CRYSTAL CLOCK OSCILLATORS

Data Sheet 0439C

Rev. F

LVDS

SK-A2D00 Series

Description

The **SK-A2D00 Series** of quartz crystal oscillators provide LVDS compatible signals. This device is to operate using positive voltage and uses multiple ground pins for improved signal integrity.

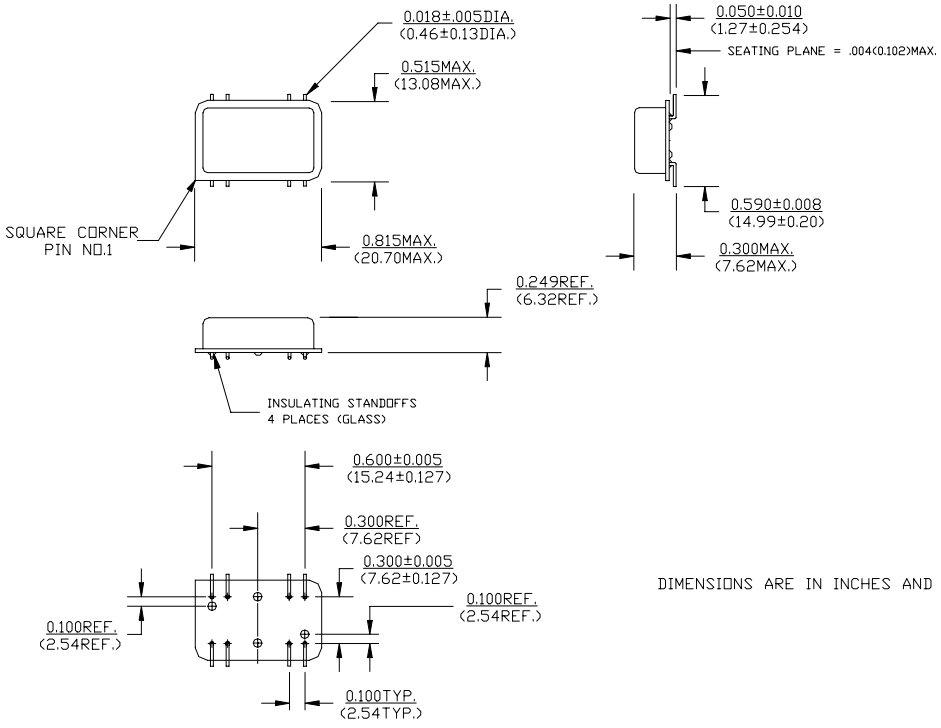
Features

- Wide frequency range - 80.0MHz to 540.0MHz
- User specified tolerance available
- Case at electrical ground
- All metal, resistance weld, hermetically sealed package
- High shock resistance, to 1000g
- Enable/Disable
- 3.3 volt operation
- COTS/Dual use
- LVDS output on pin 7, complement on Pin 8
- 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

Electrical Connection

Pin	Connection
1	V_{CC}
2	V_{EE} Case
6	V_{EE} Case
7	Output
8	/Output
9	V_{EE} Case
13	V_{EE} Case
14	Enable/Disable

All other pins are
No Connect



NEL FREQUENCY CONTROLS, INC.

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SK-A2D00 Series Continued
LVDS

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Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	80.0MHz	-----	540.0MHz
Duty Cycle(2)	-----	@ $V_O/2$	45/55%	-----	55/45%
Logic 0 (2)	V_{OL}	-----	0.80V	-----	1.10V
Logic 1(2)	V_{OH}	-----	1.25V	-----	1.55V
Differential Voltage(2)	V_{OD}	-----	250 mV	-----	450 mV
Disable Voltage	-----	with V_{EE}=0V	-----	-----	0.8V
Enable Voltage(5)	----	with V_{EE}=0V	2.0V	-----	-----
Rise & Fall Time (2)	tr,tf	20-80%V_O	-----	0.8 ns	1.0 ns
Tpd(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}	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I_{CC}	-----	0.0 mA	-----	80 mA
Output current	I_O	Continuous Output Current	0.0 mA	-----	±50.0 mA
Operating temperature	T_A	------	0°C	-----	55°C
Storage temperature	T_S	-----	-55°C	-----	125°C
Power Dissipation	P_D	-----	-----	-----	277 mW
Load	100 ohms across differential outputs				
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) With Load of 100 ohms across differential outputs.
3) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
4) Tpd is phase shift between the falling edge of pin 7 and the rising edge of pin 8.
5) Open to enable also enables the output.

Creating a Part Number

SK - A29DX - FREQ

Package Code
HK Leaded 8 pin (14 pin)
SK 8 pin (14 pin) SMD Gull Wing

Input Voltage

Code	Specification
A	3.3V
B	2.5V

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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SK-A2D00 Series Continued

Max Reflow Profile