

XO5160 - XO5164 Series

14 pin DIP, 3.3, 5.0 or 12.0 Volt, HCMOS/TTL/Sinewave, OCXO



- Standard DIP/DIL package offering tight stabilities, fast warm-up, and low current
- Ideal for PCS base stations, cellular base stations, phase locking, and SAR/SAT applications
- SMT Surfboard Option

Ordering Information

Product Series

XO5160 = 5V HCMOS/TTL
XO5161 = 12V HCMOS/TTL
XO5162 = 5V Sinewave
XO5163 = 12V Sinewave
XO5164 = 3.3V HCMOS

Operating Temperature

A = 0°C to +60°C
B = -20°C to +70°C
C = -40°C to +85°C

Frequency Stability

H: ±0.05 ppm (0.10 ppm pk-pk) G: ±0.075 ppm (0.15 ppm pk-pk)
A: ±0.1 ppm (0.20 ppm pk-pk) B: ±0.15 ppm (0.30 ppm pk-pk)
C: ±0.2 ppm (0.40 ppm pk-pk) D: ±0.25 ppm (0.50 ppm pk-pk)
E: ±0.3 ppm (0.60 ppm pk-pk) F: ±0.5 ppm (1.00 ppm pk-pk)

Frequency Adjustment

R1 = Internal voltage with external potentiometer (Fig. 1)
V5 = External voltage with external potentiometer (Fig. 2)

Package Configuration

D: 14 pin DIP
S: Surfboard

RoHS Compliance

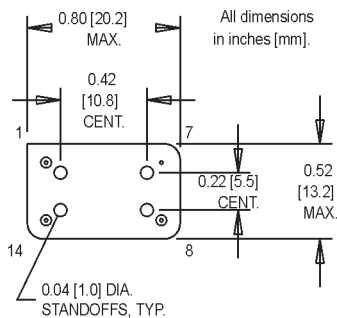
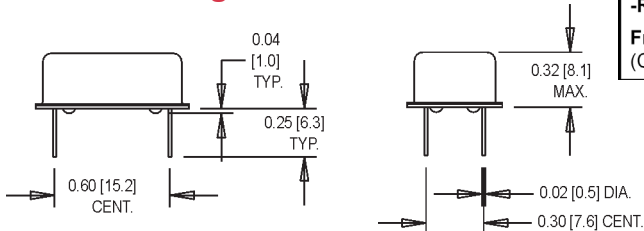
Blank: non RoHS compliant part
-R: RoHS compliant part

Frequency of Operation

(Customer Specified)

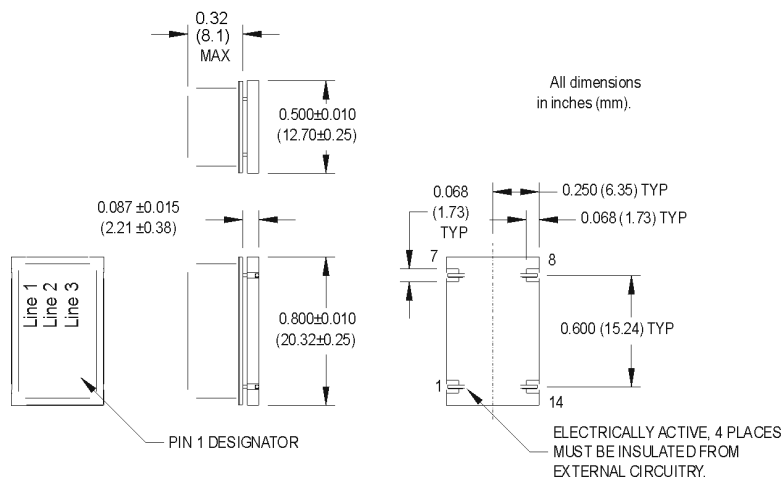
M7003Sxxx, M7006Sxxx, M7007Sxxx, M7008Sxxx
& M7009Sxxx - Contact factory for datasheets.

PTH Package D



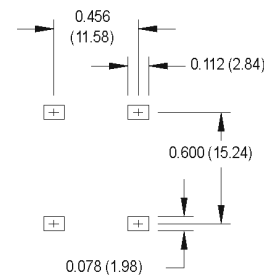
Pin Connections

PIN	FUNCTION
1	Frequency Adjust
7	Case ground & supply return
8	R.F. Output
14	Supply (+)



SMT Package S

SUGGESTED SOLDER PAD LAYOUT



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Revision: 7-7-08

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Electrical Specifications	Parameter		Symbol	Min.	Typ.	Max.	Units	Conditions/Notes	
	Frequency Range		F _O	10.0000		40.0000	MHz		
	Operating Temperature		T _A	-40		+85	°C	See Ordering Information & Table 1	
	Frequency Stability			±0.05		±0.5	ppm	See Ordering Information & Table 1	
	Short-Term Stability					5x10 ⁻¹⁰		Tau = 0.1 to 30 secs.	
	Frequency Vs. Aging					0.7	ppm	First year	
						±4.0	ppm	For 10 years	
	Frequency Vs. Supply					±0.1	ppm	For ±0.2 volt supply variation	
	Frequency Vs. Load					±0.01	ppm		
	Supply Voltage		XO5160	V _{dd}	4.75	5.0	5.25	V	
			XO5161	V _{dd}	11.5	12.0	12.5	V	
			XO5162	V _{dd}	4.75	5.0	5.25	V	
			XO5163	V _{dd}	11.5	12.0	12.5	V	
			XO5164	V _{dd}	3.15	3.3	3.45	V	
	Supply Current		XO5160	I _{dd}			70	mA	At +30°C
			XO5161	I _{dd}			30	mA	At +30°C
			XO5162	I _{dd}			70	mA	At +30°C
			XO5163	I _{dd}			30	mA	At +30°C
			XO5164	I _{dd}			110	mA	At +30°C
	Turn-On Current			I _{to}			250	mA	After 10 secs.
Warm-Up Time						2x10 ⁻⁷		2 min after power up following 4 hour off time – reference to frequency after 1 hour of operation	
Tuning Voltage		XO5160	V _T	0.5		5.0	V		
		XO5161	V _T	0		5.0	V		
		XO5162	V _T	0.5		5.0	V		
		XO5163	V _T	0		5.0	V		
		XO5164	V _T	0		3.3	V		
Frequency Adjustment				±4.0			ppm	Over tuning voltage range	
Output Level				1		2	Vpk-pk	Sinewave 50 Ohm load	
Symmetry			Sym	45/55		55/45	%	Ref. To ½ V _{dd} HCMOS output logic	
Output Load			R _L			15	pF	XO5160, XO5161, XO5164 only	
			R _L			10	LSTTL	XO5160, XO5161, XO5164 only	
			R _L		50		Ohms	XO5162, XO5163 only	
Rise/Fall Time (10% to 90%)			Tr/Tf			7	nS	1-40 MHz (Frequency dependent)	
								HCMOS output logic	
Logic Level “0”			V _{OL}			10% Vdd	V	HCMOS output logic	
Logic Level “1”			V _{OH}	90% Vdd			V	HCMOS output logic	
Phase Noise (Typical) 10 MHz									
1 Hz					-70		dBc/Hz	Offset from carrier	
10 Hz					-100		dBc/Hz	Offset from carrier	
100 Hz					-130		dBc/Hz	Offset from carrier	
1 kHz					-140		dBc/Hz	Offset from carrier	
10 kHz					-145		dBc/Hz	Offset from carrier	
100 kHz					-150		dBc/Hz	Offset from carrier	
Environmental	Vibration		2000 Hz, 10 g						
	Storage Temperature		-55°C to +125°C						
	Hermeticity		Per MIL-STD-202, Method 112						
	Solderability		Per EIAJ-STD-002						
	Max Soldering Conditions		+245°C for 10 secs. Max. (DIP version only)						
	Max Soldering Conditions		+220°C for 10 secs. Max. (SMT version only)						

XO5160-XO5162: TTL Load – see load circuit diagram #1. HCMOS Load – see load circuit diagram #2.

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