

## General Description

The MX553BNS156M250 is an ultra-low phase jitter XO with LVDS output optimized for high line rate applications.

## Applications

- 10/40/400 Gigabit Ethernet
- Fibre Channel 10G/12G SERDES

## Absolute Maximum Ratings

Supply Voltage (VIN).....+4.6V  
 Lead Temperature (soldering, 10s).....260°C  
 Storage Temperature (T<sub>g</sub>).....125°C  
 ESD Rating (HBM).....2kV

## Features

- 156.25MHz LVDS
- Typical phase noise:  
 - 92fs (Integration range: 1.875MHz-20MHz)
- ±50ppm total frequency stability
- -40°C to +85°C temperature range
- Industry standard 6-Pin 5mm x 3.2mm LGA package

## Operating Ratings

Supply Voltage (VIN).....+2.375V to +3.63V  
 Ambient Temperature (TA).....-40°C to +85°C

## Electrical Characteristics

VDD = 2.375 - 3.63V, TA = -40°C to +85°C, outputs terminated with 100 Ohms between Q and /Q.<sup>1</sup>

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
IDD	Supply Current				90	mA
F0	Center Frequency			156.25		MHz
	Frequency Stability	Note 2			±50	ppm
Øj	Phase Noise	Integration Range (12kHz to 20MHz) Integration Range (1.875MHz to 20MHz)		152 92		fsRMS
Tstart	Start-Up Time				20	ms
TR/TF	Rise/Fall time		100		400	ps
	Duty Cycle		45		55	%
VOH	Output High Voltage VOH max = VCM max + 1/2 VOD max	LVDS output levels	1.248	1.375	1.602	V
VOL	Output Low Voltage VOL min = VCM min - 1/2 VOD max	LVDS output levels	0.898	1.025	1.252	V
VOD	Output Differential Voltage		247	350	454	mV
VCM	Common Mode Output Voltage		1.125	1.2	1.375	V

### Notes:

1. Guaranteed after thermal equilibrium.
2. Inclusive of initial accuracy, temperature drift, aging, shock, vibration.

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January 04, 2017  
 MX553BN2-1962

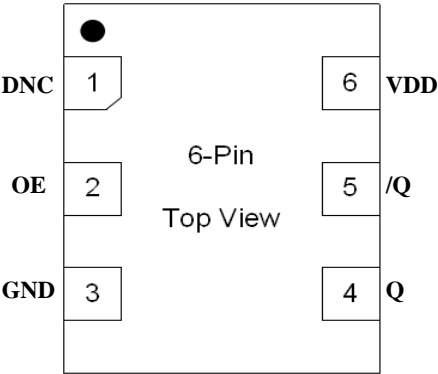
Revision 1.0  
[tcghelp@microchip.com](mailto:tcghelp@microchip.com)

Ordering Information

Ordering Part Number	Marking Line 1	Marking Line 3	Shipping	Package
MX553BNS156M250	MX553B	NS1562	Tube	6-Pin 5mm x 3.2mm LGA
MX553BNS156M250 TR	MX553B	NS1562	Tape and Reel	6-Pin 5mm x 3.2mm LGA

Devices are Green and RoHS compliant. Sample material may have only a partial top mark.

Pin Configuration



Pin Description

Pin Number	Pin Name	Pin Type	Pin Level	Pin Function
1	DNC			Make no connection, leave floating.
2	OE	I, SE	LVC MOS	Output Enable, disables output to tri-state, 0 = Disabled, 1 = Enabled, 50k Ohms Pull-Up
3	GND	PWR		Power Supply Ground
4, 5	Q, /Q	O, Diff	LVDS	Clock Output Frequency = 156.25MHz
6	VDD	PWR		Power Supply

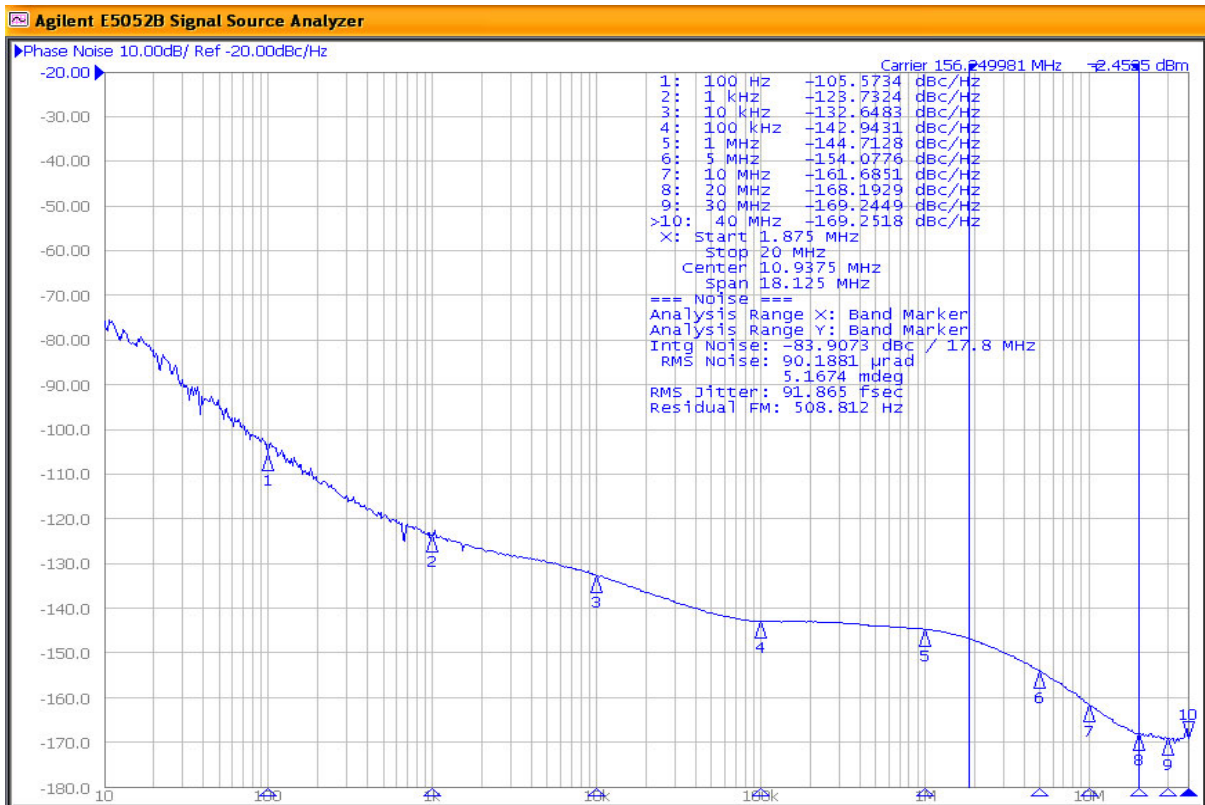


Figure 1. LVDS Output 156.25MHz 1.875MHz-20MHz 92fs

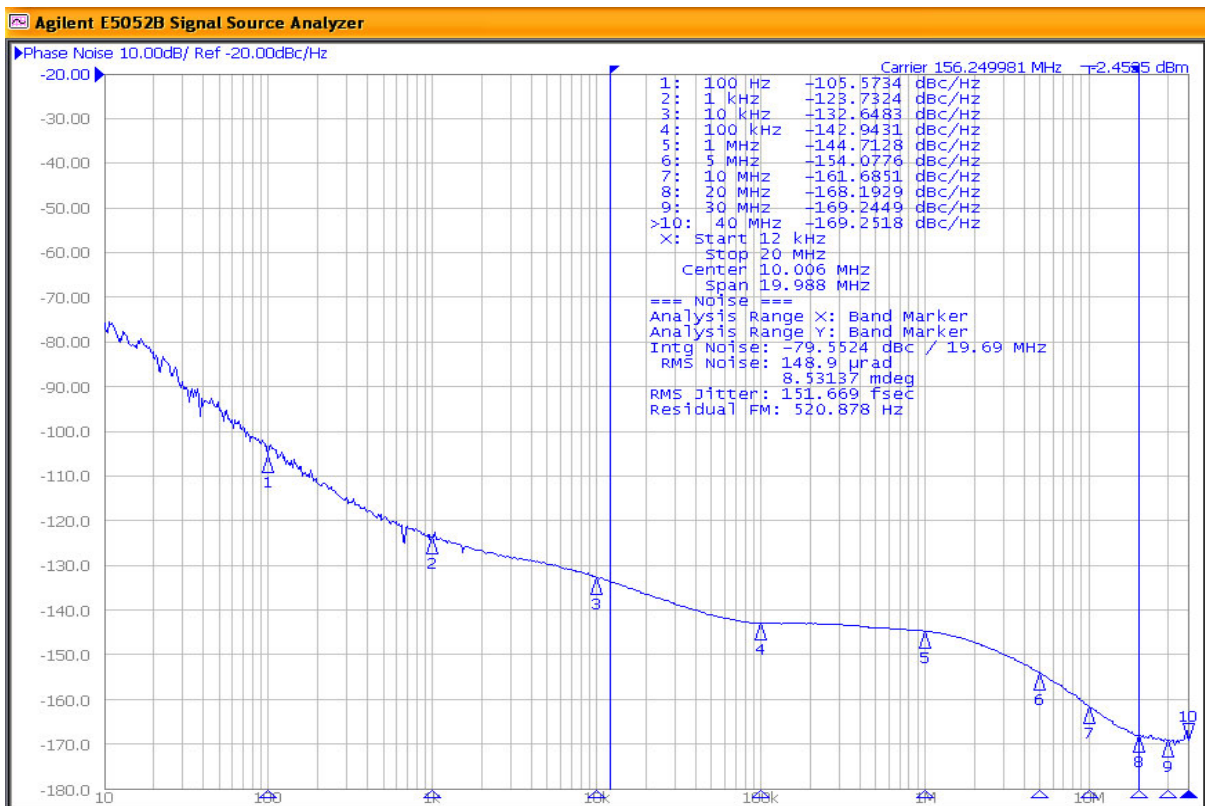
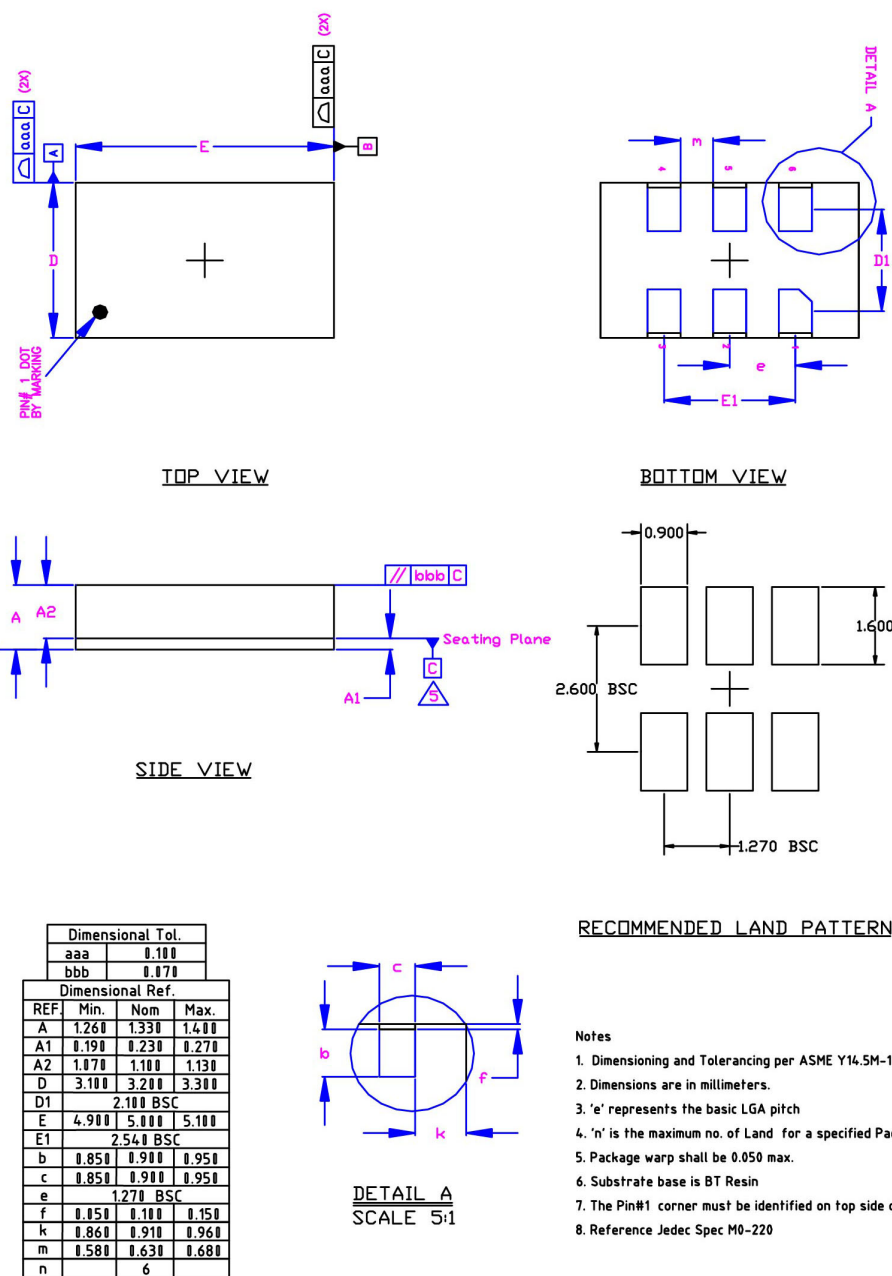


Figure 2. LVDS Output 156.25MHz 12kHz-20MHz 152fs

## Package Information and Recommended Land Pattern for 6-Pin LGA<sup>3</sup>



### Note:

3. Package information is correct as of the publication date. For updates and most current information, go to [www.microchip.com](http://www.microchip.com).

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