

ISSUE 3; July 2024

### Description

- LVPECL output crystal oscillator using a high frequency fundamental crystal to give very low jitter. Hermetically sealed ceramic package with a seam sealed metal lid.
- Developed Frequencies: 25.0MHz, 27.0MHz, 100.0MHz, 125.0MHz and 156.250MHz
- Note: Operating temperature ranges -40 to 105°C and -40 to 125°C are intended for industrial use and not for safety critical applications such as automotive. Please contact IQD for alternative options.



### Frequency Parameters

- Frequency 13.5MHz to 156.25MHz
- Frequency Stability  $\pm 25.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Ageing  $\pm 3\text{ppm}$  max per year @ 25°C

### Electrical Parameters

- Supply Voltage 2.5V  $\pm 5\%$

### Operating Temperature Ranges

- -10 to 70°C
- -40 to 85°C
- -40 to 105°C
- -40 to 125°C

### Output Details

- Output Compatibility LVPECL
- Drive Capability 50Ω terminated to  $V_s - 2.0V$
- Output Voltage Levels:  
Output Low (VOL): 1.095V max  
Output High (VOH): 1.475V min

### Output Control

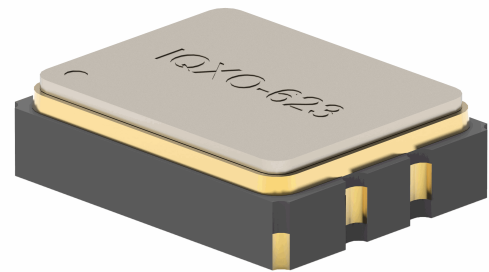
- Standby Operation:  
Logic '1' (70%  $V_s$  min) to pad 1 enables oscillator output.  
Logic '0' (30%  $V_s$  max) to pad 1 disables oscillator output.  
No connection to pad 1 enables oscillator output due to internal pull-up resistor.
- Standby Current: 10μA max
- Start-up Time: 10ms max

### Noise Parameters

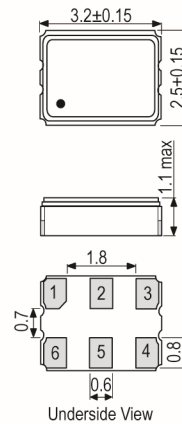
- Phase Jitter (12kHz to 20MHz): 300fs rms max
- Phase Jitter (12kHz to 20MHz):  
@100MHz: 129fs rms typ  
@125MHz: 101fs rms typ  
@156.25MHz: 79fs rms typ

### Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Freq. range: 20~2000Hz, peak to peak amplitude: 1.52mm, peak acceleration: 20G (196m/s<sup>2</sup>), 3 direction(X, Y,Z), each cycle: 20min, 4 cycles for each direction.



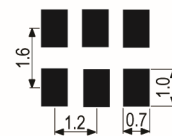
### Outline (mm)



Pad Connections

1. Standby Operation
2. N/C
3. GND
4. Output +
5. Output -
6. +Vs

### Solder Pad Layout



### Sales Office Contact Details:

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### Manufacturing Details

- RoHS Terminations                      Au over Ni
- RoHS Reflow                                260°C max for 10sec mac

### Ordering Information

- \*Minimum info required
  - Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
- Example
  - 156.25MHz IQXO-623
  - LVPECL ±50ppm -40 to 85C 2.5V

### Compliance

- RoHS Status (2015/863/EU)            Compliant
- REACH Status                              Compliant
- MSL Rating (JDEC-STD-033):        Not Applicable

### Packaging Details

- Tape & reel in accordance with EIA-481
  - Quantities below the standard reel size to be supplied on cut ta
  - Standard Pack Quantity: 3,000

### Electrical Specification - maximum limiting values 2.5V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability Min	Current Draw	Rise and Fall Time (20-80%)	Duty Cycle
		°C	ppm	mA	ns	%
13.5MHz	99.999999MHz	-10 to 70	±25.0	50	1	45/55%
		-40 to 85	±30.0	50	1	45/55%
		-40 to 105	±50.0	50	1	45/55%
		-40 to 125	±70.0	50	1	45/55%
100.0MHz	156.25MHz	-10 to 70	±25.0	50	0.5	45/55%
		-40 to 85	±30.0	50	0.5	45/55%
		-40 to 105	±50.0	50	0.5	45/55%
		-40 to 125	±70.0	50	0.5	45/55%

*This document was correct at the time of printing; please contact your local sales office for the latest version.*  
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