

Helping Customers Innovate, Improve & Grow



VX-500

Features

- 9x14 J-Leaded Surface Mount Package
- AC MOS, TTL and LVPECL
- Military Temperature Range Option
- Frequency Range: 1 MHz to 800 MHz
- ECCN: EAR99
- COO: USA
- Previous Model: C5300, MC044, MC344, MC046, MC346, MC047, MC347, MC049, MC349, MC048, MC318, MC328, and MC348

Applications

- Mobile Data Communications
- Military Portable Radio
- Satellite Communications
- Airborne Equipment
- Avionics
- Marine/Land Seismic

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Frequency Stabilities¹					
vs. operating temperature range (absolute pull range)					0...70°C -40...+85°C -55...+125°C
vs. supply voltage change	-2		+2	ppm	Vs ± 5%
vs. load change	-1		+1	ppm	Load ± 5%
vs aging / 1 year	-5	±3	+5	ppm	
vs aging / year (following years)	-1		+1	ppm	
Supply Voltage (Vs)					
Supply voltage	4.75	5.0	5.25	VDC	
Current consumption			15 20 40 100	mA mA mA mA	AC MOS/TTL 1 to 23.9 MHz AC MOS/TTL 24 to 49.9 MHz AC MOS/TTL 50 to 80.0 MHz LVPECL No load
Supply voltage	3.135	3.3	3.465	VDC	
Current consumption			6 8 12 16 60 100	mA mA mA mA mA mA	AC MOS 1.0 to 14.90 MHz AC MOS 15.0 TO 39.9 MHz AC MOS 40.0 TO 59.9 MHz AC MOS 60.0 TO 79.9 MHz AC MOS 80.0 to 125.0 MHz LVPECL No load

Performance Specifications

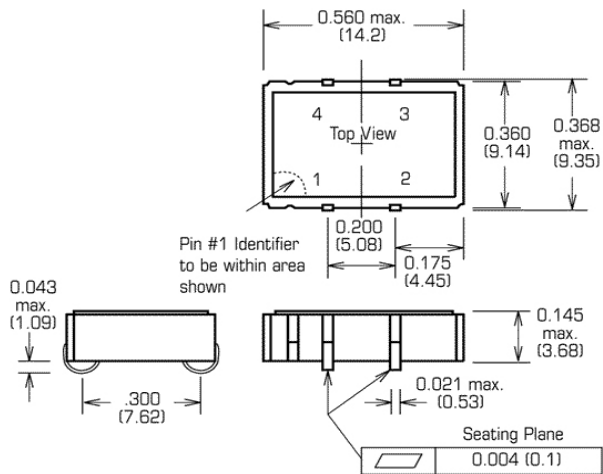
Parameter	Min	Typ	Max	Units	Condition
RF Output					
Signal	ACMOS				
Load		15	50	pF	
Signal Level (Vol)			0.5 0.3	VDC VDC	V _s = 5.0V and 15pF load V _s = 3.3V and 15pF load
Signal Level (Voh)	4.5 3.0			VDC VDC	V _s = 5.0V and 15pF load V _s = 3.3V and 15pF load
Rise and fall times for ACMOS (measured 10% to 90%)			10 5 3	ns ns ns	1.0 to 23.9 MHz 24.0 to 79.7 MHz 80.0 to 125.0 MHz
Duty cycle	45 40		55 60	% %	@ 50% < 15 MHz @ 50% >= 15 MHz
Signal	TTL				
Load			10	pF	
Signal Level (Vol)			0.5	VDC	
Signal Level (Voh)	+4.5			VDC	
Rise and fall times for TTL (measured 0.8V to 2.0V)			5 3	ns ns	1.0 to 23.9 MHz 24.0 to 125.0 MHz
Duty cycle	45 40		55 60	% %	@ 1.4V < 15 MHz @ 1.4V >= 15 MHz
Signal	PECL/LVPECL				
Load			50	ohm	Into V _s -2V or There in Equivalent
Signal Level (Vol)			V _s -1.62	VDC	
Signal Level (Voh)	V _s -1.025			VDC	
Rise and fall times (measured 20% to 80%)			1000 600	ps ps	<100 MHz >100 MHz
Start-up Time			10	ms	
Duty cycle (LVPECL)	45 40		55 60	% %	@ 50% V _{dd} @ 50% V _{dd}
Jitter (rms)			5 1	ps ps	BW = 10Hz to 20 MHz BW = 12 kHz to 20 MHz
Period Jitter (pk-pk)			40	ps	10,000 samples- Rising edge
Frequency Tuning (EFC)					
Absolute Pull Range		±30 ±50		ppm ppm	
Linearity		10	15	%	
Tuning Slope	Positive				
Control Voltage Range	0.5 0.3	2.5 1.65	4.5 3.0	VDC VDC	with V _s =5.0VDC with V _s =3.3VDC
Additional Parameters					
Phase Noise ³ (@ 52 MHz)			-60 -90 -120 -140 -145	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Phase Noise ³ (@ 155.52 MHz)			-50	dBc/Hz	10 Hz
			-80	dBc/Hz	100 Hz
			-110	dBc/Hz	1 kHz
			-133	dBc/Hz	10 KHz
			-145	dBc/Hz	100 KHz
Screening	Vectron Verification or Class B Screening I/A/W MIL-PRF55310				
Standard Environmentals					
Vibration	MIL-STD-202,Method 204, Condition G (30G, 10Hz-2000Hz)				
Shock	MIL-STD-202, Method 213, Condition I (100G. 6ms, Sawtooth)				
Acceleration	MIL-STD-883, Method 2001, Condition A (5000G, Y1 Plane)				
Temperature Cycling	MIL-STD-883, Method 1010, Condition B				
Thermal Shock	MIL-STD-883, Method 107, Condition B				
Solderability	MIL-STD-202, Method 208				
Leak Test (Fine and Gross)	MIL-STD-883, Method 1014, Condition A1 and C1				
Weight			<2.0	g	
Processing & Packing					Handling & processing note
Output Enable ⁶	Logic “0” input = Outputs disabled (Tri-state) Logic “1” or fl oating input = Outputs enabled)				ACMOS/TTL Output PECL/LVPECL Output
	Logic “0” or fl oating input = Outputs enabled Logic “1” input = Outputs disabled (Tri-state)				PECL/LVPECL Output
Absolute Maximum Ratings					
Supply voltage (Vs)			7.0	V	with Vs=5.0 and 3.3 VDC
Operable temperature range	-55		+125	°C	
Storage temperature range	-55		+125	°C	

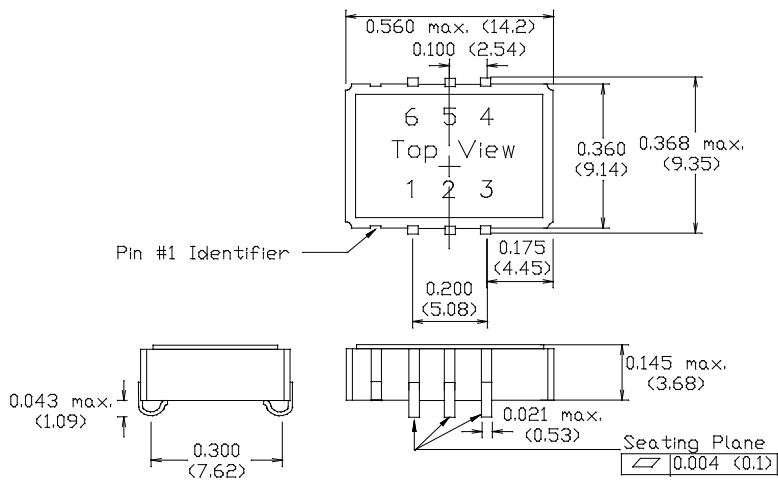
Outline Drawing / Enclosure

Dimensions: Inches (mm)



Type A (ACMOS/TTL)		
Code	Height "H"	Pin Length
0	3.68	1.09

Pin Connections	
1	VCXO input
2	Ground (Case)
3	RF Output
4	Supply



Type B (ACMOS/TTL)		
Code	Height "H"	Stand-off
1	3.68	1.09

Pin Connections	
1	VCXO input
2	Enable/Disable or N/C
3	Ground (Case)
4	RF Output
5	N/C
6	Supply Voltage

Type B (PECL/LVPECL)		
Code	Height "H"	Stand-off
1	3.68	1.09

Pin Connections	
1	VCXO input
2	Enable/Disable or N/C
3	Ground (Case)
4	RF Output
5	Complementary Output
6	Supply Voltage

Ordering Information

VX - 500 0 - D A T - K X X X - 10M0000000

Product Family
VX: VCXO

Package
9 x 14 mm

Enclosure
0: 4 pin gold plated
1: 6 pin gold plated
2: 4 pin with solder coated leads
3: 6 pin with solder coated leads

Supply Voltage
D: 5 Vdc
E: 3.3 Vdc

RF Output Code
A: AC MOS
B: TTL
C: PECL/LVPECL

Temperature Range
E: -40... +85°C
T: 0... +70°C

Frequency

Option Code
X: No Option

Screening Option
B: MIL-PRF-55310 "B" Level
X: No Screening

Enable
A: Enable Hi, Tristate
C: Enable Lo, Tristate (PECL/LVPECL only)
X: No Enable

Pullability Code
G: ±30ppm
K: ±50ppm

Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.
6. Output enable option only available for type B (6-leads) device.

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