

Differential Positive ECL (DPECL) Fast Edge PJ-A2940 Series

Preliminary

Description

The **PJ-A2940 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.

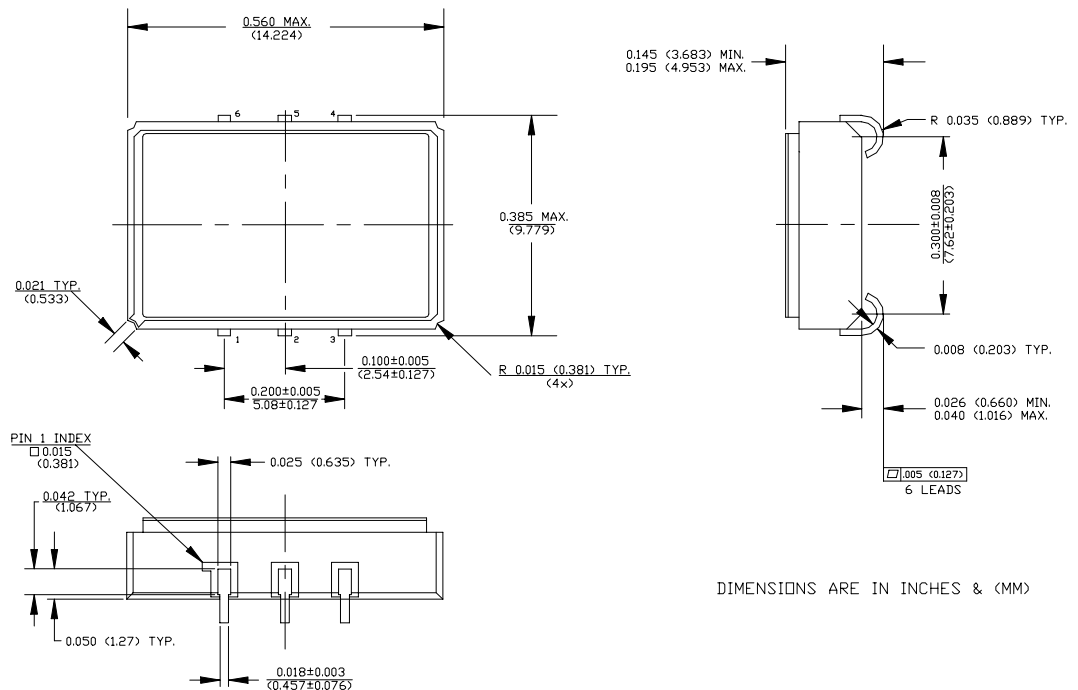
Features

- Wide frequency range—80.0MHz to 200.0MHz
- User specified tolerance available
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 3000g
- 3.3 volt operation
- Fast rise and fall times <600 ps
- 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 leads - Solder dipped leads available upon request

Electrical Connection

Pin Connection

- | | |
|---|-------------------|
| 1 | Enable/Disable |
| 2 | NC |
| 3 | V _{EE} |
| 4 | Output |
| 5 | Output Complement |
| 6 | V _{CC} |



PJ-A2940 Series Continued Differential Positive ECL (DPECL) Fast Edge

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	80.0MHz	----	200.0MHz
Duty Cycle	----	@ V _{CC} -1.29V	45/55%	----	55/45%
Logic 0 ⁽²⁾	V _{OL}	----	1.35V	----	1.70V
Logic 1 ⁽²⁾	V _{OH}	----	2.28V	----	2.56V
Rise & Fall Time	tr,tf	20-80%V _O with 50 ohm load to V _{CC} -2V	----	----	600 psec
Tpd ⁽⁴⁾	----	----	-200 psec	----	+200 psec
Jitter, RMS ⁽³⁾	----	----	----	----	3 psec
Frequency Stability ⁽¹⁾	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	----	+100ppm

General Characteristics

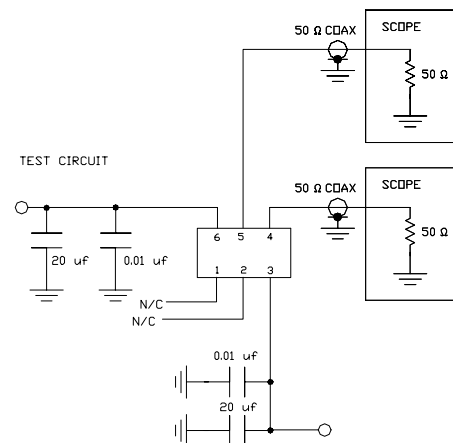
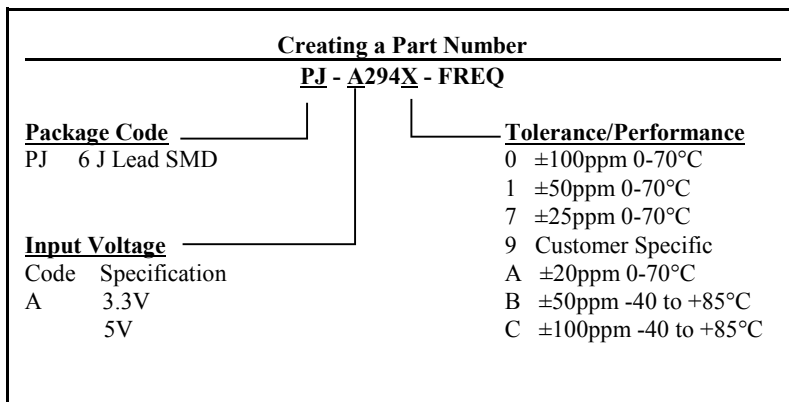
Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V _{CC}	----	3.15V	3.3V	3.45V
Supply Current	I _{CC}	50 ohm termination To 2.00V below V _{CC}	0.0 mA	----	110 mA
Output current	I _O	Low level Output Current	0.0 mA	----	±50.0 mA
Operating temperature	T _A	----	0°C	----	70°C
Storage temperature	T _S	----	-55°C	----	125°C
Power Dissipation	P _D	----	----	----	276 mW
Lead temperature	T _L	Soldering, 10 sec.	----	----	300°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-833, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
Soldering Condition	300°C for 10 seconds
Hermetic Seal	Leak rate less than 1 x 10 ⁻⁸ atm.cc/sec

Footnotes:

- Standard frequency stability (±20,±25,±50ppm & others available)
- V_{OL}, V_{OH}, referenced to ground (V_{EE}) with V_{CC} = 3.3V
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- Tpd is phase shift between the falling edge of pin 3 at 2.0V and the rising edge of pin 1 at 2.01V.



TEST CIRCUIT USES A SPLIT SUPPLY OF +2V AND -1.3V FOR EASE OF TESTING.