VX-507

Voltage Controlled Crystal Oscillator

Features

- 9x14 J-Leaded Surface Mount Package
- ACMOS, TTL and LVPECL
- 4 point crystal mount for Harsh Environment Applications
- Shock and Vibration Resisance
- Military Temperature Range Option
- Frequency Range: 1 MHZ to 800 MHZ
- ECCN: EAR99
- COO: USA

Applications

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

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Frequency Stabilities[1]					
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	ACMOS/TTL 1 to 23.9 MHz ACMOS/TTL 24 to 49.9 MHz ACMOS/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	ACMOS 1.0 to 14.90 MHz ACMOS 15.0 TO 39.9 MHz ACMOS 40.0 TO 59.9 MHz ACMOS 60.0 TO 79.9 MHz ACMOS 80.0 to 125.0 MHz LVPECL No load

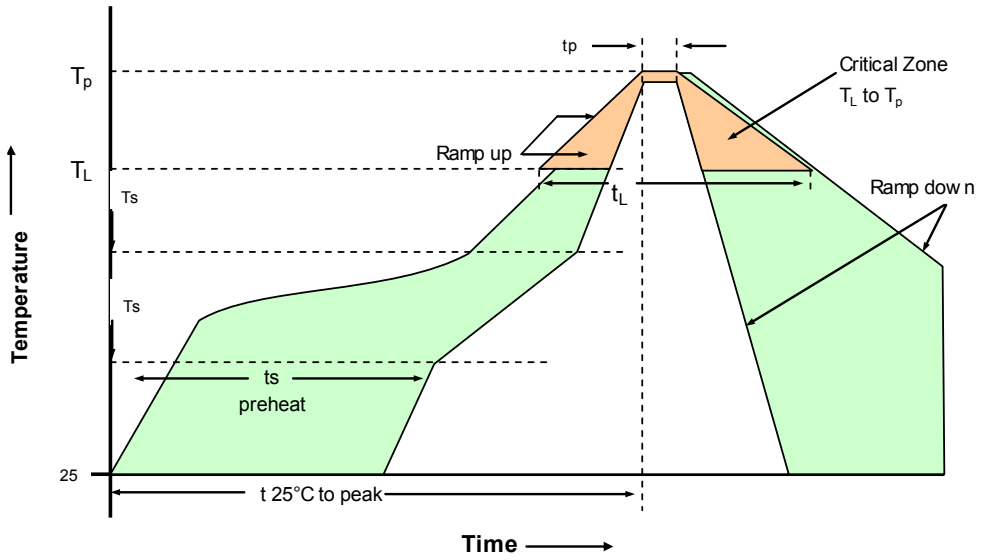
Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
RF Output					
Signal	ACMOS				
Load		15	50	pF	
Signal Level (Vol)			0.5 0.3	VDC VDC	Vs= 5.0V and 15pF load Vs= 3.3V and 15pF load
Signal Level (Voh	4.5 3.0			VDC VDC	Vs= 5.0V and 15pF load Vs= 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 Vs-2V or There in Equivalent
Signal Level (Vol)			Vs -1.62	VDC	
Signal Level (Voh	Vs -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% Vdd @ 50% Vdd
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 Vs=5.0VDC with Vs=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 -80 -110 -133 -145	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 KHz 100 KHz
Screening	Vectron Verification or Class B Scrrening I/A/W MIL-PRF55310				
Standard Environmentals					
Vibration	MIL-STD-202, Method 204, Condition G (30g, 10Hz-2000Hz)				
Shock	MIL-STD-202, Method 213B, Condition E (1,000g, 0-5ms, Half-Sine)				
Acceleration	MIL-STD-883, Method 2001, Condition A (5,000g, Y1 Plane)				
Temperature Cycling	MIL-STD-883, Method 1010, Condition B				
Thermal Shock	MIL-STD-202, 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
	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	

Recommended Reflow Profiles for Pb-Free & Sn-Pb



230°C Reflow Profile

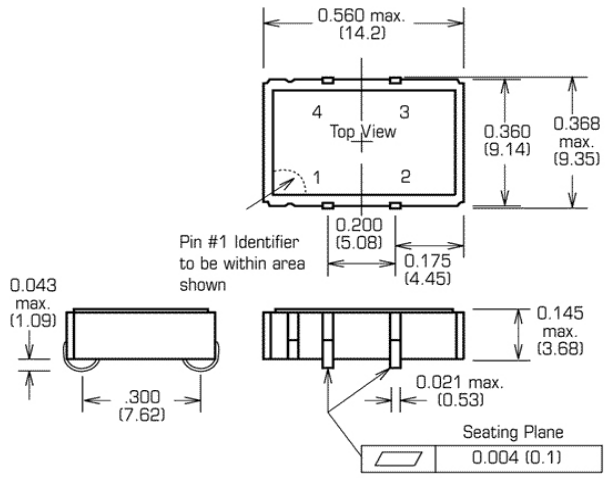
Profile Feature	Sn-Pb Assembly	Profile Feature	Sn-Pb Assembly
Average ramp-up rate (TL to TP)	3°C/secod max.	Time 25°C to Peak Temperature	4 minutes max.
Preheat - Temperature min Tsmin - Temperature Min Tsmax - Time (min to max) (ts)	135°C 155°C 60-90 seconds	Time maintained above - Temperature (TL) - Time (tL)	 183°C 45-60 seconds
Tsmax to TL -Ramp-up Rate	3°C/secod max.		
Time maintained above - Temperature (TL) - Time (TL)	183°C 40-60 seconds	Time within 5°C of actual Peak Temperature (tp)	10-20 seonds max.
Peak Temperature (Tp)	max 230°C	Ramp-down Rate	6°C/second max.
Note: All temperatures refer to topside of the package, measured on the package body surface.			

260°C Reflow Profile

Profile Feature	Pb-Free Assembly	Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/secod max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat - Temperature min Tsmin - Temperature min Tsmax - Time (min to max) (ts)	150°C 200°C 60-180 seconds	Time maintained above - Temperature (TL) - Time (tL)	 217°C 60-150 seconds
Tsmax to TL -Ramp-up Rate	3°C/secod max.		
Time maintained above - Temperature (TL) - Time (TL)	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature (tp)	20-40 seonds max.
Peak Temperature (Tp)	max 260°C	Ramp-down Rate	6°C/second max.
Note: All temperatures refer to topside of the package, measured on the package body surface.			

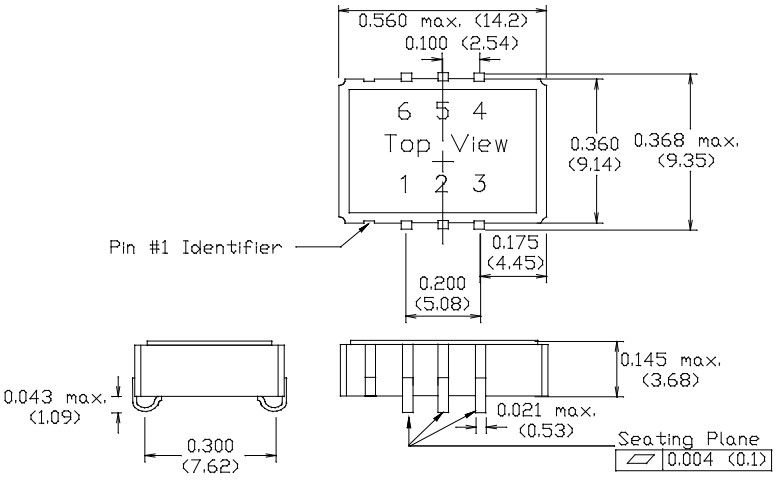
Outline Drawing / Enclosure

Dimensions: Inches (mm)



Type A (4-Leads) 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 (6-Leads) ACMOS/TTL		
Code	Height "H"	Stand-off
1	3.68	1.09

Type B (6-Leads) 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	N/C
6	Supply Voltage

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 - 507 0 - D A T - K X X X - 10M0000000

Product Family
VX: VCXO

Package
9 x 14 mm

Configuration
0: Type A (4-Leads)
1: Type B (6-Leads)
2: Type A (4-Leads) with solder coated leads
3: Type B (6-Leads) with solder coated leads

Supply Voltage
D: 5 Vdc
E: 3.3 Vdc

RF Output Code
A: ACMOS
B: TTL
C: PECL/LVPECL

Temperature Range
B: -55... +105°C
E: -40… +85°C
J: -20… +70°C

Pullability Code
G: ±30ppm
K: ±50ppm

Enable
X: No Enable

Screening Option
X: No Screening

Option Code
X: No Option

Frequency

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.

For Additional Information, Please Contact

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