



### 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

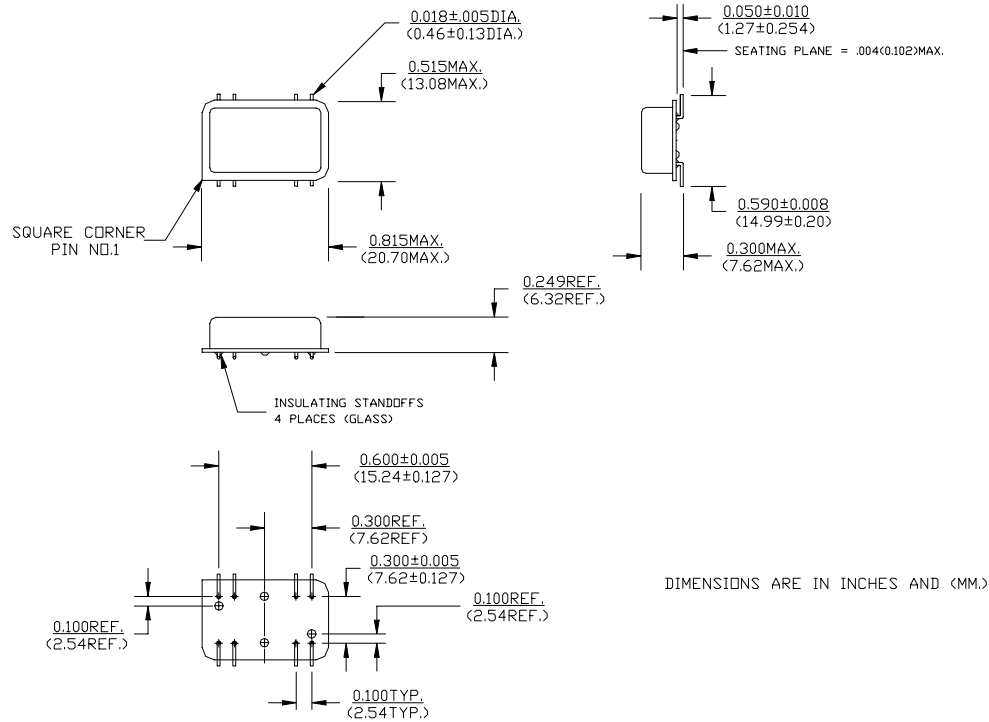
- Wide frequency range - 80.0MHz to 540.0MHz
- User specified tolerance available
- Case at electrical ground
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- All metal, resistance weld, hermetically sealed package
- High shock resistance, to 1000g
- Enable/Disable
- 3.3 volt operation
- 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 <sub>CC</sub>
2	V <sub>EE</sub> Case
6	V <sub>EE</sub> Case
7	Output
8	/Output
9	V <sub>EE</sub> Case
13	V <sub>EE</sub> Case
14	Enable/Disable

All other pins are  
No Connect



SK-A2D00 Series Continued  
LVDS

Rev. C

## Operating Conditions and Output Characteristics

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	80.0MHz	----	540.0MHz
Duty Cycle <sup>(2)</sup>	----	@ V <sub>O</sub> /2	45/55%	----	55/45%
Logic 0 <sup>(2)</sup>	V <sub>OL</sub>	----	0.80V	----	1.10V
Logic 1 <sup>(2)</sup>	V <sub>OH</sub>	----	1.25V	----	1.55V
Differential Voltage <sup>(2)</sup>	V <sub>OD</sub>	----	250 mV	----	450 mV
Disable Voltage	----	with V <sub>EE</sub> =0V	----	----	0.8V
Enable Voltage <sup>(5)</sup>	---	with V <sub>EE</sub> =0V	2.0V	----	----
Rise & Fall Time <sup>(2)</sup>	tr,tf	20-80%V <sub>O</sub>	----	0.8 ns	1.0 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>	----	3.135V	3.3V	3.465V
Supply Current	I <sub>CC</sub>	----	0.0 mA	----	80 mA
Output current	I <sub>O</sub>	Continuous Output Current	0.0 mA	----	±50.0 mA
Operating temperature	T <sub>A</sub>	----	0°C	----	55°C
Storage temperature	T <sub>S</sub>	----	-55°C	----	125°C
Power Dissipation	P <sub>D</sub>	----	----	----	277 mW
Lead temperature	T <sub>L</sub>	Soldering, 10 sec.	----	----	300°C
Load		100 ohms across differential outputs			
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-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 <sup>-8</sup> 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	
<b>SK - A29DX - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
HK Leaded 8 pin (14 pin)	0 ±100ppm 0-70°C
SK 8 pin (14 pin) SMD Gull Wing	1 ±50ppm 0-70°C
	7 ±25ppm 0-70°C
	9 Customer Specific
<b>Input Voltage</b>	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	