CRYSTAL CLOCK OSCILLATORS

Data Sheet 0350C

Rev. G

Differential Positive ECL (DPECL)
Fast Edge
PJ-B2980 Series

Description

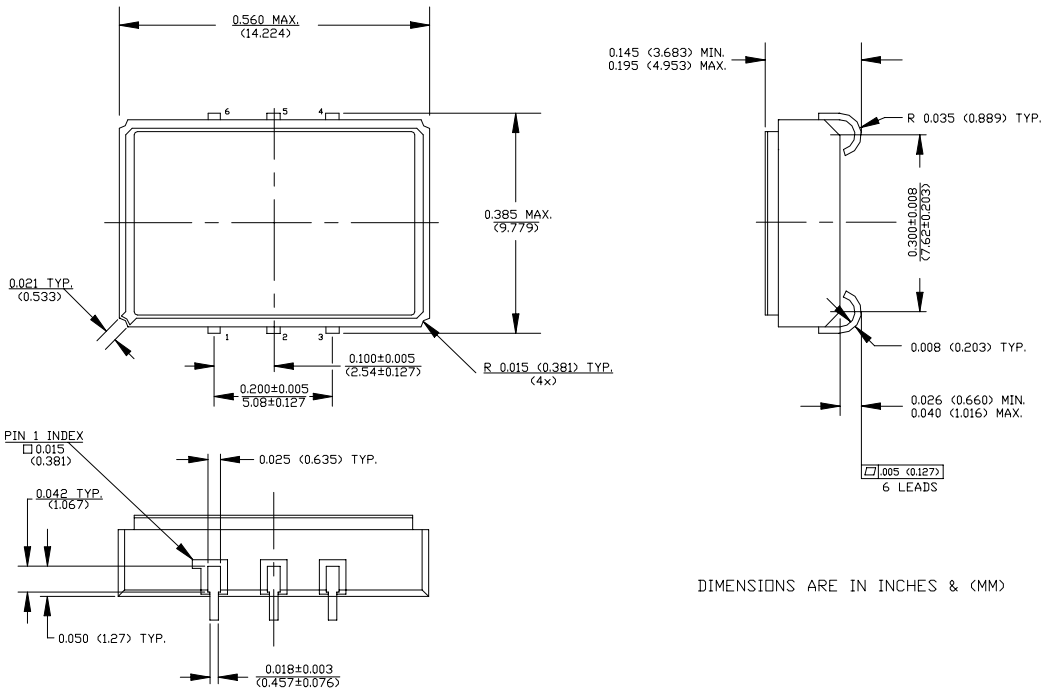
The **PJ-B2980 Series** of quartz crystal oscillators provide DPECL Fast Edge compatible signals. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

Features

- Wide frequency range–60.0MHz to 312.5MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 2.5 volt operation
- Metal lid electrically connected to ground to reduce EMI
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Jitter - Wavecrest jitter characterization available
- Overtone technology
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Gold plated pads
- RoHS Compliant, Lead Free Construction

Electrical Connection

Pin	Connection
1	Enable/Disable
2	N.C.
3	V_{EE} /Ground
4	Output
5	/Output
6	V_{CC}



NEL FREQUENCY CONTROLS, INC.

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Rev. G

PJ-B2980 Series Continued
Differential Positive ECL (DPECL) Fast Edge

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	60.0MHz	-----	312.5MHz
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	-----	-----	1 ns
T_{pd} (4)	-----	-----	-200 psec	-----	+200 psec
Jitter, RMS(3)	-----	-----	-----	-----	1 psec
Enable Voltage(5)	-----	with V_{EE} = 0V	1.6V	-----	-----
Disable Voltage	-----	with V_{EE} = 0V	-----	-----	0.4V
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}	-----	2.375V	2.5V	2.625V
Supply Current	I_{CC}	50 ohm termination To 2.00V below V_{CC}	0.0 mA	-----	80 mA
Output current	I_O	Low level Output Current	0.0 mA	-----	±50.0 mA
Operating temperature	T_A	------	0°C	-----	70°C
Storage temperature	T_S	-----	-55°C	-----	125°C
Power Dissipation	P_D	-----	-----	-----	210 mW
Solder temperature	T_L	4 minutes	-----	-----	253°C
Load	50 Ohm to V_{CC}-2V or Thevenin Equivalent, Bias Required				
Start-up time	t_S	-----	-----	2 ms	10 ms

Environmental and Mechanical Characteristics

Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
Hermetic Seal	Leak rate less than 1 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} = 2.5V
3) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
4) Tpd is phse shift between the falling edge of pin 4 at 2.0V and the rising edge of pin 5 at 2.01V.
5) Open to enable pin also enables the output.
6) Internal high frequency power source decoupling.

Creating a Part Number

PJ - B298X - FREQ

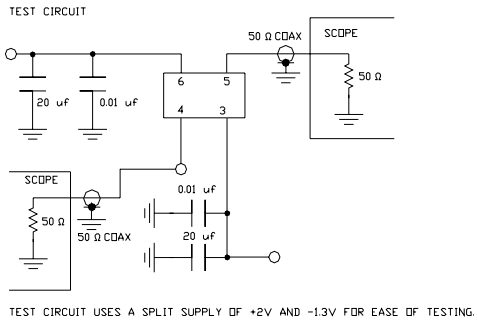
Package Code
PJ 6 J Lead SMD

Input Voltage

Code	Specification
A	3.3V
B	2.5V
	5V

Tolerance/Performance

0	±100ppm 0-70°C
1	±50ppm 0-70°C
7	±25ppm 0-70°C
9	Customer Specific
A	±20ppm 0-70°C
B	±50ppm -40 to +85°C
C	±100ppm -40 to +85°C



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