3.3V PECL Low Jitter 159.375MHz 10Gb-FC XO SN10GE159

7.0 x 5.0mm Ceramic SMD

Product Features

- Very low phase jitter - 0.5ps RMS
- Thicker crystal for improved reliability
- Pb-free & RoHS compliant
- Industrial temperature range

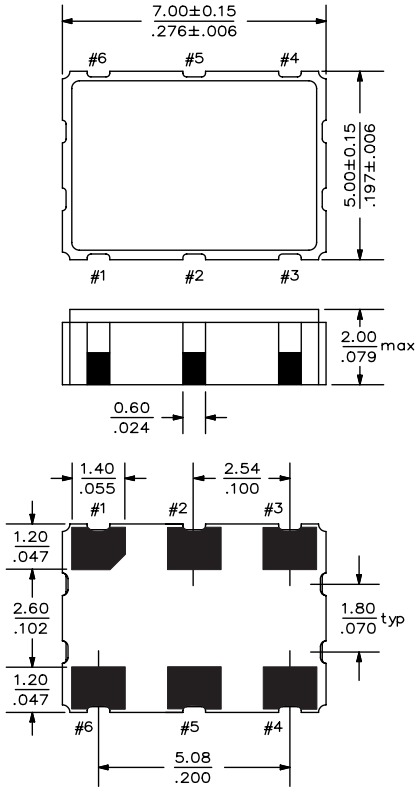
Product Description

The SN10GE159 3.3V crystal clock oscillator achieves superb jitter for 10Gigabit Fibre Channel (10Gb-FC) applications. The output clock signal, generated internally with a patented oscillator design, is compatible with LVPECL logic levels. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface-mount ceramic package.

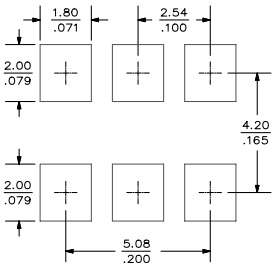
Applications

- 10 Gigabit Fibre Channel Network Interface Card (NIC)
- 10 Gigabit Fibre Channel Switch
- 10 Gigabit Fibre Channel PHY Module

Package:



Recommended Land Pattern:



Pin Functions:

Pin	Function
1	OE
2	NC
3	V_{EE}
4	Q Output
5	$\overline{Q}$ Output
6	V_{CC}

Part Ordering Information:

SN10GE159

Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency		159.375		MHz	
Supply Voltage	2.97	3.30	3.63	V	
Supply Current, Output Enabled		45	70	mA	
Supply Current, Output Disabled			25	mA	
Frequency Stability			±50	ppm	See Note 1 below
Operating Temperature Range	-20		+70	°C	
Output Logic 0, V_{OL}			V_{CC} – 1.620	V	0 to +85°C
			V_{CC} – 1.555	V	-40 to 0°C
Output Logic 1, V_{OH}	V_{CC} – 1.025			V	0 to +85°C
	V_{CC} – 1.085			V	-40 to +0°C
Output Load	50Ω to V_{CC} – 2V				output requires termination
Duty Cycle	45		55	%	Measured 50% V_{DD}
Rise and Fall Time		0.3	0.6	ns	Measured 20/80% of waveform
Jitter, Phase RMS (1-σ)		0.25	0.5	ps	12 kHz to 20 MHz frequency band
Jitter, pk–pk		25	40	ps	100,000 random periods

Notes:
1. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (5 year at 40°C average effective ambient temperature), shock and vibration.
2. For specifications othere than those listed, please contact sales.

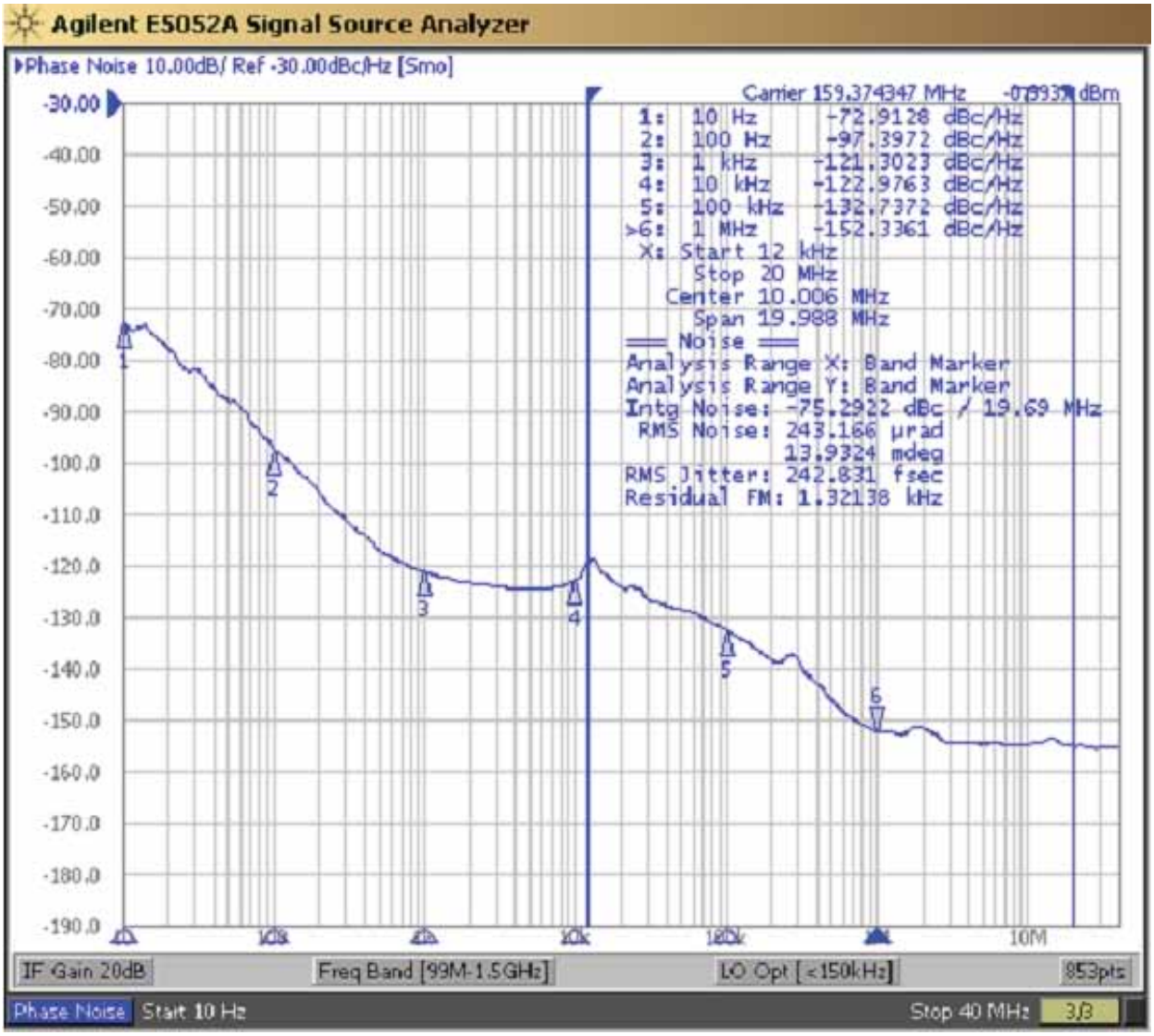
Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	2.2			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.8	V	Outputs disabled to Hi-Z
Internal Pullup Resistance	50			kΩ	
Output Disable Delay			200	ns	
Output Enable Delay			10	ms	

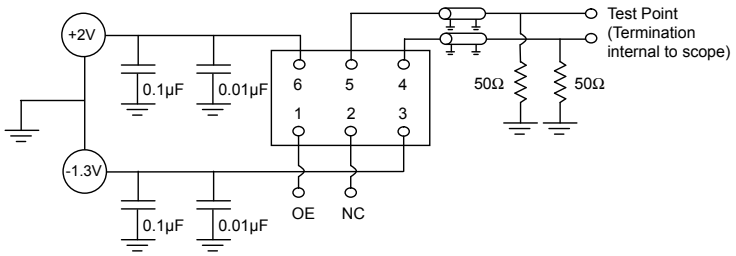
Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-55		+125	°C	

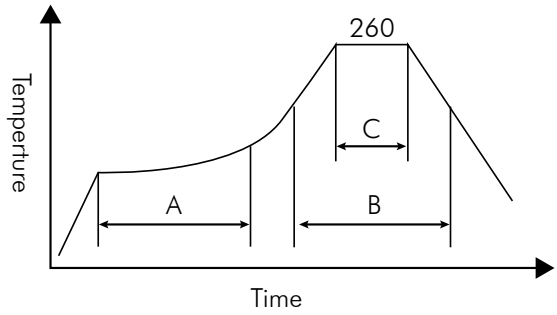
Typical Phase Noise



Test Circuit



Reflow Soldering Profile



Note:

	Stage	Temperature	Time
A	Preheat	160 - 180°C	60 - 120 Sec
B	Primary Heat	220°C	60 Sec
C	Peak	260°C ± 5°C	10 Sec

Reliability Test Ratings

This product is rated to meet the following test conditions:

Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ($R_1 = 2x10^{-8}$ atm cc/s)
Mechanical	Solvent resistance	MIL-STD-202, Method 215
Environmental	Thermal shock	MIL-STD-883, Method 1011, Condition A
Environmental	Moisture resistance	MIL-STD-883, Method 1004
Environmental	Vibration	MIL-STD-883, Method 2007, Condition A
Environmental	Resistance to soldering heat	J-STD-020C Table 5-2 Pb-free devices (2 cycles max)

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