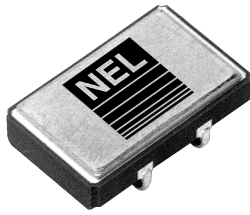


Rev. L



Differential Positive ECL (DPECL) SJ-A2870 Series

Description

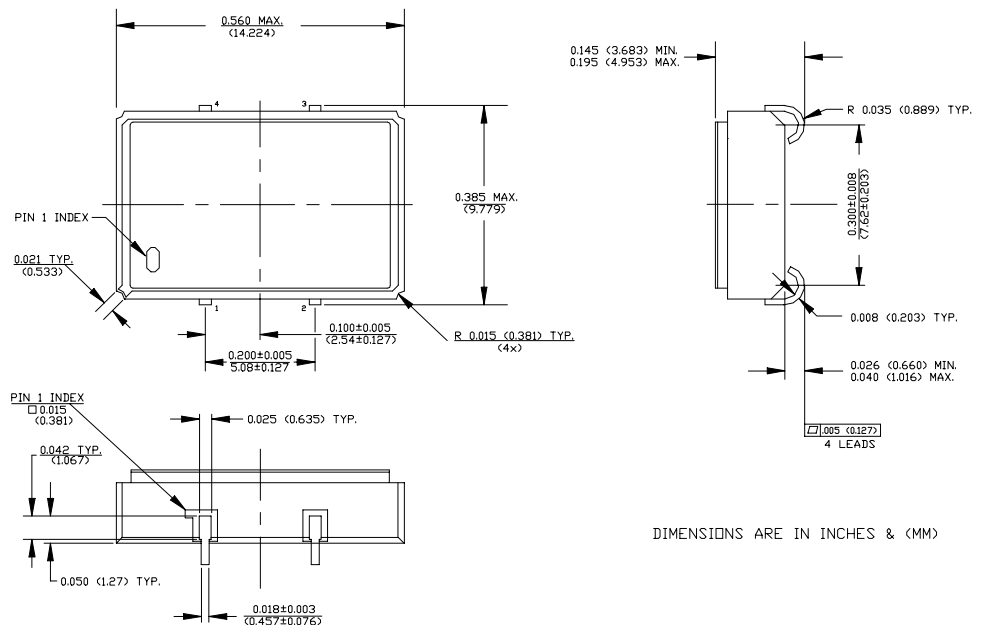
The **SJ-A2870 Series** of quartz crystal oscillators provide MECL 10K and 10KH series compatible signals in a ceramic SMD package. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

Features

- Wide frequency range—18.0MHz to 250.0MHz
- 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
- Metal lid electrically connected to ground to reduce EMI
- MECL 10K and 10KH series compatible output on Pin 3, complement on Pin 1
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- 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	Output Complement
2	V_{EE} /Ground
3	Output
4	V_{CC}



SJ-A2870 Series Continued

Differential Positive ECL (DPECL)

Rev. L

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	18.0MHz	-----	250.0MHz
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	$t_{r,f}$	20-80% V_O with 50 ohm load to V_{CC} -2V	-----	1.0 ns	1.5 ns
T_{pd} ⁽⁴⁾	-----	-----	-0.5 ns	-----	+0.5 ns
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	-----	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	-----	-----	-----	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-883, 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 1×10^{-8} atm.cc/sec of helium
ESD Sensitivity	Human Body Model per ON Semiconductor 10kH series ECL: 500V min.

Footnotes:

- 1) Standard frequency stability ($\pm 20, \pm 25, \pm 50$ ppm & 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) T_{pd} is phase shift between the falling edge of pin 3 at V_{CC} -1.29V and rising edge of pin 1 at V_{CC} -1.29V.

Creating a Part Number

SJ - A287X - FREQ

Package Code

SJ 4 J Lead SMD

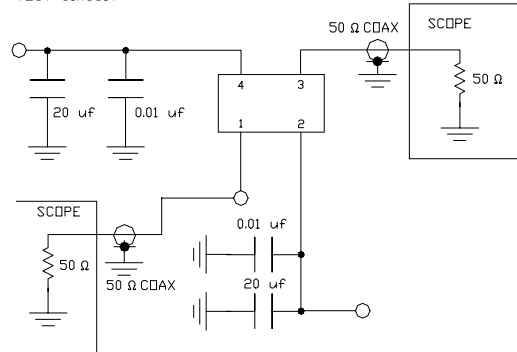
Tolerance/Performance

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

Input Voltage

Code Specification
 A 3.3V
 5V

TEST CIRCUIT



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



**FREQUENCY
CONTROLS, INC.**

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