VECTRON INTERNATIONAL
A DOVER COMPANY

PX-500

Crystal Oscillator

Features	Applications
Frequency: 1 to 800 MHz	Low voltage clock applications
9x14 J leaded surface mount package	Military Portable Radios
Fully RoHS Compliant	Avionics and Instrumentation
Surface Mount, Low Profile	Test and Measurement Equipment
High Shock Survival up to 20K g	Medical Equipment
no pure tin is used in this product	Naviagation
Previous Model: C1300; Model 042 and 342	
Made in USA	
Available as QPL MIL-PRF-55310/27, /28 or /30	

Frequency stabilities[1]

Parameter	Min	Typ	Max.	Units	Condition
vs. operating temperature range	-15		+15	ppm	0 … +70°C
	-25		+25	ppm	0 … +70°C
	-50		+50	ppm	0 … +70°C
	-100		+100	ppm	0 … +70°C
	-25		+25	ppm	-40…+85°C
	-50		+50	ppm	-40…+85°C
	-100		+100	ppm	-40…+85°C
	-50		+50	ppm	-55…+85°C
	-100		+100	ppm	-55…+85°C
	-50		+50	ppm	-55…+105°C
	-100		+100	ppm	-55…+105°C
	-50		+50	ppm	-55…+125°C
	-100		+100	ppm	-55…+125°C
(reference to +25°C)					
Initial tolerance	-15		+15	ppm	@+25°C
	-25		+25	ppm	@+25°C
	-50		+50	ppm	@+25°C
	-100		+100	ppm	@+25°C

Overall tolerance	-20		+20	ppm	0 … +70°C
(Referenced to +25°C)	-25		+25	ppm	0 … +70°C
(includes operating temperature	-50		+50	ppm	0 … +70°C
and initial accuracy)	-100		+100	ppm	0 … +70°C
	-25		+25	ppm	-40…+85°C
	-50		+50	ppm	-40…+85°C
	-100		+100	ppm	-40…+85°C
	-50		+50	ppm	-55…+85°C
	-65		+65	ppm	-55…+85°C
	-100		+100	ppm	-55…+85°C
	-50		+50	ppm	-55…+105°C
	-65		+65	ppm	-55…+105°C
	-100		+100	ppm	-55…+105°C
	-65		+65	ppm	-55…+125°C
	-80		+80	ppm	-55…+125°C
	-100		+100	ppm	-55…+125°C
vs. supply voltage change	-2		+2	ppm	Vs ± 5%
vs. load change	-1		+1	ppm	Load ± 5%
vs. aging / 1 year	-3		+3	ppm	after 30 days of operation
vs. aging / year (following years)	-1		+1	ppm	

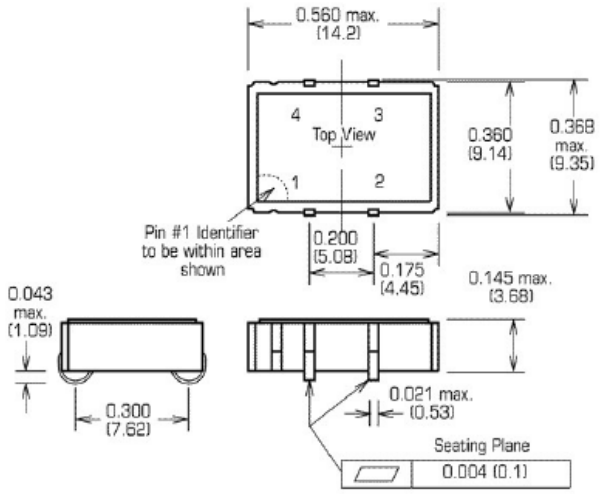
Supply Voltage (Vs)					
Parameter	**Min**	**Typ**	**Max.**	**Units**	**Condition**
Supply voltage	4.75	5.0	5.25	VDC	
Supply voltage	3.135	3.3	3.465	VDC	
Supply voltage	2.375	2.5	2.625	VDC	
Current consumption			15	mA	ACMOS or TTL 1.0 to 23.9 MHz
(+5 VDC)			20	mA	ACMOS or TTL 24 to 49.9 MHz
			40	mA	ACMOS or TTL 50 to 125.00 MHz
Current consumption			6	mA	ACMOS 1.0 to 14.9 MHZ
(+3.3 VDC or +2.5 VDC)			8	mA	ACMOS 15.0 to 39.9 MHZ
			12	mA	ACMOS 40.0 to 59.9 MHZ
			16	mA	ACMOS 60.0 to 84.9 MHZ
			40	mA	ACMOS 85.0 to 125.0 MHZ
			75	mA	LVPECL or LVDS No load <200 MHz
			100	mA	LVPECL or LVDS No load >200 MHz

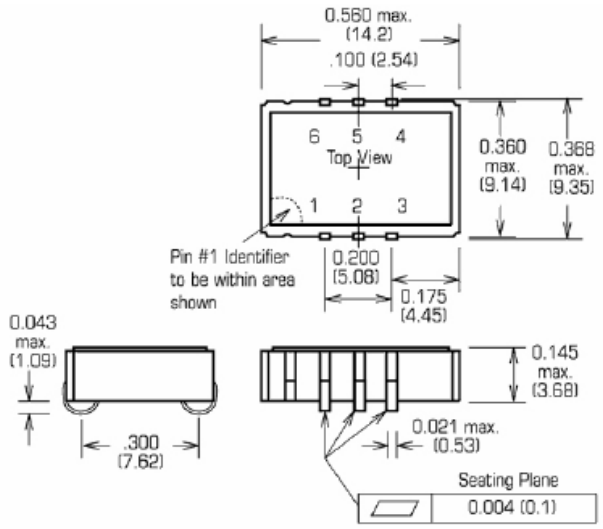
RF Output					
Parameter	**Min**	**Typ**	**Max.**	**Units**	**Condition**
Signal	ACMOS				
Load		15	50	pF	
Signal Level (Vol)			0.5	VDC	with Vs=5.0V and 15pF load
			0.3	VDC	with Vs=3.3V and 15pF load
			0.25	VDC	with Vs= 2.5V and 15pF load
Signal Level (Voh)	4.5			VDC	with Vs=5.0V and 15pF load
	3.0			VDC	with Vs=3.3V and 15pF load
	2.25			VDC	with Vs=2.5V and 15pF load
Rise and fall times for ACMOS			10	ns	1.0 to 23.9 MHz
(measured 10% to 90%)			6	ns	24.0 to 79.9 MHz
			3	ns	80.0 to 125.0 MHz
Duty cycle	45		55	%	@ 50% Vs< 15 MHz
	40		60	%	@ 50% Vs=> 15 MHz
Signal	TTL				
Load			15	pF	
Signal Level (Vol)			0.5	VDC	with Vs=5.0V and 15pF load
Signal Level (Voh)	4.5			VDC	with Vs=5.0V and 15pF load
Rise and fall times for ACMOS			5	ns	1.0 to 23.9 MHz
(measured 20% to 80%)			3	ns	24.0 to 125 MHz
Duty cycle	45		55	%	@ 1.4V < 15 MHz
	40		60	%	@ 1.4V >= 15 MHz

Signal	LVPECL				
Load			50	Ohm	into Vcc-2V or There in Equivalent
Signal Level (Vol)			Vs -1.62		-40....+85°C operating temp
Signal Level (Voh)	Vs- 1.025				-40....+85°C operating temp
Rise and fall times for LVPECL (measured 20% to 80%)			1000 600	ps ps	< 100 MHz >= 100 MHz
Duty cycle	45		55	%	@ 50% Vdd
Jitter (rms)			10 0.5	ps ps	BW = 10Hz to 20 MHz BW = 12KHz to 20 MHz
Period Jitter (pk-pk)			40	ps	10,000 Samples - Rising edge
Signal	LVDS				
Load	60	100	140	Ohm	
Signal Level (Vol)		1.2		VDC	
Signal Level (Voh)		1.4		VDc	
Differential Voltage (Vod)	240	330	460	mVpeak	
Common Mode (Offset) Voltage (Vos)	1.125	1.2	1.375	V	
Start-up Time			10	ms	
Rise \ Fall Time		600	1000	ps	measured @ 20% to 80% of Vod
Duty cycle	45		55	%	@ 50% of Vod
Jitter (rms)			5 1	ps ps	BW = 10Hz to 20 MHz BW = 12KHz to 20 MHz
Period Jitter (pk-pk)			40	ps	10,000 Samples - Rising edge
Absolute Maximum Ratings					
Supply voltage (Vs)			7.0	V	with Vs=5.0VDC and 3.3 VDC
Operable temperature range	-55		+125	°C	
Storage temperature range	-62		+125	°C	

Additional Parameters		
Screening	Vectron Verification Class B, MIL-PRF-55310	
Output Enable Hi	Logic “0“ input = Outputs disabled (Tri-state) Logic “1“ or floating input = Outputs enabled	
Output Enable Lo	Logic “0“ or floating input = Outputs enabled Logic “1“ input = Outputs disabled (Tri-state)	
Weight	< 2 grams	
Standard Environmentals		
Vibration	MIL-STD-202, Method 204, Condition G (30 G, 10Hz-2000Hz)	
Shock	MIL-STD-202, Method 213, Condition I (100 G, 6ms, Sawtooth)	
Acceleration	MIL-STD-883, Method 2001, Condition A (5000 G, 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	

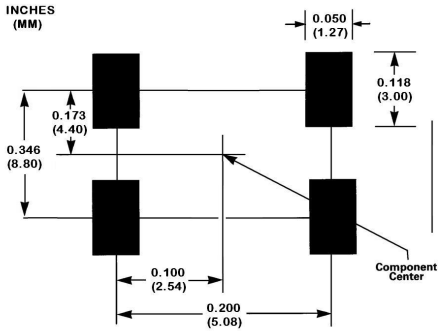
Outline Drawing / Enclosure



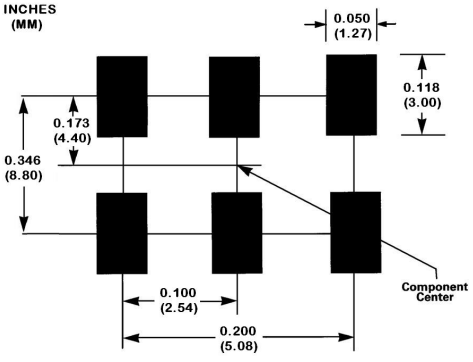


Dimensions in inches (mm)

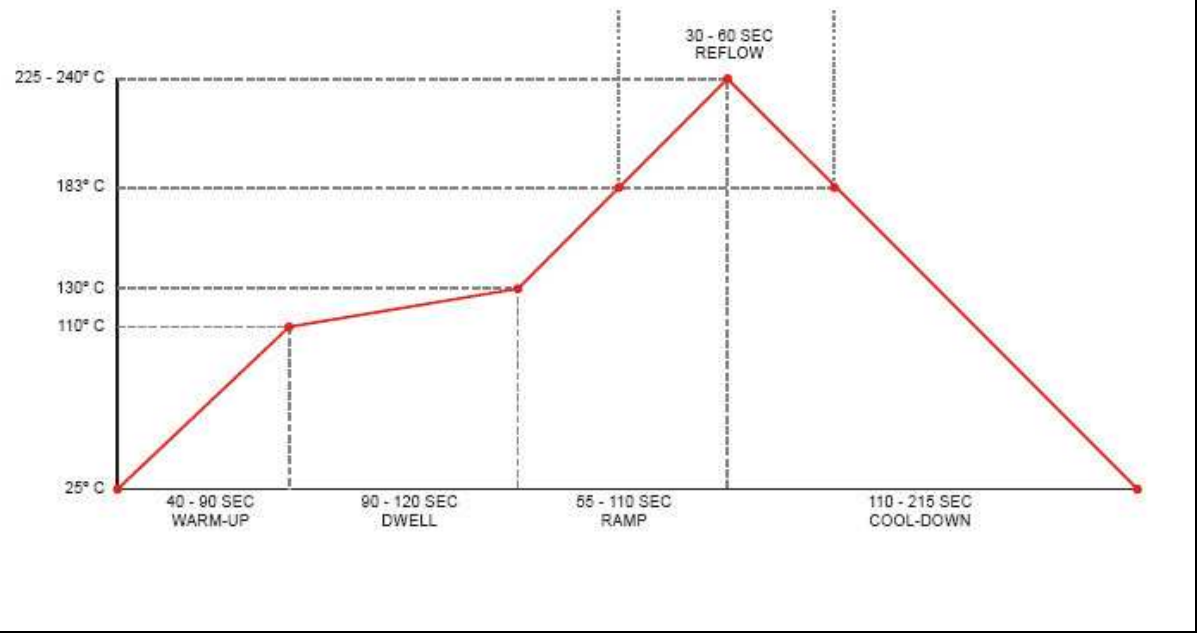
Type A (ACMOS or TTL)	
Code	Lead Finish
0	Gold plate 30 uin min over 80 uin min nickel
2	63/37 SnPb solder coated
Pin Connections	
1	Enable/Disable or N/C
2	Ground (Case)
3	Output
4	Supply



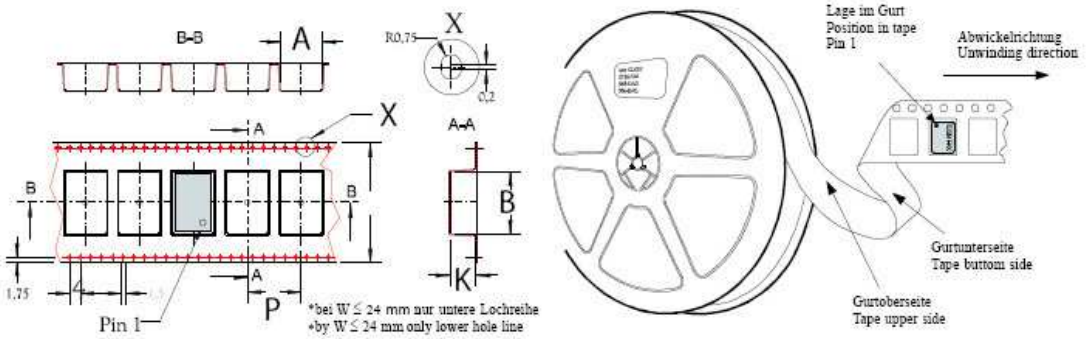
Type B (LVPECL or LVDS)	
Code	Lead Finish
1	Gold plate 30 uin min over 80 uin min nickel
3	63/37 SnPb solder coated
Pin Connections	
1	Enable/Disable or N/C (standard)
2	Enable/Disable or N/C (custom part number required)
3	Ground (Case)
4	Output
5	Complementary Output
6	Supply



Recommended Reflow Profile



Standard Shipping Method



Production tolerance complying DIN IEC 286-3				
Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
9x14 mm	24 ± 0.3	44.5	1000 max	12±0.1

Ordering Information

PX - 500 0 - A A T- F K K B – 10M0000000

Product Family
PX: PXO

Package:
9X14 mm

J Leads:
0: 4 pin gold plated
1: 6 pin gold plated
2: 4 pin solder coated
3: 6 pin solder coated

Supply Voltage:
D: 5 Vdc
E: 3.3 Vdc
H: 2.5 Vdc

RF Output:
A: ACMOS
B: TTL
C: LVPECL
D: LVDS

Operating Temperature Range:
A: -55°C to +85°C
B: -55°C to +105°C
C: -55°C to +125°C
E: -45°C to +85°C
T: 0°C to +70°C

Accuracy Code
OR
Overall Stability Tolerance (incl. op temp and @ 25°C)
D: ±15 ppm
E: ±20 ppm
F: ±25 ppm
K: ±50 ppm
Z: ±65 ppm
P: ±80 ppm
S: ±100 ppm

Operating Temperature Stability:
D: ±15ppm
F: ±25 ppm
K: ±50ppm
S: ±100 ppm
X: Use with Overall Tolerance Code

Enable Code:
A: Enable Hi, Tristate
B: Enable Lo, Tristate
X: No Enable (N/C)

Screening Option:
B: MIL-PRF-55310 B level
X: No screening

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. Subject to technical modification.
4. Please contact the factory for custom requirements.

For Additional Information, Please Contact

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