

Temperature Compensated Crystal Oscillator



DIP type TCXO (QTC, QTCE and QTCVC)

QTC/QTCE/QTCVC Series

ROHS Compatible

& Feature:

Wide frequency range to 160.00MHz in 14 pin DIP
 Enable/Disable and voltage control options
 TTL, HCMOS, ACMOS, SINEWAVE, CLIPPED SINEWAVE, ECL, AND PECL

& Electrical Specifications

Item	Type	QTC/QTCE/QTCVC
Frequency range		1.50 mhz to 160.00 mhz (see table 1)
Frequency stability vs operating Temperature		±0.5ppm~5ppm
		A:0-50°C
		B:-10-70°C
		C:-20-70°C
		D:-30-75°C
		E:-40-85°C
Frequency stability vs. Calibration		±2.0 ppm maximum
Frequency stability vs. Aging		±1.0 ppm maximum per year
Storage temperature		-50° C to 125° C
Output waveform		See table 1 for output types
Load		See table 1 for load characteristics
Frequency stability vs. Load variation		±0.2 ppm maximum for ±10% variation from standard load
Supply voltage (vcc)		+5.0 vdc ±5%, +3.3 vdc ±5%
Frequency stability vs. Supply variation		Frequency stability vs. Supply variation
Supply current		Supply current
Supply current		See table 1 for current characteristics
Voltage control function (tv option)		See table 4 for characteristics
Environmental conditions		See table 5

& Output Waveform And Load Characteristics:

Table 1 - output waveform and characteristics, frequency range, and mode of oscillation				
Output waveform	Output code	Frequency range	Mode of oscillation code	Output characteristics
Clipped sinewave	F1	8.00 mhz to 40.00 mhz	F: fundamental	Load: 10 k ohm // 10pf output level: 0.7 v p-p minimum symmetry: 60/40 % to 40/60 % typical
Sinewave	F2	8.00 mhz to 40.00 mhz	F: fundamental	Load: 50 ohms nominal output level: 0 dbm minimum harmonics: -25 dbc maximum spurious: -60 dbc maximum current: 20 ma maximum

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TTL	F3	1.50 mhz to 30.00 mhz 30.00 mhz to 100.00 mhz 40.00 mhz to 160.00 mhz	F: fundamental o: overtone p: phase locked loop (pll)	Load: hcmos to drive 2 ls ttl nominal or 10 ls ttl maximum gates "1" level: +2.4 vdc minimum "0" level: +0.1 vcc maximum symmetry: 40/60 to 60/40% at 1.2 v rise and fall time: 10 ns maximum current: 20 ma maximum (f), 30 ma maximum (o), 45 ma maximum (pll)
CMOS	F4	1.50 mhz to 30.00 mhz 36.00 mhz to 100.00 mhz 40.00 mhz to 160.00 mhz	F: fundamental o: overtone p: phase locked loop (pll)	Load: 2 ls ttl/hcmos nominal or 10 ls ttl/hcmos maximum gates "1" level: +4.5 vdc minimum "0" level: +0.5 vdc maximum symmetry: 40/60 to 60/40% at 50% vcc level rise and fall time: 10 ns maximum jitter: 10 ps peak to peak maximum current: 20 ma maximum (f), 30 ma maximum (o), 45 ma maximum (pll)

& PIN FUNCTION

	Tx	Te	Tv
Pin 1	No Connect	Enable/Disable	V Control
Pin 7	Case/Ground	Case/Ground	Case/Ground
Pin 8	Output	Output	Output
Pin 14	Vcc	Vcc	Vcc

& ENABLE/DISABLE FUNCTION

Enable	+2.0 Vdc Minimum Or No Connect
Disable	+0.4 Vdc Maximum

& VOLTAGE CONTROL FUNCTION

Control Voltage Range	+0.5 To +4.5 Vdc
Nominal Control Voltage	+2.5 Vdc
Frequency Deviation	?0 Ppm Minimum
Linearity	10% Maximum Monotonic
Modulation Bandwidth	10 Khz Minimum For -3 Dbc Point
Input Imperdance	10 K Ohms Minimum
Slope	Positive

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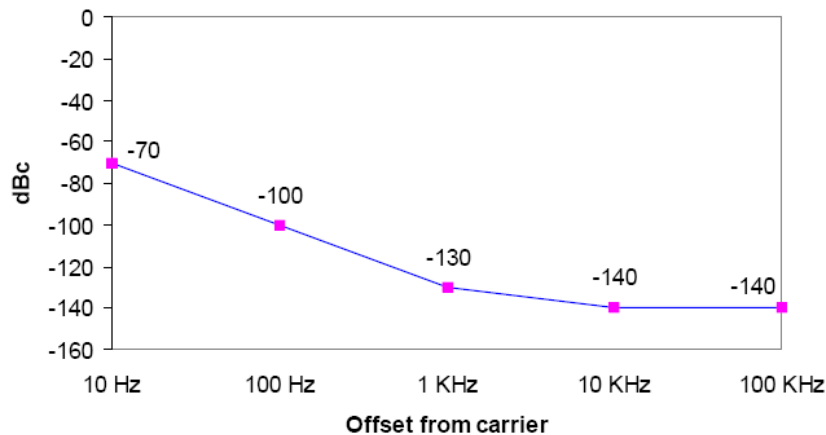


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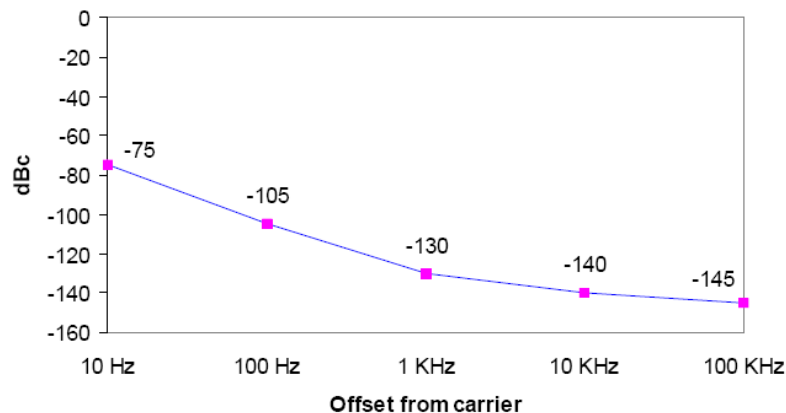
& ENVIRONMENTAL CONDITIONS

Table 5 - Environmental Conditions	
Mechanical Shock	Mil-Std-202f, Test Condition 213, Condition A
Random Vibration	Mil-Std-202f, Test Condition 214, Condition A
Sinusoidal Vibration	Mil-Std-202f, Test Condition 204, Condition A
Hermeticity	$<5 \times 10^{-8}$ Cc Atm/S
Solderability	260°C For 10 S Maximum

PHASE NOISE CHARACTERISTICS FUNDAMENTAL MODE



OVERTONE MODE



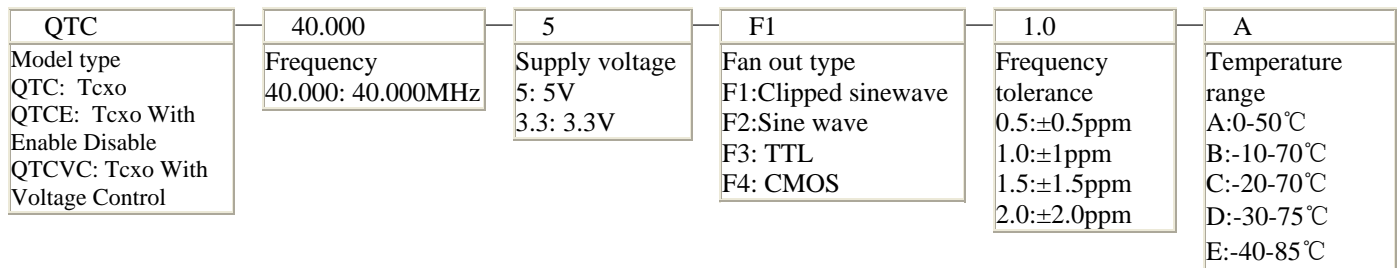
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Part number:

Option1: Tcxo Type	
QTC	Tcxo
QTCE	Tcxo With Enable Disable
QTCVC:	Tcxo With Voltage Control
Option2: Mode Of Reference Oscillation	
F:	Fundamental
O:	Overtone
S:	Phase Locked Loop
Option 3: Output Type	
F1	Clipped Sinewave
F2	Sine wave
F3	TTL
F4	CMOS



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