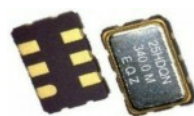


'HDQN' Specification Low Jitter Oscillators 150MHz to 1500MHz
FEATURES

- Low jitter <0.6ps phase jitter
- Wide frequency Range 150MHz to 1500MHz
- Low supply current <38mA at 750MHz
- Supply voltage range 2.5V or 3.3Volts
- Tristate function to conserve power



('536' package displayed)



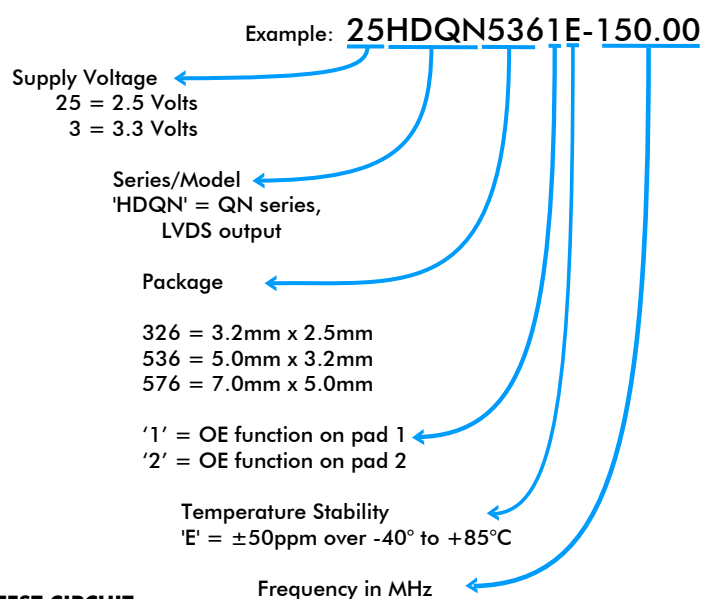
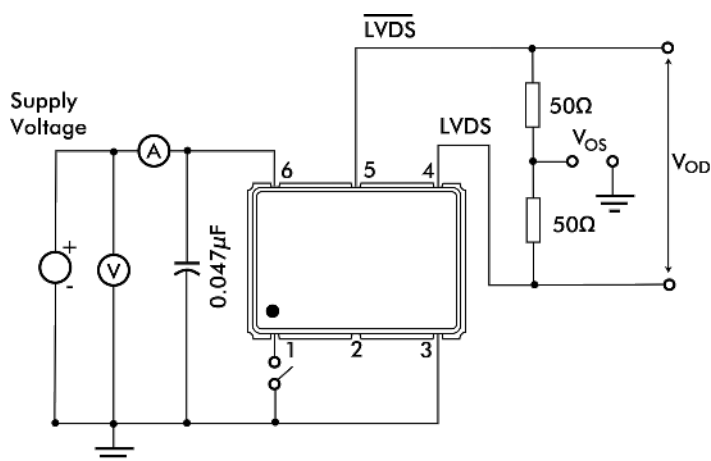
Page 1 of 3

DESCRIPTION

'HDQN' series oscillators have been developed as a precision frequency control component, providing a LVDS output clock oscillator with low current consumption, wide operating frequency range and an integrated phase jitter performance of 0.6ps r.m.s. The part is available in three industry-standard packages, 7 x 5mm SMD, 5 x 3.2mm SMD and 3.2 x 2.5mm SMD.

GENERAL SPECIFICATION

Output Logic Type:	LVDS
Frequency Range:	150MHz to 1500MHz
Load:	Differential
Power Supply Voltage:	2.5±5%VDC or +3.3±10%VDC
Differential Output Voltage:	(V _{DD}) 250mV min., 450mV typical
Frequency Stability:	See Frequency Stability Table
Duty Cycle:	50%±5%
Rise/Fall Time:	0.2ns min., 0.5ns max.
Current Consumption	
150-250MHz:	30mA
251-750MHz:	34mA
751-1,000MHz:	38mA
1,001-1,500MHz:	40mA
Start-up Time:	10ms maximum
Ageing:	±3ppm max., first year, ±2ppm max. Per year thereafter
OE Control on Pad 1	
Enable:	0.7% V _{DD} min., or no connection
Disable:	0.3%V _{DD} max., (high impedance).
Output Enable Time:	200ns max.
Output Disable Time:	50ns max.
Phase Jitter r.m.s.:	0.6ps typical (12kHz to 20MHz)

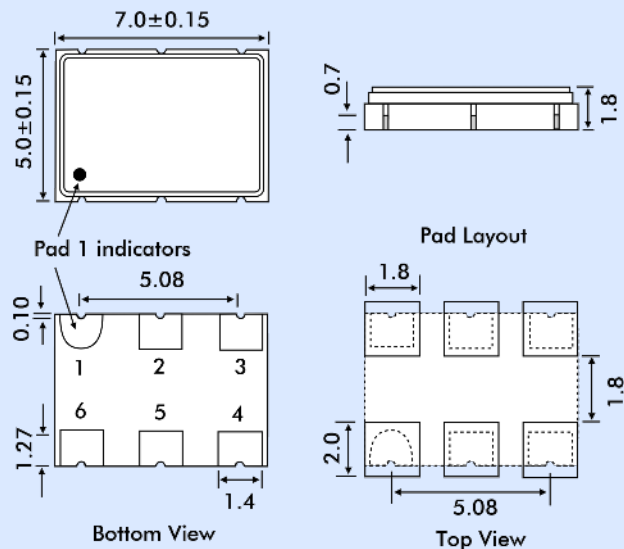
PART NUMBERING

TEST CIRCUIT


Stability ±ppm	Temperature Range °C	Order Code
25	-10 to +70	A
50	-10 to +70	B
100	-10 to +70	C
25	-40 to +85	D
50	-40 to +85	E
100	-40 to +85	F

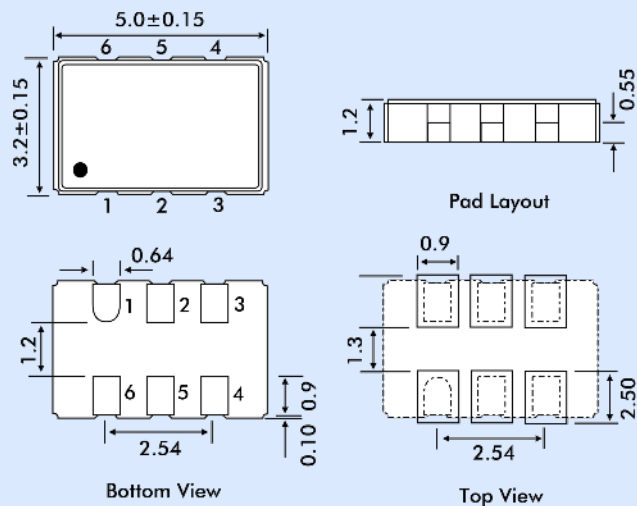
HPQN SERIES PHASE NOISE & PHASE JITTER DATA

SSB Phase Noise Data (dBc/Hz typical)	Frequency (MHz)	156.25	622.08
10Hz offset		-55	-48
100Hz offset		-85	-85
1kHz offset		-109	-101
10kHz offset		-116	-102
100kHz offset		-118	-103
1MHz offset		-139	-124
10MHz offset		-146	-133
Phase Jitter (ps) (12kHz ~ 20MHz. r.m.s.)		0.6	0.6

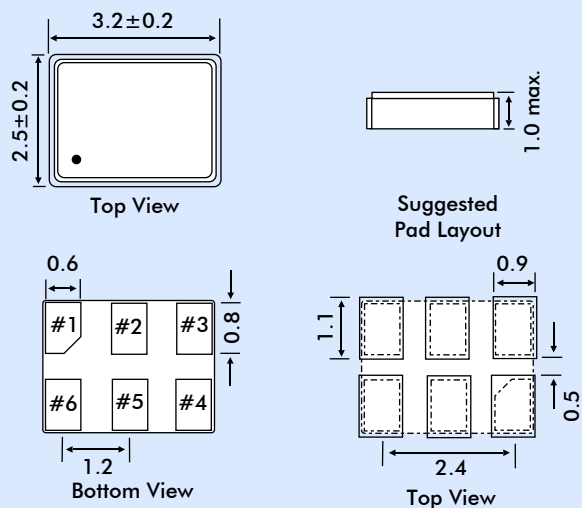
Issue 3

OUTLINE & DIMENSIONS**7.0 x 5.0mm SMD Package****Pad Connections**

- 1 OE High Enable
- 2 No connection
- 3 Ground
- 4 Output
- 5 Output
- 6 Supply Voltage

5.0 x 3.2mm SMD Package**Pad Connections**

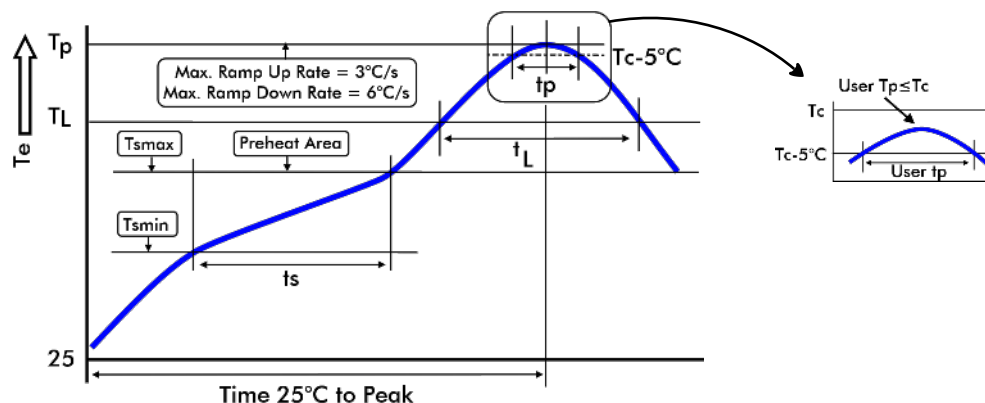
- 1 OE High Enable
- 2 No connection
- 3 Ground
- 4 Output
- 5 Output
- 6 Supply Voltage

3.2 x 2.5mm SMD Package**Pad Connections**

- 1 OE
- 2 No connection
- 3 Ground
- 4 Output
- 5 Complimentary Output
- 6 Supply Voltage

RECOMMENDED SOLDER TEMPERATURE PROFILE

Suggested Reflow Profile



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat/Soak		
- Temperature min. (Ts min.)	100°C	150°C
- Temperature max. (Ts max.)	150°C	200°
- Time (ts) (Ts min. to Ts max.)	60 to 120 seconds	60 to 180 seconds
Ramp-up Rate (Tl to Tp)	3°C/second max.	3°C/second max.
Liquidus temperature (Tl)	183°C	217°C
Time (tL) maintained above Tl	60 to 150 seconds	60 to 150 seconds
Peak package body temperature (Tp)	235°C	260°C
Time (Tp) within 5°C of the classification temperature Tc	10 to 30 seconds	20 to 40 seconds
Ramp-down rate (Tp to Tl)	6°C/second max.	6°C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.