



## Differential Positive ECL (DPECL) SJ-A2870 Series

Rev. S

### Description

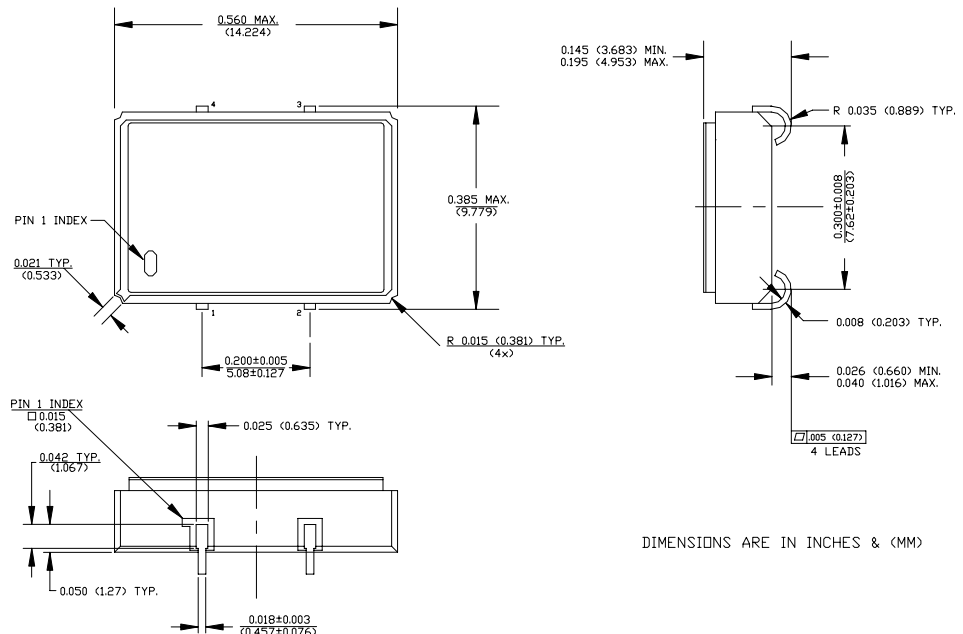
The **SJ-A2870 Series** of quartz crystal oscillators provide MECL 10K and 10KH series compatible signals in a ceramic SMD package. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

### Features

- Wide frequency range—18.0MHz to 250.0MHz
- User specified tolerance available
- 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
- COTS/Dual use
- 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
- RoHS Compliant, Lead Free Construction (unless solder dipped leads are supplied)

### Electrical Connection

Pin	Connection
1	Output Complement
2	V <sub>EE</sub> /Ground
3	Output
4	V <sub>CC</sub>



## SJ-A2870 Series Continued Differential Positive ECL (DPECL)

Rev. S

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	18.0MHz	-----	250.0MHz
Duty Cycle	-----	@ V <sub>CC</sub> -1.29V	45/55%	-----	55/45%
Logic 0 <sup>(2)</sup>	V <sub>OL</sub>	-----	1.35V	-----	1.70V
Logic 1 <sup>(2)</sup>	V <sub>OH</sub>	-----	2.28V	-----	2.56V
Rise & Fall Time	tr,tf	20-80%V <sub>O</sub> with 50 ohm load to V <sub>CC</sub> -2V	-----	1.0 ns	1.5 ns
Tpd <sup>(4)</sup>	-----	-----	-0.5 ns	-----	+0.5 ns
Jitter, RMS <sup>(3)</sup>	-----	-----	-----	-----	3 psec
Frequency Stability <sup>(1)</sup>	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm

#### General Characteristics

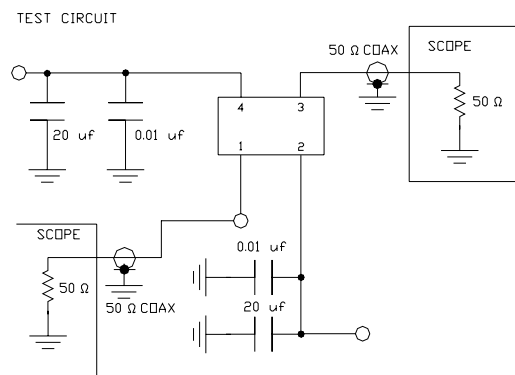
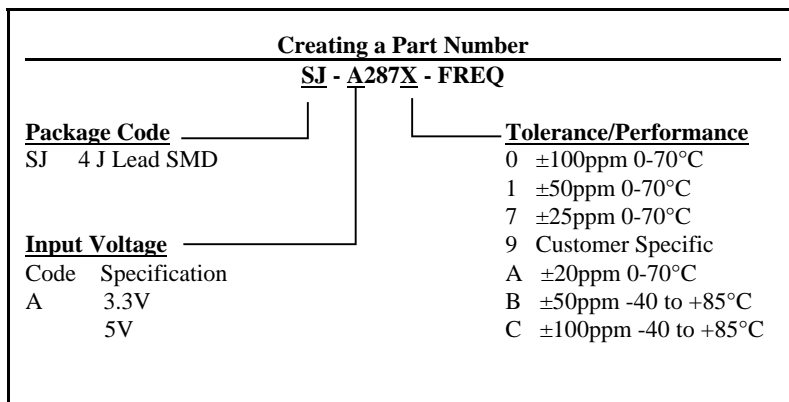
Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V <sub>CC</sub>	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I <sub>CC</sub>	50 ohm termination To 2.00V below V <sub>CC</sub>	0.0 mA	-----	80 mA
Output current	I <sub>O</sub>	Low level Output Current	0.0 mA	-----	±50.0 mA
Operating temperature	T <sub>A</sub>	-----	0°C	-----	70°C
Storage temperature	T <sub>S</sub>	-----	-55°C	-----	125°C
Power Dissipation	P <sub>D</sub>	-----	-----	-----	276 mW
Load	-----	50 Ohm to V <sub>CC</sub> -2V or Thevenin Equivalent, Bias Required	-----	-----	-----
Start-up time	t <sub>s</sub>	-----	-----	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 <sup>-8</sup> atm.cc/sec of helium
ESD Sensitivity	Human Body Model per ON Semiconductor 10kH series ECL: 500V min.

#### Footnotes:

- Standard frequency stability (±20,±25,±50ppm & others available)
- V<sub>OL</sub>, V<sub>OH</sub>, referenced to ground (V<sub>EE</sub>) with V<sub>CC</sub> = 3.3V
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
- Tpd is phase shift between the falling edge of pin 3 at V<sub>CC</sub>-1.29V and rising edge of pin 1 at V<sub>CC</sub>-1.29V.



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

SJ-A2870 Series Continued

Max Reflow Profile

