



MX553DBB266M666

Ultra-Low Jitter 266.666666MHz LVDS XO

ClockWorks® FUSION

General Description

The MX553DBB266M666 is an ultra-low phase jitter XO with LVDS output optimized for high line rate applications.

Features

- 266.666666MHz LVDS
- Typical phase noise:
 - 100fs (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

Absolute Maximum Ratings¹

Supply Voltage (VIN).....	+4.6V
Lead Temperature (soldering, 10s).....	260°C
Case Temperature.....	115°C
Storage Temperature (T _g).....	-65°C to +125°C
ESD Machine Model.....	.200V
ESD Rating (HBM).....	.2kV

Operating Ratings²

Supply Voltage (VIN).....	+2.375V to +3.63V
Ambient Temperature (TA).....	-40°C to +85°C
Junction Thermal Resistance	
LGA (T _{jc}) Still Air.....	58°C/W

Electrical Characteristics

VDD = 2.375 - 3.63V, TA = -40°C to +85°C, outputs terminated with 100Ω between Q and /Q.³

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
IDD	Supply Current			90	100	mA
F0	Center Frequency			266.666666		MHz
	Frequency Stability	Note 4			±50	ppm
∅j	Phase Noise	Integration Range (12kHz to 20MHz) Integration Range (1.875MHz to 20MHz)		150 100		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. Exceeding the absolute maximum ratings may damage the device.
2. The device is not guaranteed to function outside its operating ratings.
3. Guaranteed after thermal equilibrium.
4. Inclusive of initial accuracy, temperature drift, aging, shock, vibration.

ClockWorks is a registered trademark of Microchip Technology Inc.

Microchip Technology Inc.

<http://www.microchip.com>

December 07, 2020
MX553DB1-9450

Revision 1.0
tcghelp@microchip.com

Ordering Information

Ordering Part Number	Marking Line 1	Marking Line 3	Shipping	Package
MX553DBB266M666	MX553D	BB2666	Tube	6-Pin 5mm x 3.2mm LGA
MX553DBB266M666-TR	MX553D	BB2666	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	OE	I, SE	LVC MOS	Output Enable, disables output to tri-state, 0 = Disabled, 1 = Enabled, 50k Ω Pull-Up (Internal)
2	DNC			Make no connection, leave floating.
3	GND	PWR		Power Supply Ground
4, 5	Q, /Q	O, Diff	LVDS	Clock Output Frequency = 266.666666MHz
6	VDD	PWR		Power Supply

Environmental Specifications

Thermal Shock	MIL-STD-883, Method 1011, Condition A
Moisture Resistance	MIL-STD-883, Method 1004
Mechanical Shock	MIL-STD-883, Method 2002, Condition C
Mechanical Vibration	MIL-STD-883, Method 2007, Condition B
Resistance to Soldering Heat	J-STD-020C, Table 5-2 Pb-free devices (except 2 cycles max)
Hazardous Substance	Pb-Free / RoHS / Green Compliant
Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Terminal Strength	MIL-STD-883, Method 2004, Test Condition D
Gross Leak	MIL-STD-883, Method 1014, Condition C
Fine Leak	MIL-STD-883, Method 1014, Condition A2, R1=2x10 ⁻⁸ atm cc/s
MSL Level	Crystal - MSL-1, Package MSL-3
Solvent Resistance	MIL-STD-202, Method 215

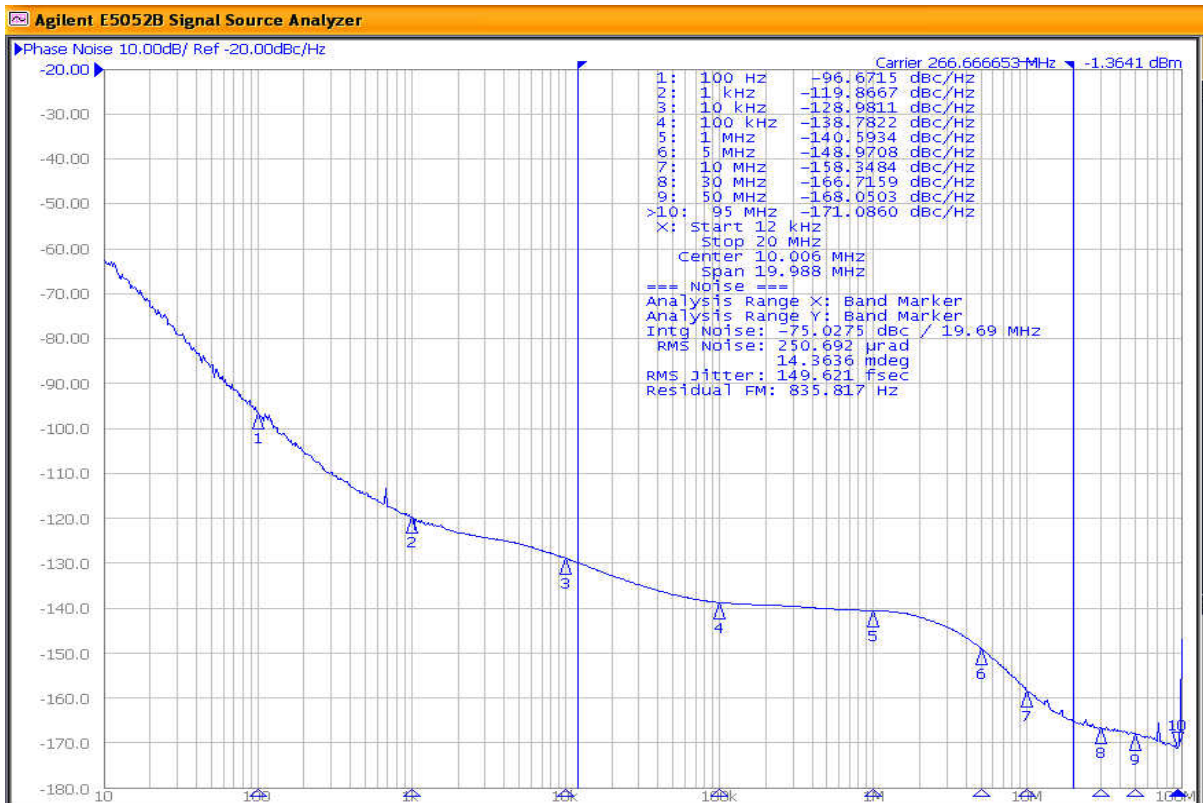
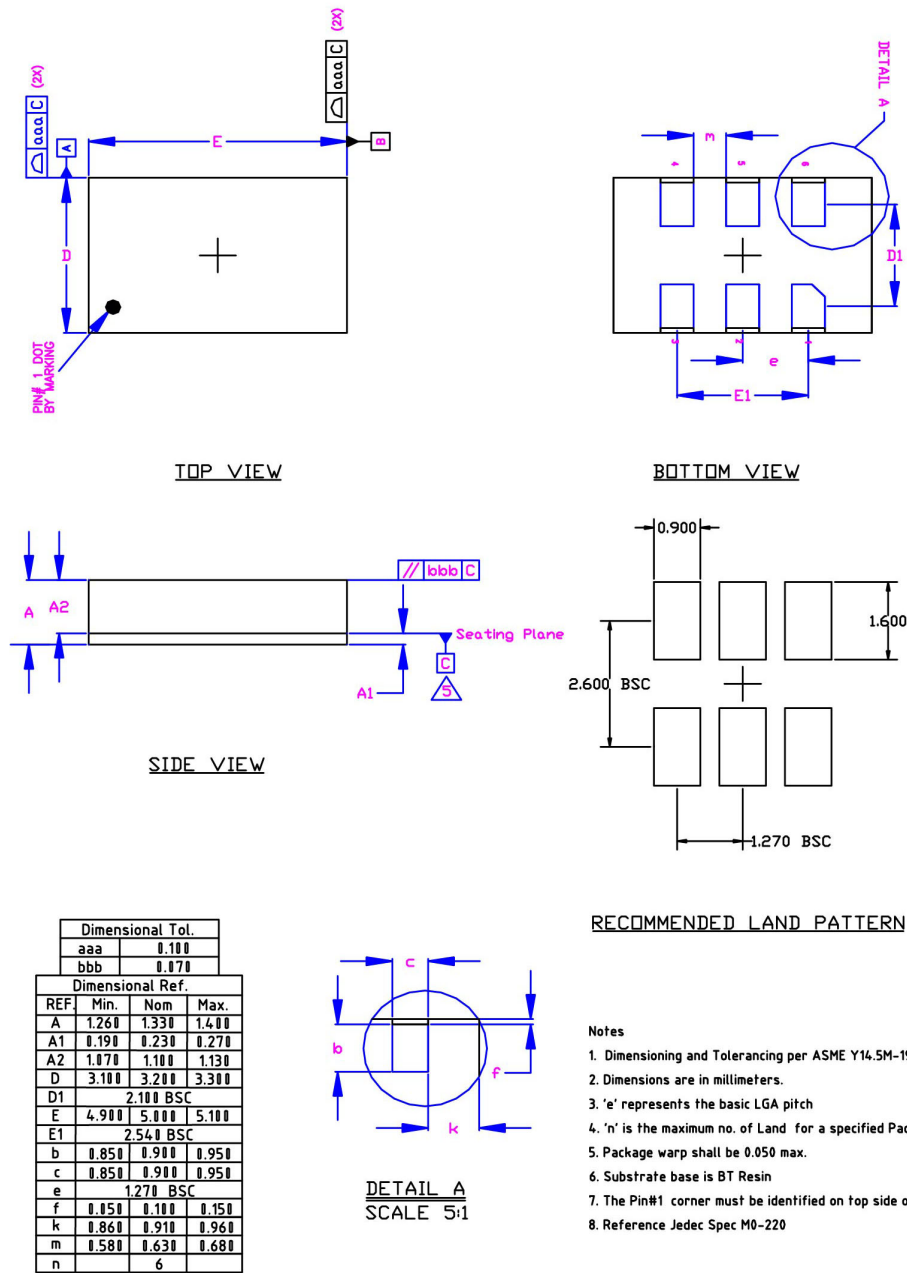


Figure 1. LVDS Output 266.666666MHz 12kHz-20MHz 150fs

Package Information and Recommended Land Pattern for 6-Pin LGA³



RECOMMENDED LAND PATTERN

- Notes**
1. Dimensioning and Tolerancing per ASME Y14.5M-1994.
 2. Dimensions are in millimeters.
 3. 'e' represents the basic LGA pitch
 4. 'n' is the maximum no. of Land for a specified Package.
 5. Package warp shall be 0.050 max.
 6. Substrate base is BT Resin
 7. The Pin#1 corner must be identified on top side only.
 8. Reference Jecdec Spec M0-220

Note:

3. Package information is correct as of the publication date. For updates and most current information, go to www.microchip.com.

Microchip Technology Inc.

<http://www.microchip.com>

Microchip makes no representations or warranties with respect to the accuracy or completeness of the information furnished in this data sheet. This information is not intended as a warranty and Microchip does not assume responsibility for its use. Microchip reserves the right to change circuitry, specifications and descriptions at any time without notice. No license, whether express, implied, arising by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Microchip's terms and conditions of sale for such products, Microchip assumes no liability whatsoever, and Microchip disclaims any express or implied warranty relating to the sale and/or use of Microchip products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right.

© 2020 Microchip Technology Inc.