

XO5160 - XO5164 Series

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



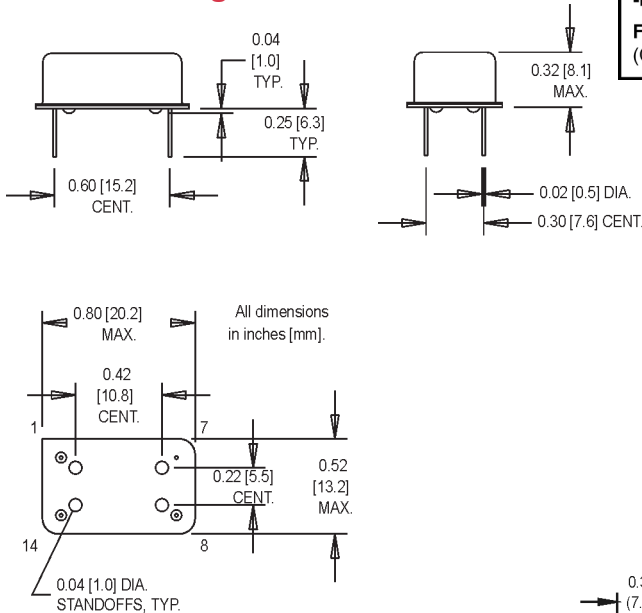
- Standard DIP/DIL package offering tight stabilities, fast warm-up, and low current
- Ideal for PCS base stations, cellular base stations, phase locking, and SAR/SAT applications
- SMT Surfboard Option

Ordering Information

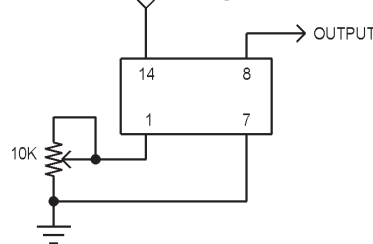
Product Series	XO51xx	A	C	V5	D	-R	00-0000 MHz
XO5160 = 5V HCMOS/TTL							
XO5161 = 12V HCMOS/TTL							
XO5162 = 5V Sinewave							
XO5163 = 12V Sinewave							
XO5164 = 3.3V HCMOS							
Operating Temperature							
A = 0°C to +60°C							
B = -20°C to +70°C							
C = -40°C to +85°C							
Frequency Stability							
H: ±0.05 ppm							
A: ±0.1 ppm							
C: ±0.2 ppm							
E: ±0.3 ppm							
G: ±0.075 ppm							
B: ±0.15 ppm							
D: ±0.25 ppm							
F: ±0.5 ppm							
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.

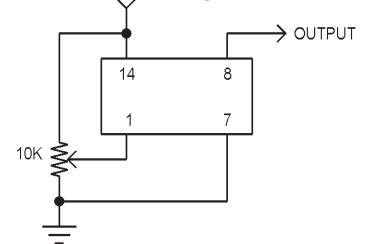
PTH Package D



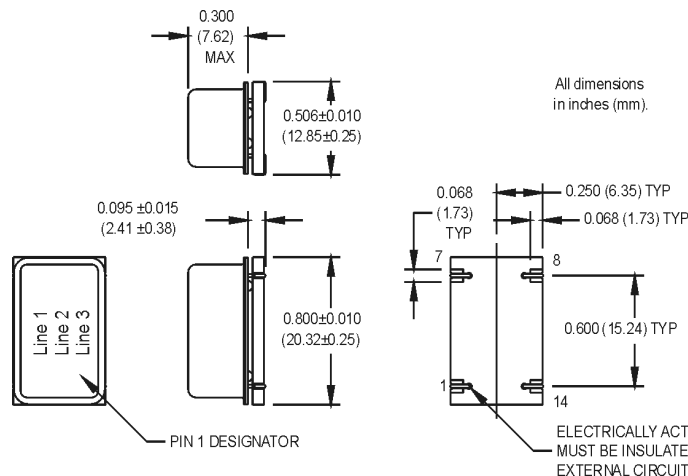
+3.3V, 5V or 12V Figure 1



+3.3V, 5V or 12V Figure 2



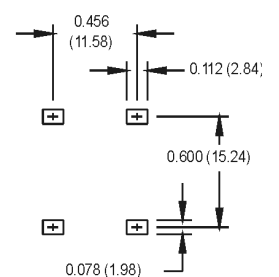
SMT Package S



Pin Connections

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

SUGGESTED SOLDER PAD LAYOUT



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	Electrical Specifications						Conditions/Notes
	Parameter	Symbol	Min.	Typ.	Max.	Units	
	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}			25	mA	At +30°C
		XO5162 I _{dd}			70	mA	At +30°C
		XO5163 I _{dd}			25	mA	At +30°C
		XO5164 I _{dd}			100	mA	At +30°C
	Turn-On Current	I _{to}			250	mA	After 10 secs.
	Warm-Up Time				1x10 ⁻⁷		In 45 secs. After 1 hr of "on" time
	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	V _{pk-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		10	nS	1-40 MHz (Frequency dependent) HCMOS output logic
	Logic Level "0"	V _{OL}			0.4	V	HCMOS output logic
	Logic Level "1"	V _{OH}	V _{dd} -0.5			V	HCMOS output logic
	Phase Noise (Typical) 10 MHz						BW = 1 kHz
	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.

XO5163: Sinewave Load – see load circuit diagram #8.

XO5164: HCMOS Load - see load circuit diagram #2.

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