



Differential Positive ECL (DPECL) Fast Edge HS-A2920 Series

Description

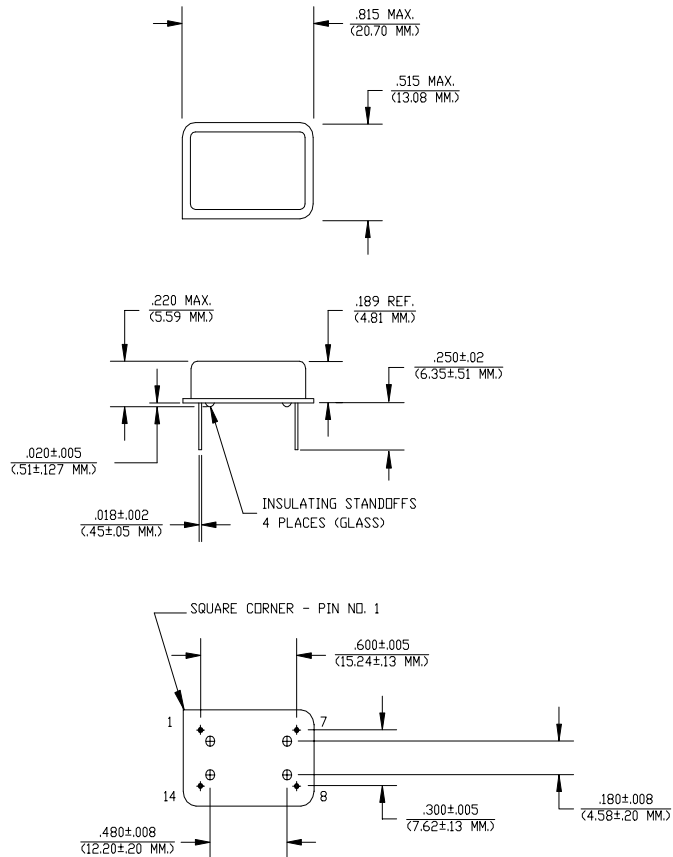
The **HS-A2920 Series** of quartz crystal oscillators provide DPECL Fast Edge compatible signals in industry standard four-pin DIP hermetic packages. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

Features

- Wide frequency range—50.0MHz to 155.520MHz
- 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
- Fast rise and fall times <600 ps
- Low Jitter
- Overtone technology
- 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
7	V _{EE} /Ground
8	Output
14	V _{CC}



Dimensions are in inches and (MM)

HS-A2920 Series Continued
 Differential Positive ECL (DPECL) Fast Edge

Rev. K

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	50.0MHz	----	155.52MHz
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	$t_{r,tf}$	20-80% V_O with 50 ohm load to V_{CC} -2V	----	----	600 psec
T_{pd} ⁽⁴⁾	----	----	-200 psec	----	+200 psec
Jitter, RMS ⁽³⁾	----	----	----	----	5 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

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 characterization.
- 4) T_{pd} is phase shift between the falling edge of pin 8 at 2.0V and the rising edge of pin 1 at 2.01V.

Creating a Part Number

HS - A292X - FREQ

Package Code

HS Leaded 4 pin (14 pin)
 SM Leaded 4 pin (14 pin) SMD
 Gull Wing

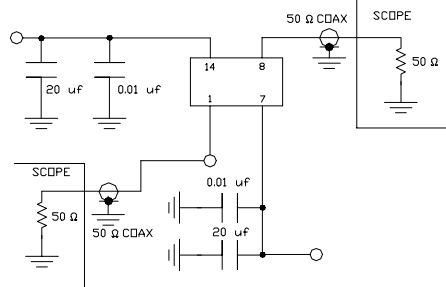
Input Voltage

Code Specification
 A 3.3V
 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

TEST CIRCUIT



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