0000MHz	±100ppm -55~+125°C

QUALIFICATION APPROVAL & ENVIRONMENTAL SPECIFICATION

Vibration:	10Hz to 60Hz, 0.75mm displacement, 60Hz to 2000Hz, 98.1m/s² acceleration 30 minutes in each of three mutually-perpendicular planes.
Shock:	981 m/s² for 6ms, three shocks in each direction along three mutually-perpendicular planes.
Thermal Shock:	MIL-STD-202 Method 107
Storage Temperature:	-55°C for 24 hrs., then +150°C, 24 hrs.
Moisture Resistance:	85% Relative Humidity at 85°C for 24hrs.
Seal:	Fine leak not to exceed $1x10^{-8}$mB litres of helium leakage, then Gross Leak Test.
Terminal Strength:	MIL-STD-202 Method 211
Solerability:	MIL-STD-202 Method 208

SCREENING

Screening in accordance with MIL-O-55310C Class B.
All devices are 100% tested to the following conditions:

Stabilization Bake:	Vacuum storage at 150°C for 24 hrs.
Temperature Cycling:	-55°C to +125°C, 10 cycles
Constant Acceleration:	49000m/s² for 1 minute inY1 plane.
Seal:	Fine leak not to exceed $1x10^{-8}$mB litres of helium leakage, then Gross Leak Test.
Dynamic Burn-in:	125°C for 168hrs.
Electrical Test:	Frequency, output waveform, output Voltage/power, input current/power.

RADIATION TOLERANT VERSIONS

Radiation tolerant versions of EQXO-1000BM series oscillators have been designed and are manufactured to ensure no functional failures will occur in any electrical test for a total radiation dose of 40krad(Si). EQXO-1000BM series oscillators so manufactured have the letter 'H' appended to the 'BM' in the part number suffix:

20.000MHz EQXO-1100BMH

A paper is available describing the general problems encountered in the design of electrical systems needing to withstand radiation encountered in the upper atmosphere and space.

PART NUMBER GENERATION

Frequency / Model Number / Plating* / Screening (*if required*)

Example: **10.000MHz EQXO-1100BMH Screened**

*Note: Lead and base plating is gold flashed over nickel as standard. If nickel plating only is required enter / - nickel / in this position.

N.B. Contains 0.024g Pb

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