



General Description

The MX554EBC20M0000 is an ultra-low phase jitter XO with LVC MOS output optimized for high line rate applications.

Features

- 20MHz LVC MOS
- Typical phase noise:
 - 83fs (Integration range: 1.875MHz-5MHz)
- ±50ppm total frequency stability
- -40°C to +85°C temperature range
- Industry standard 6-Pin 5mm x 3.2mm LGA package

Absolute Maximum Ratings

Supply Voltage (VIN).....+4.6V
 Lead Temperature (soldering, 10s).....260°C
 Storage Temperature (T_s).....125°C
 ESD Rating (HBM).....2kV

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, output terminated with 50 Ohms to VDD/2.¹

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
IDD	Supply Current				95	mA
F0	Center Frequency			20		MHz
	Frequency Stability	Note 2			±50	ppm
∅j	Phase Noise	Integration Range (12kHz to 5MHz) Integration Range (1.875MHz to 5MHz)		136 83		fsRMS
Tstart	Start-Up Time				20	ms
TR/TF	Rise/Fall time		100		500	ps
	Duty Cycle		45		55	%
VIH	Input High Voltage	3.3V Operation	2		VDD + 0.3	V
VIL	Input Low Voltage	3.3V Operation	-0.3		0.8	V
VOH	Output High Voltage	LVC MOS output levels	VDD - 0.8			V
VOL	Output Low Voltage	LVC MOS output levels			0.6	V

Notes:

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

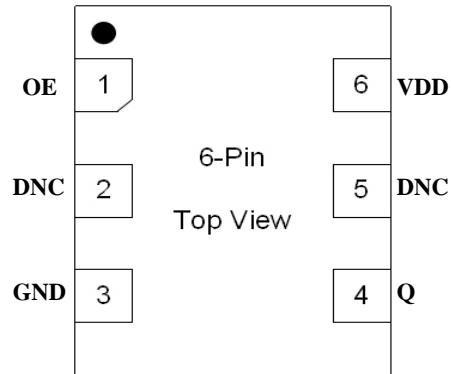
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Ordering Information

Ordering Part Number	Marking Line 1	Marking Line 3	Shipping	Package
MX554EBC20M0000	MX554E	BC0200	Tube	6-Pin 5mm x 3.2mm LGA
MX554EBC20M0000 TR	MX554E	BC0200	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 Ohms Pull-Up
2	DNC			Make no connection, leave floating.
3	GND	PWR		Power Supply Ground
4, 5	Q, DNC	O, SE	LVC MOS	Clock Output Frequency = 20MHz
6	VDD	PWR		Power Supply

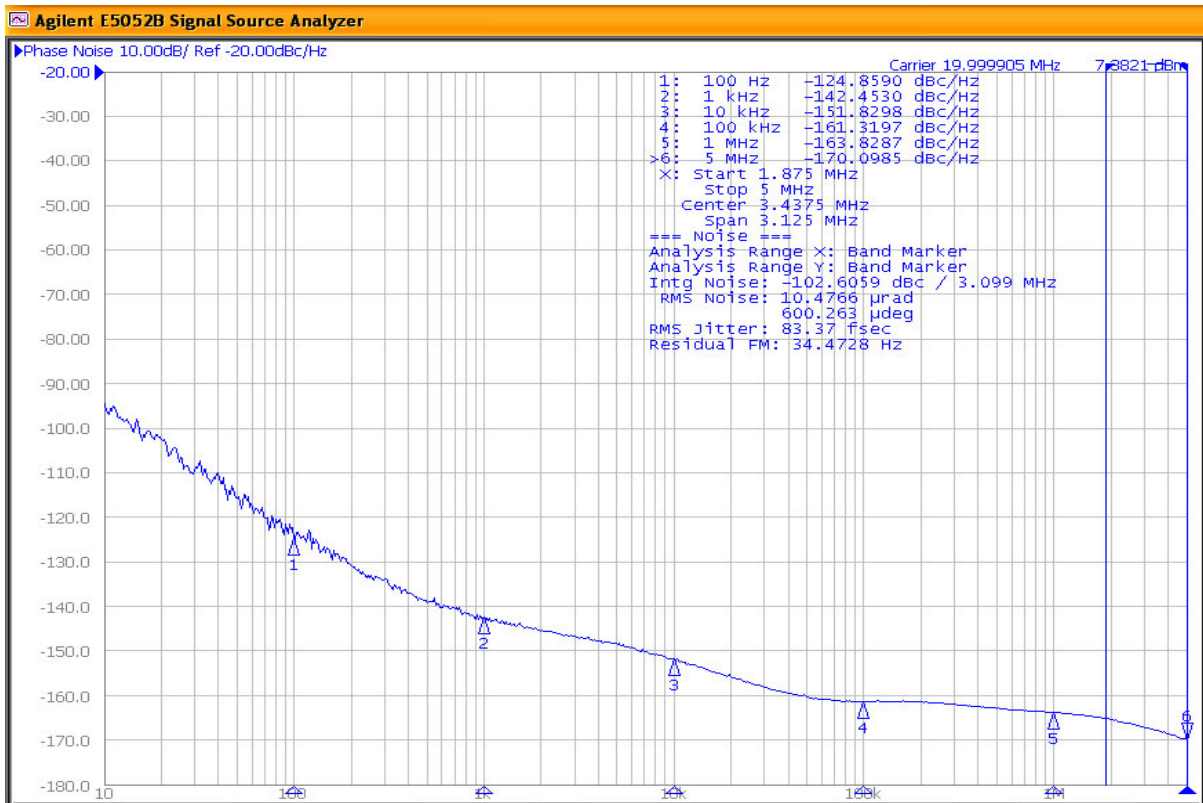


Figure 1. LVC MOS Output 20MHz 1.875MHz-5MHz 83fs

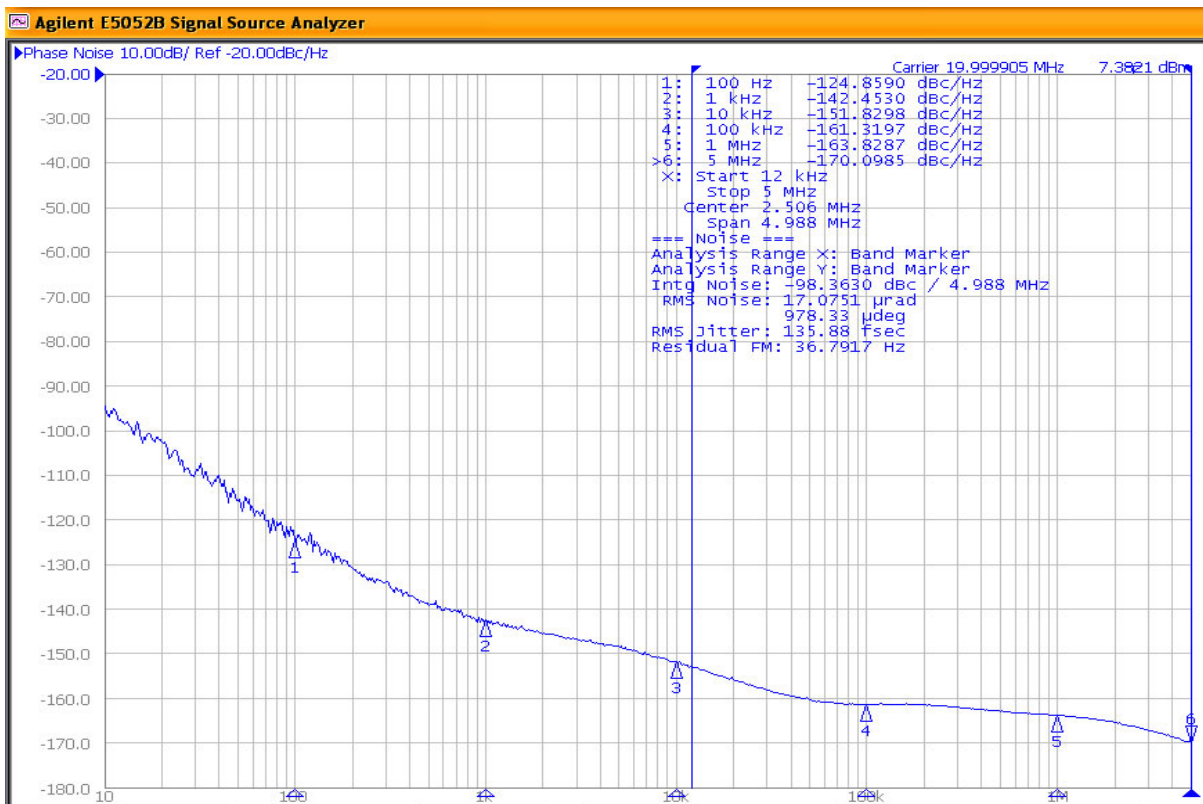
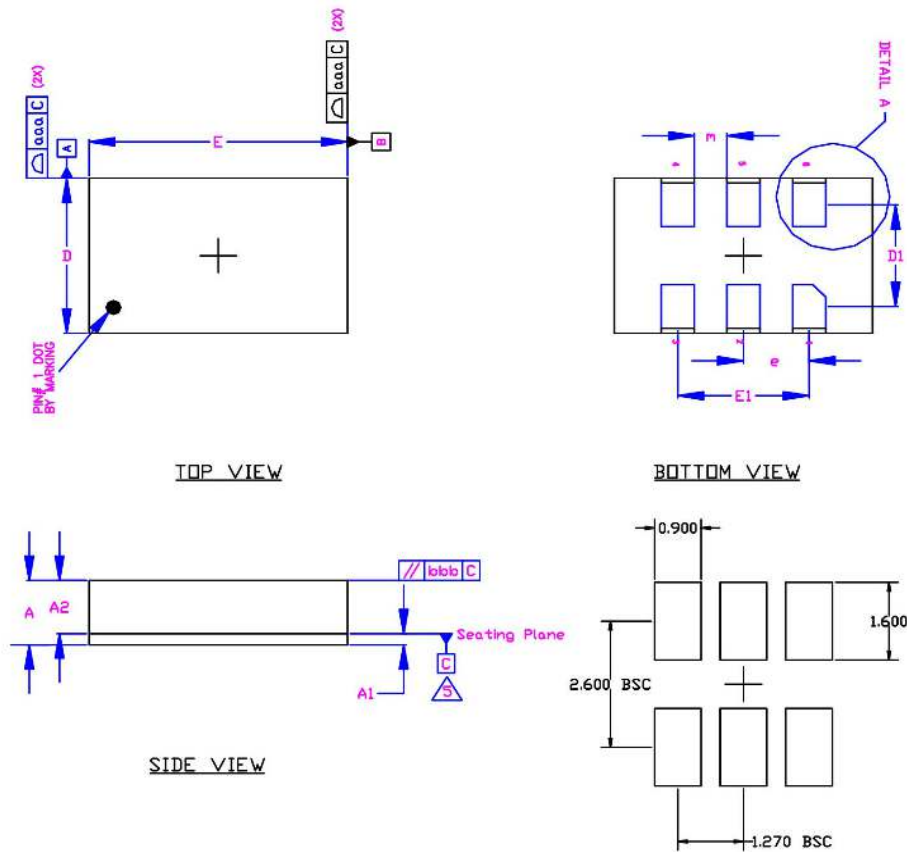


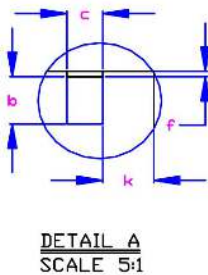
Figure 2. LVC MOS Output 20MHz 12kHz-5MHz 136fs

Package Information and Recommended Land Pattern for 6-Pin LGA³

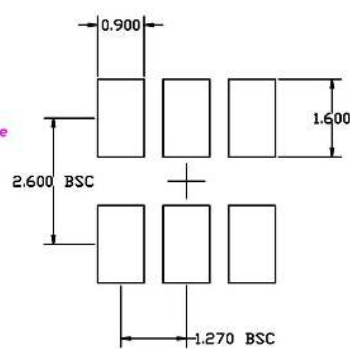


Dimensional Tol.	
aaa	0.100
bbb	0.170

Dimensional Ref.			
REF.	Min.	Nom.	Max.
A	1.260	1.330	1.400
A1	0.190	0.230	0.270
A2	1.070	1.100	1.130
D	3.100	3.200	3.300
D1	2.100 BSC		
E	4.900	5.100	5.100
E1	2.540 BSC		
b	0.850	0.900	0.950
c	0.850	0.900	0.950
e	1.270 BSC		
f	0.850	0.100	0.150
k	0.860	0.910	0.960
m	0.580	0.630	0.680
n	6		



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 Jeduc 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.

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