



### Features

- Miniature 7.0 x 5.0 x 1.4mm package
- Frequency Range 1MHz 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	1.000 to 155.520MHz
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	1.000 to 32.000MHz	7mA	10mA	15mA	25mA
	32.100 to 50.000MHz	15mA	12mA	20mA	40mA
	50.100 to 70.000MHz	15mA	12mA	25mA	60mA
	70.100 to 80.000MHz	-	60mA	40mA	60mA
	80.100 to 125.000MHz	-	60mA	40mA	80mA
	125.100 to 155.520MHz	-	-	40mA	90mA
Output Current	Lol/Loh	±2mA min.	±4mA min.	±2mA min.	±2mA min.
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	1.000 to 32.000MHz	5ns max.	5ns max.	6ns max.	10ns max.
	32.100 to 50.000MHz	3.5ns max.	5ns max.	6ns max.	5ns max.
	50.100 to 70.000MHz	3.5ns max.	5ns max.	6ns max.	5ns max.
	70.100 to 80.000MHz	-	5ns max.	6ns max.	5ns max.
	80.100 to 125.000MHz	-	5ns max.	4ns max.	4ns max.
	125.100 to 155.520MHz	-	-	3ns 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

QT Code	Package	Supply Voltage	Frequency Stability	Frequency	Operating Temperature Range	Automotive Indicator	Load Capacitance	Tight Symmetry Indicator	Packaging
QT = Quarz-technik	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 7 digits including the decimal point (f.i.e. 20.0000)	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) B = Bulk

Example: QTX733B20.0000B15R bold letters = recommended standard specification



Quarztechnik Daun GmbH

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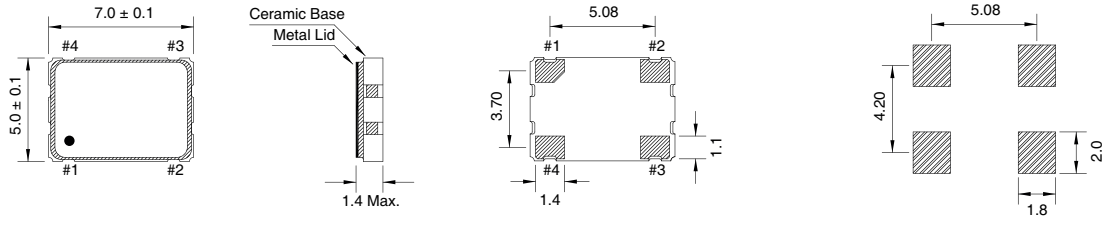
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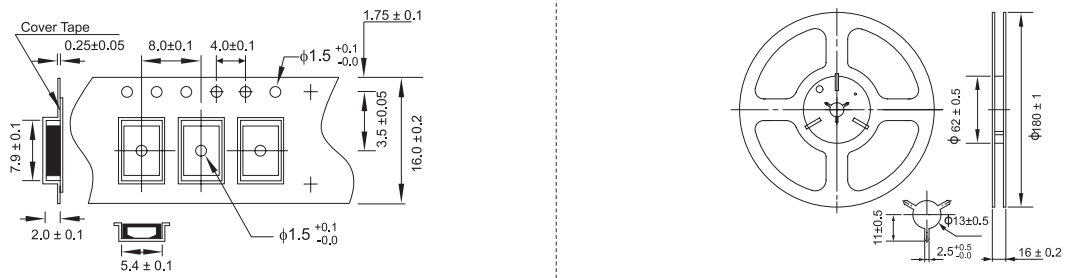


### Mechanical Dimensions



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



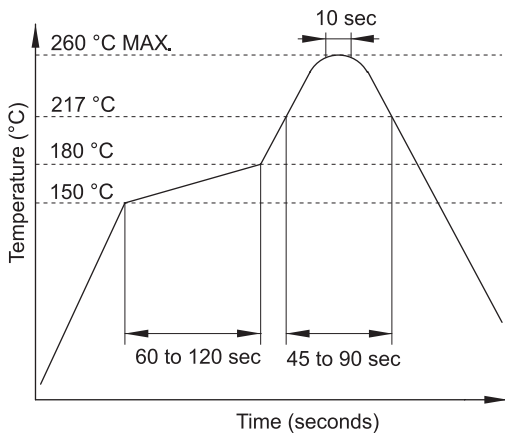
### Marking Code Guide

Contains frequency, Quarztechnik 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	2010	0	2011	1	2012	2	ppm	PN Code	°C	PN Code	Volt	PN Code
February	B	August	H	2013	3	2014	4	2015	5	20	D	-20 to +70°C	A	1.8	1
March	C	September	I	2016	6	2017	7	2018	8	25	A	-40 to +85°C	B	2.5	2
April	D	October	J	2019	9	2020	0	2021	1	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: QA4BB3 (Quarztechnik – January – 2014 – ±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



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