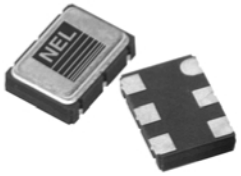
Rev. -



Differential Positive ECL (DPECL)

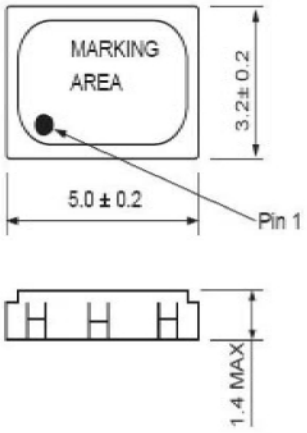
AC-X2980 Series

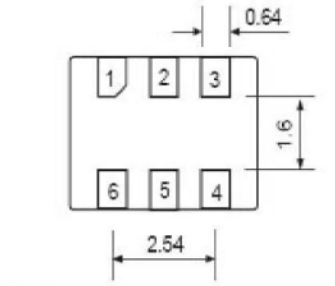
Description

The **AC-X2980 Series** of quartz crystal oscillators provide DPECL compatible signals. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

Features

- Wide frequency range - 25.0MHz to 270.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 100g
- COTS/Dual use
- Wavecrest jitter characterization available
- High Q Crystal actively tuned oscillator circuit
- No internal PLL avoids cascading PLL problems
- Metal lid electrically connected to ground to reduce EMI
- Gold plated pads
- RoHS Compliant, Lead Free Construction

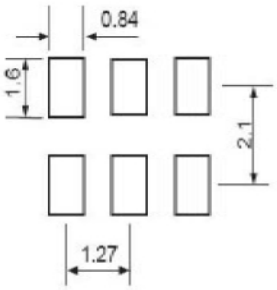




Pin Connections

#1: E/D	#2: N/C
#3: Ground/Case	#4: Output
#5: Comple-Output	#6: Vcc

Recommended Solder Pad Layout



All dimensions are typical unless otherwise specified

Dimensions in Millimeters

NEL FREQUENCY CONTROLS, INC.
357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A.
Phone 262.763.3591 • Fax 262.763.2881 • Email nelsales@nelfc.com www.nelfc.com

Rev. -

AC-X2980 Series Continued
Differential Positive ECL (DPECL)

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	25.0MHz	-----	270.0MHz
Duty Cycle	-----	@ V_{CC}-1.29V	45/55%	-----	55/45%
Logic 0 (2)	V_{OL}	-----	-----	-----	V_{CC}-1.62V
Logic 1(2)	V_{OH}	-----	V_{CC}-1.025V	-----	-----
Rise & Fall Time	tr,tf	20-80%V_O with 50 ohm load to V_{CC}-2V	-----	700	1000ps
Jitter(3)	J	12kHz to 20MHz, RMS	-----	0.3 ps	1 ps
Phase Noise (5)	£(Δf)	@1kHz	-----	-120 dBc/Hz	-----
		@10kHz	-----	-140 dBc/Hz	-----
		@100kHz	-----	-145 dBc/Hz	-----
Enable Voltage(4)	-----	with V_{EE} = 0V	0.7V_{CC}	-----	-----
Disable Voltage	-----	with V_{EE} = 0V	-----	-----	0.3V_{CC}
Frequency Stability(1)	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm

General Characteristics

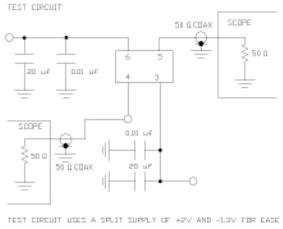
Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V_{CC}	Code A: 3.3V±5%	3.135V	3.3V	3.465V
		Code B: 2.5V±5%	2.375V	2.5V	2.625V
Supply Current	I_{CC}	50 ohm termination To 2.00V below V_{CC}	0.0 mA	-----	88 mA
Operating temperature	T_A	------	0°C	-----	70°C
Storage temperature	T_S	-----	-55°C	-----	125°C
Power Dissipation	P_D	3.3V	-----	-----	305mW
		2.5V	-----	-----	231mW
Load	50 Ohm to V_{CC}-2V or Thevenin Equivalent, Bias Required				
Start-up time	t_S	-----	-----	-----	5 ms

Environmental and Mechanical Characteristics

Mechanical Shock	Per MIL-STD-202, Method 213
Thermal Shock	Per MIL-STD-883, Method 1011, Condition B
Vibration	Per MIL-STD-883, Method 207, A
Hermetic Seal	Leak rate less than 2 x 10^{-8} atm.cc/sec of helium

Footnotes:

1) Standard frequency stability (±20,±25,±50ppm & others available
2) V_{OL}, V_{OH}, referenced to ground (V_{EE}) with V_{CC} = 3.3V
3) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
4) Open to enable pin also enables the output.
5) If phase noise data at a particular frequency is needed, contact factory.



Creating a Part Number

AC - X298X - FREQ

Package Code
AC 6 pad 5x3.2mm SMD

Input Voltage

Code	Specification
A	3.3V
B	2.5V

Tolerance/Performance

0	±100ppm 0-70°C
1	±50ppm 0-70°C
7	±25ppm 0-70°C
9	Customer Specific
B	±50ppm -40 to +85°C
C	±100ppm -40 to +85°C

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AC-X2980 Series Continued

Max Reflow Profile