

**Differential Positive ECL (DPECL)
SU-A29F0 Series**

Description

The **SU-A29F0 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.

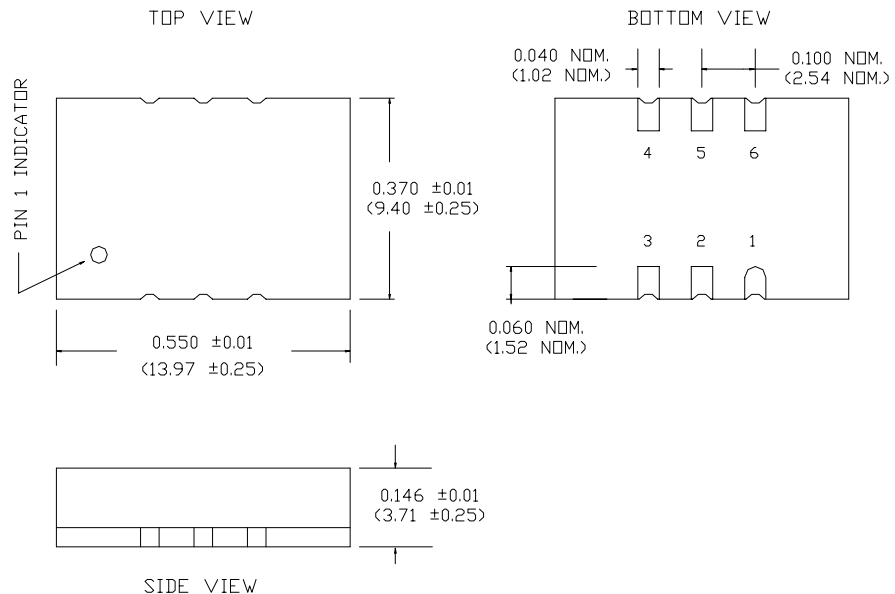
Features

- Wide frequency range – 280.0+MHz to 350.0MHz
- User specified tolerance available
- Will withstand SMD reflow temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 volt operation
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Wavecrest jitter characterization available
- Overtone technology
- High Q Crystal actively tuned oscillator circuit
- No internal PLL avoids cascading PLL problems
- Power supply decoupling internal
- Metal lid electrically connected to ground to reduce EMI
- Gold plated pads

Electrical Connection

Pin Connection

- 1 Enable
- 2 N/C
- 3 Ground
- 4 Q Output
- 5 /Q Output
- 6 V_{CC}



DIMENSIONS IN: INCHES (mm)

SU-A29F0 Series Continued Differential Positive ECL (DPECL)

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	280.0+MHz	----	350.0MHz
Duty Cycle	----	@ V _{CC} -1.29V	45/55%	----	55/45%
Logic 0 ⁽²⁾⁽⁷⁾	V _{OL}	----	----	----	V _{CC} -1.62V
Logic 1 ⁽²⁾⁽⁷⁾	V _{OH}	----	V _{CC} -1.025V	----	----
Rise & Fall Time	tr,tf	20-80%V _O with 50 ohm load to V _{CC} -2V	----	----	500ps
T _{pd} ⁽⁶⁾	----	----	-200psec	----	+200psec
Jitter, RMS ⁽³⁾	----	----	----	----	1 ps
Enable Voltage ⁽⁵⁾	----	with V _{EE} = 0V	2.0V	----	----
Disable Voltage	----	with V _{EE} = 0V	----	----	0.8V
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 ⁽⁴⁾	V _{CC}	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I _{CC}	50 ohm termination To 2.00V below V _{CC}	0.0 mA	----	105 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	----	----	----	364 mW
Lead temperature	T _L	Soldering, 10 sec.	----	----	300°C
Load ⁽⁷⁾	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 of helium

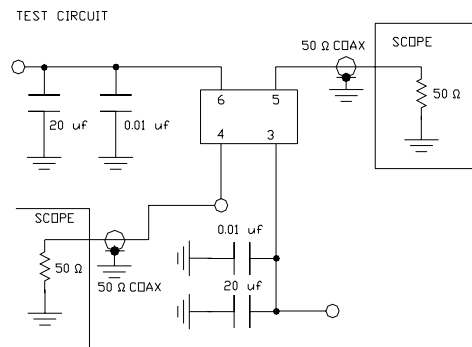
Footnotes:

- 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. RMS jitter bandwidth of 12kHz to 20MHz.
- Internal high frequency power source decoupling.
- Open to enable pin also enables the output.
- T_{pd} is phase shift between the falling edge of pin 4 at 2.0V and the rising edge of pin 5 at 2.01V.
- Logic levels are dependant on specified load of 50 ohms to V_{CC}-2 volts.

Creating a Part Number

SU - A29FX - FREQ

Package Code		Tolerance/Performance
SU 6 pad 9x14mm SMD		0 ±100ppm 0-70°C
		1 ±50ppm 0-70°C
		7 ±25ppm 0-70°C
		9 Customer Specific
Input Voltage		A ±20ppm 0-70°C
Code Specification		B ±50ppm -40 to +85°C
A 3.3V		C ±100ppm -40 to +85°C
B 2.5V		



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