

# QL5 Series

## 3.2x5.0 SMD LVDS Clock Oscillator



### Features

- Miniature 3.2 x 5.0 x 1.3mm package
- Frequency Range 77.000 to 160.000MHz
- Supply voltage range: 2.5 or 3.3 Volts

### Description

QL5 series oscillators provide a high quality LVDS output at frequencies from 77.000 to 160.000MHz. Power supply voltages may be specified as +2.5 Volts or +3.3 Volts.

### General Specifications

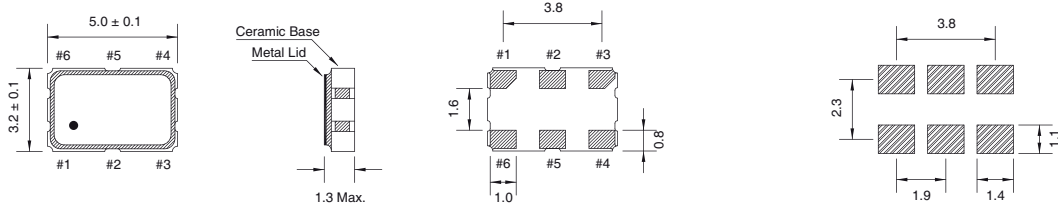
Frequency Range	77.000 to 160.000MHz	
Output Type	LVDS - Complementary Output	
Temperature Stability*	±100ppm max.	
	±50ppm max.	
	±25ppm max.	
Aging per year	±3ppm max.	
Operating Temperature Range	Standard	-20 to +70°C
	Extended	-40 to +85°C
Storage Temperature Range	-55 to +125°C	

\* Frequency stability is inclusive of calibration tolerance at 25°C, frequency change due to shock & vibration, ±10% supply voltage variation and stability over temperature range.

### Electrical Specifications

Supply Voltage	2.5Vdd ±5%	3.3Vdd ±5%
Input Current	77.000 to 100.000MHz	60mA max.
	101.000 to 160.000MHz	65mA max.
Output Voltage	Logic High (Voh)	1.6Vdd min.
	Logic Low (Vol)	0.9Vdd max.
Output Symmetry	45 to 55%	
Output Load (Between Q and QN)	100Ω	
Differential Output Voltage (Vod)	247mV to 454mV	
Offset Voltage (Vos)	1.125V to 1.375V	
Rise and Fall Time	77.000 to 100.000MHz	1ns max.
	101.000 to 160.000MHz	0.5ns max.
Enable-Disable Function	Tri-State	
	INH - Pin 1	Q Pin 4 - QN Pin 5
	High - Pin 1	Operating
	Low - Pin 1	High Impedance
Enable High Input Voltage	1.75Vdd min.	2.31Vdd min.
Output Enable Time	0.75Vdd max.	0.99Vdd max.
Phase Jitter (12KHz to 20MHz)	1ps RMS	

### Mechanical Dimensions



Pin Connection: #1 E/D, #2 N.C., #3 GND, #4 Q, #5 QN, #6 VDC Enable/Disable Function: E/D (#1) Q (#4) & QN (#5), High (Open) Operating, Low High Impedance

### Part Numbering Guide

Qantek Code	Package	Supply Voltage	Frequency Stability	Frequency	Operating Temperature Range	Packaging
Q = Qantek	L5 = 3.2x5.0	25 = 2.5V 33 = 3.3V	A = ±25ppm B = ±50ppm C = ±100ppm	in MHz, always 8 digits including the decimal point (f.ie. 156.25000)	A = -20 to +70°C B = -40 to +85°C	R = Tape&Reel M = Minireel (250 pscs Tape&Reel)

Example: QL533B156.25000BR bold letters = recommended standard specification



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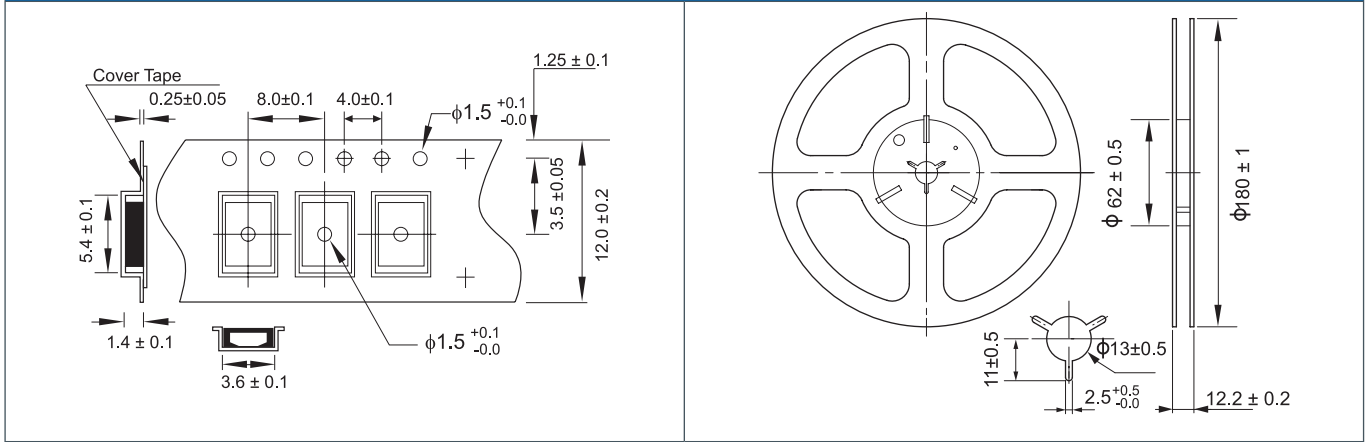
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### Tape and Reel Dimensions



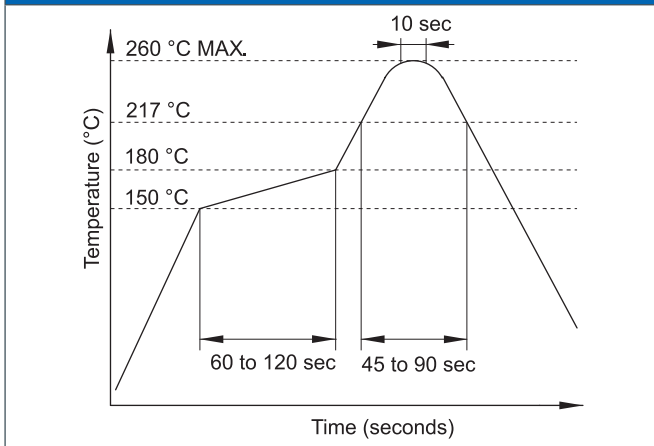
### Marking Code Guide

Contains frequency, Qantek manufacturing Code, production code (month and year), stability, temperature range and voltage indicator.

Month Codes				Year Codes						Stability		Temperature Range		Voltage	
January	A	July	G	2019	9	2020	0	2021	1	ppm	PN Code	°C	PN Code	Volt	PN Code
February	B	August	H	2022	2	2023	3	2024	4	25	A	-20 to +70°C	A	2.5	2
March	C	September	I	2025	5	2026	6	2027	7	50	B	-40 to +85°C	B	3.3	3
April	D	October	J							100	C	custom	S	custom	S
May	E	November	K							custom	S				
June	F	December	L												

Example: First Line: 20.000 (Frequency) Second Line: QA9BB3 (Qantek – January – 2019 – ±50ppm – -40 to +85°C – 3.3V)

### Solder Reflow Profile



### Environmental Specifications

Mechanical Shock	MIL-STD-202, Method 213, C
Vibration	MIL-STD-202, Method 201 & 204
Thermal Cycle	MIL-STD, Method 1010, B
Gross Leak	MIL-STD-202, Method 112
Fine Leak	MIL-STD-202, Method 112

All specifications are subject to change without notice.



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