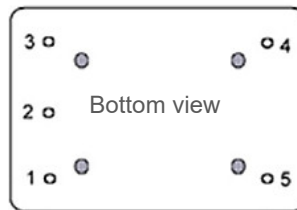
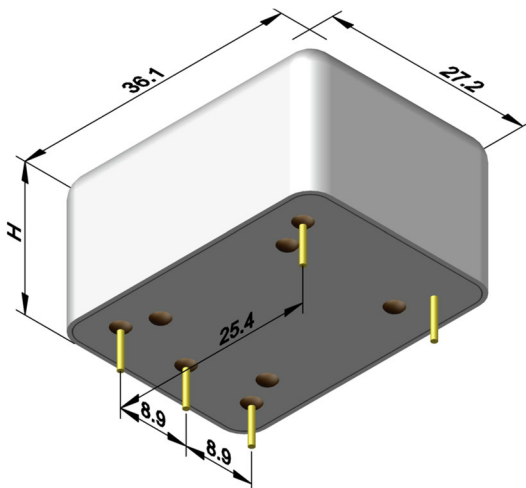


QL701

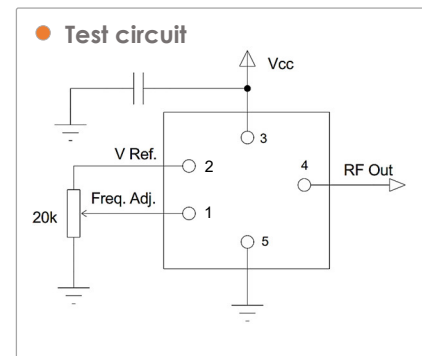
The QL701 is a high stability oven controlled oscillator driven by an SC-cut crystal with excellent phase noise and short term stability in a hermetically sealed 36.1 x 27.2 x 15mm package. This product can be configured to any frequency between 5-100MHz. All our products are designed and manufactured in the UK by Quartzlock.

KEY FEATURES

- 10MHz output
- Low phase noise
- Excellent short term stability
- Single +5 to +15V supply
- $<2 \times 10^{-10}$ aging per day
- Temp stability down to 1ppb (-20 to +70°C)
- Extended Temp range up to 125°C
- Sine wave or HCMOS/TTL



Pin	Function
1	Freq. adjustment
2	Voltage Ref.
3	Voltage supply
4	RF output
5	Ground & Case



STANDARD MODELS

The table below shows the most common models; in most cases selecting one of these will ensure best combination of price, performance and availability.

Product Code	Frequency	Daily aging	Temp stability
QL701/DPEW-N-AX12	10MHz (sine)	$\leq 5 \times 10^{-10}$	$\leq 10\text{ppb } -20 \text{ to } +70^\circ\text{C}$
QL701/DREW-N-AX12	10MHz (sine)	$\leq 5 \times 10^{-10}$	$\leq 5\text{ppb } -20 \text{ to } +70^\circ\text{C}$
QL701/DPEW-Q-AX12	10MHz (HCMOS)	$\leq 5 \times 10^{-10}$	$\leq 10\text{ppb } -20 \text{ to } +70^\circ\text{C}$
QL701/DREW-Q-AX12	10MHz (HCMOS)	$\leq 5 \times 10^{-10}$	$\leq 5\text{ppb } -20 \text{ to } +70^\circ\text{C}$

Electrical Specifications

Frequency	10MHz Available 5, 10.23, 12, 12.8, 13, 16.384, 20MHz up to 30MHz				
Aging per day (Typical)	<0.5ppb (Aging after 30 days of continuous operation) See options				
Aging per year	<30ppb				
Frequency stability vs Voltage supply	<1ppb per 10% change in V_{DD}				
Short term stability (Allan Deviation)	<2 x 10 ⁻¹² ($\tau = 1$ Sec.) Standard				
	<8 x 10 ⁻¹³ ($\tau = 1$ Sec.) Optional				
	<5 x 10 ⁻¹³ ($\tau = 1$ Sec.) Optional				
Storage temperature	-55 to +150				
Typical frequency stability Vs temperature	<10ppb over -20 to +70°C (see more options on page 3)				
Output waveform	Sine wave >+8dBm (+13dBm max) into 50 Ω (AC coupled) HCMOS, <0.5V to >4V level (10K Ω /15pF), 45-55% Duty cycle				
Frequency adjustment (Typical)	Positive Tuning Slop >4 x 10 ⁻⁷ over 0 to +8V (or specify) Sufficient for >10 years of aging >50K trim input impedance				
Voltage reference output (Typical)	8V for +12V supply, 4.5 for +5V supply. (See Note 1)				
Supply voltage (V_{DD})	+12 ($\pm 5\%$)				
Power consumption	4.5W at warm-up <1.2W at steady state at 20°C				
Warm-up time from +25°C	≤ 2 after 10 mins				
Phase Noise (10MHz) dBc/Hz	Option A	Option B	Option C	Option D	Option E
1Hz	<-100	<-110	<-115	<-118	<-105
10Hz	-130	-135	-140	-140	-130
100Hz	-148	-150	-152	-152	-150
1KHz	-155	-155	-155	-155	-162
10KHz	-160	-160	-160	-160	-170
100KHz	-160	-160	-160	-160	-170
Harmonics distortion	<-30dBc				
Spurious	<-90dBc				
Shock	Per MIL-STD-202, IE68-2-27 Test Ea 50G for 11ms				
Vibration	Per MIL-STD-202, IE68-2-06 Test Fc 10-55Hz, 1.5mm 55-500Hz, 10G				
Humidity	Per MIL-STD-202, 100%rh				
Seal	Per MIL-STD-202, hermetic, washable				

Note 1: Voltage reference can be configured to any voltage, and must be less than supply/operating voltage.

Notes 2: Stresses beyond the ratings provided may cause permanent damage to the device. Exposure to conditions outside of the recommended operating conditions listed above may adversely impact the device resulting in failures not covered by the warranty.

Create a Part Number

QL701 / X X XX - X - X X X - 10MHz

Daily Aging	
5x10 ⁻¹⁰	D
2x10 ⁻¹⁰	E
1x10 ⁻¹⁰	G

Temp. Stability	
±10ppb	P
±5ppb	R
±1ppb	S
±0.5ppb	T

Temperature code table			
-40	A	+25	N
-35	B	+30	O
-30	C	+35	P
-25	D	+40	Q
-20	E	+45	R
-15	F	+50	S
-10	G	+55	T
-5	H	+60	U
0	I	+65	V
+5	J	+70	W
+10	K	+75	X
+15	L	+80	Y
+20	M	+85	Z

Available up to 125°C

Supply Voltage	
+5V	05
+9V	09
+12	12
+15V	15

Case Height	
15	L
19	X

Phase Noise	
Option	A
Option	B
Option	C
Option	D
Option	E

Waveform	
Sine	N
HCMOS	Q

How to specify Temperature Code

First code	Lowest temperature A= - 40°C
Second code	Highest temperature Z= +85°C
Example	EW -20 °C to +70 °C

Soldering guidelines

The unit should be mounted on the circuit board after any cleaning and drying process. Hand soldering is recommended with tip temperature of 370°C for 7 seconds and 430°C for 5 seconds maximum. Care must be taken to avoid any excessive bending or stress on the mounting pins. This can cause failure of the glass seals in the base. This product is not suitable for immersion in cleaning fluids and should not undergo any ultrasonic cleaning process.

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