

QX7 Series

5x7 SMD HCMOS Clock Oscillator



Features

- Miniature 5.0 x 7.0 x 1.4mm package
- Frequency Range 1.000 to 155.520MHz
- Tristate (Enable/Disable) function as standard
- Supply voltage range: 1.8, 2.5, 3.3 or 5.0 Volts
- High output load version (50pF) available

Description

QX7 oscillators consist of a TTL/HCMOS-compatible hybrid circuit together with a miniature quartz crystal packaged in a low-profile, industry-standard 7 x 5mm ceramic package.

General Specifications

Frequency Range	0.500 to 160.000MHz	
Output Logic	HCMOS	
Temperature Stability*	±100ppm	
	±50ppm	
	±25ppm	
	±20ppm	
Phase Jitter RMS	<1ps typ.	
Aging per year	±5ppm	
Operating Temperature Range	Standard	-20 to +70°C
	Industrial	-40 to +85°C
	Extended	-40 to +105°C
	Automotive	-40 to +125°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		1.8Vdd ± 5%	2.5Vdd ± 5%	3.3Vdd ± 10%	5.0Vdd ± 10%
Input Current	0.500 to 32.000MHz	7mA	8mA	7mA	25mA
	32.100 to 50.000MHz	15mA	12mA	12mA	30mA
	50.100 to 70.000MHz	15mA	12mA	25mA	40mA
	70.100 to 80.000MHz	15mA	20mA	25mA	50mA
	80.100 to 125.000MHz	20mA	25mA	30mA	60mA
Output Current		±2mA min.	±4mA min.	±2mA min.	±2mA min.
	Lol/Loh				
Output Voltage	Logic High (Voh)	90% (80% at 1.8) Vdd min.			
	Logic Low (Vol)	10% (20% at 1.8) Vdd max.			
Output Symmetry	Standard	40 to 60%			
	Tight	45 to 55%			
Output Load	15pF max. / 30pF max. / 50pF max.				
Rise and Fall Time	0.500 to 32.000MHz	5ns max.	5ns max.	10ns max.	10ns max.
	32.100 to 50.000MHz	5ns max.	5ns max.	10ns max.	5ns max.
	50.100 to 70.000MHz	4ns max.	4ns max.	6ns max.	5ns max.
	70.100 to 80.000MHz	4ns max.	4ns max.	5ns max.	5ns max.
	80.100 to 125.000MHz	3ns max.	3ns max.	5ns max.	4ns max.
125.100 to 160.000MHz	3ns max.	3ns max.	4ns max.	4ns max.	
Standby Current	10µA max.				
Enable-Disable Function	Tri-State				
Output Disable Time	300ns max.	150ns max.			
Output Enable Time	10ms max.	10ms max.			
Start Up Time	10 ms max.				

Part Numbering Guide

Qantek Code	Package	Supply Voltage	Frequency Stability	Frequency	Operating Temperature Range	Automotive Indicator	Load Capacitance	Tight Symmetry Indicator	Packaging
Q = Qantek	X7 = 5x7	18 = 1.8V 25 = 2.5V 33 = 3.3V 50 = 5.0V	A = ±25ppm B = ±50ppm C = ±100ppm D = ±20ppm	in MHz, always 8 digits including the decimal point (f.i.e. 20.00000)	A = -20 to +70°C B = -40 to +85°C C = -40 to +105°C D = -40 to +125°C	A = AEC-Q200	15 = 15pF 30 = 30pF 50 = 50pF	T = 45/55	R = Tape&Reel M = Minireel (250pcs Tape&Reel)

Example: QX733B20.00000B15R

bold letters = recommended standard specification



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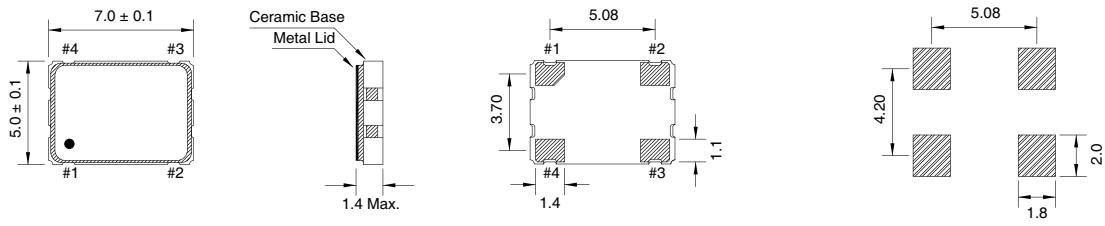
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QX7 Series

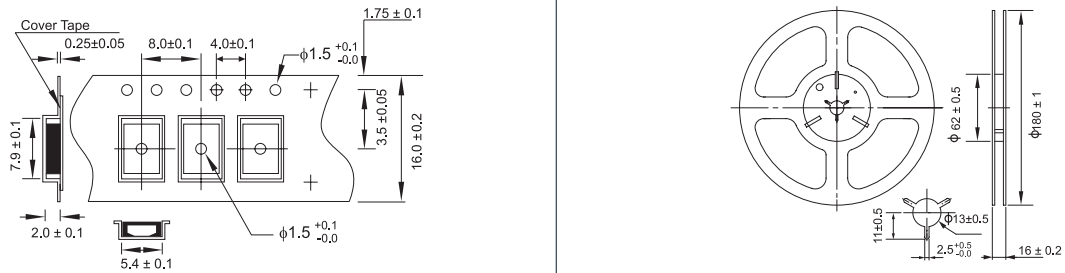
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Mechanical Dimensions



Pin Connection: #1 E/D, #2 GND, #3 Output, #4 VDC Enable/Disable Function: E/D (#1) Output (#3), High (Open) Operating, Low High Impedance

Tape and Reel Dimensions



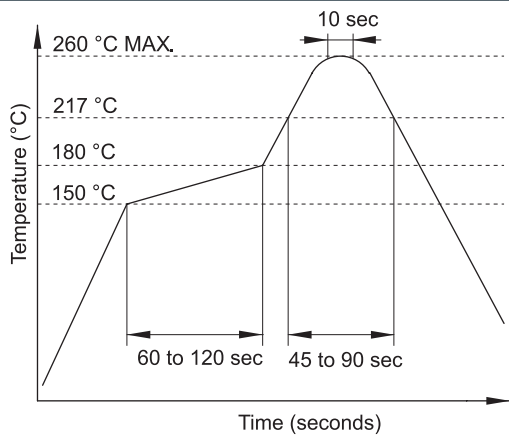
Marking Code Guide

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	20	D	-20 to +70°C	A	1.8	1
March	C	September	I	2025	5	2026	6	2027	7	25	A	-40 to +85°C	B	2.5	2
April	D	October	J							50	B	-40 to +105°C	C	3.3	3
May	E	November	K							100	C	-40 to +125°C	D	5.0	5
June	F	December	L							custom	S	custom	S	custom	S

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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