IDT

100.00 MHz LVPECL Oscillator   4MA100000Z3
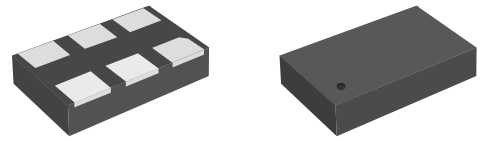
High Performance Differential MEMS Oscillator

DATASHEET

Features

- Frequency: 100.00 MHz
- Output Type: LVPECL
- Frequency Stability: ± 50ppm
- Supply Voltage: 2.5V & 3.3V
- Standard Packages: 5.0 x 3.2 mm; 7.0 x 5.0 mm
- RMS phase jitter: 0.6ps typical (12k to 20MHz)
- Operating Temperature: - 40 to 85 °C

7.0 x 5.0 mm package shown
(also available in 5.0 x 3.2mm pkg)

Specification

Parameter	2.5 V Specifications			3.3 V Specifications			Units	Conditions
	Min	Typ	Max	Min	Typ	Max		
Supply Voltage (V_{DD})	2.375	2.50	2.625	2.97	3.30	3.63	V	
Output Frequency		100.00			100.00		MHz	
Frequency Stability	- 50		+ 50	- 50		+ 50	ppm	Includes supply voltage and temperature variation (-40 to 85°C), reflow drift, and aging.
Supply Current		95			100		mA	No load
Enable/Disable Time		1			1		us	Guaranteed by design
Input LOW level			$0.3V_{DD}$			$0.3V_{DD}$	V	At OE pin
Input HIGH level	$0.7V_{DD}$			$0.7V_{DD}$			V	At OE pin
Output LOW level		0.8	V_{DD}-1.8		1.5	V_{DD}-1.8	V	
Output HIGH level	V_{DD}-1.0	1.6		V_{DD}-1.1	2.3		V	
Amplitude (V_A)		0.75			0.75		V	Single Ended output swing (Pk-Pk)
Mid Level (V_M)		V_{DD}-1.3			V_{DD}-1.3		V	
Rise Time (T_R)		220	260		200	240	ps	Maximum; 20/80% of V_A; Output load (CL) = 2pF; Guaranteed by Char.
Fall Time (T_F)		220	260		200	240	ps	Maximum; 20/80% of V_A; Output load (CL) = 2pF; Guaranteed by Char.
Symmetry (SYM)	48	50	52	48	50	52	%	Worst case; measured at 50% of waveform
Phase Jitter		0.9			0.6		ps	12k to 20MHz, RMS; Measured Differentially
Period Jitter		2.6			2.4		ps	RMS
Cycle-to-Cycle Jitter		20			18		ps	1,000 cycles, Peak
Start-up Time		10			10		ms	Output valid time after power up, 25°C
Aging		± 5			± 5		ppm	25°C, 10 years

Block Diagram

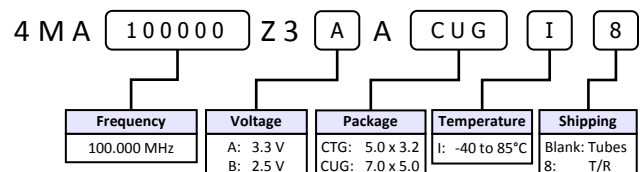## Output Waveform

$$SYM = t_1 / t_2$$
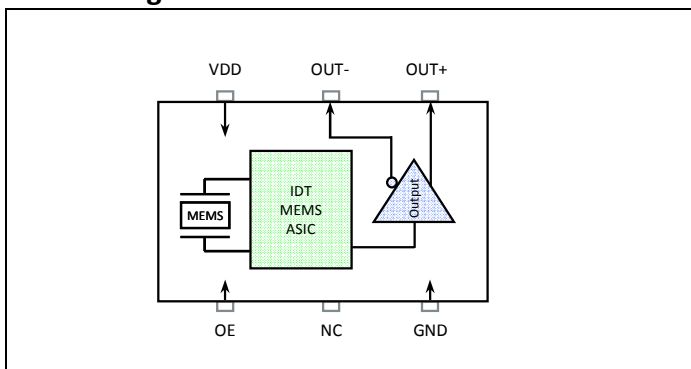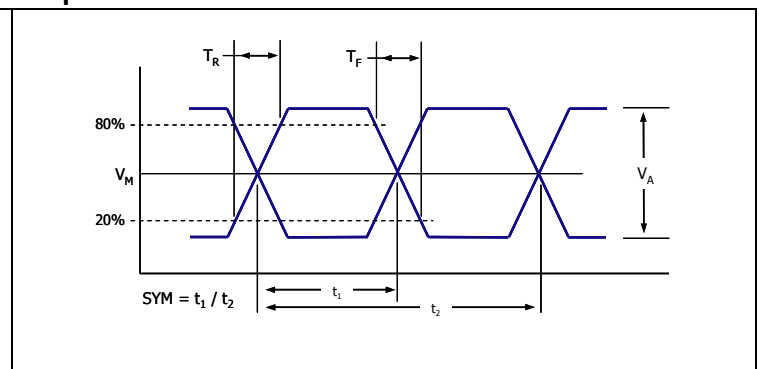
Part Ordering Information

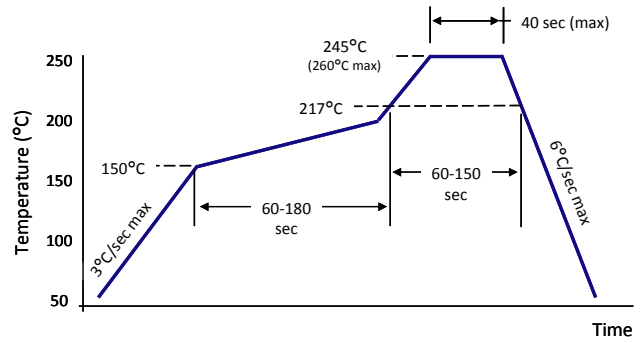| Package Size	Voltage	Ordering Code
7.0 x 5.0 mm	3.3 V	4MA100000Z3AACUGI
	2.5 V	4MA100000Z3BACUGI
5.0 x 3.2 mm	3.3 V	4MA100000Z3AACTGI
	2.5 V	4MA100000Z3BACTGI
* Factory minimum order quantity: 500pcs (T/R)		

4 M A [100000] Z3 [A] A [CUG] [I] [8]

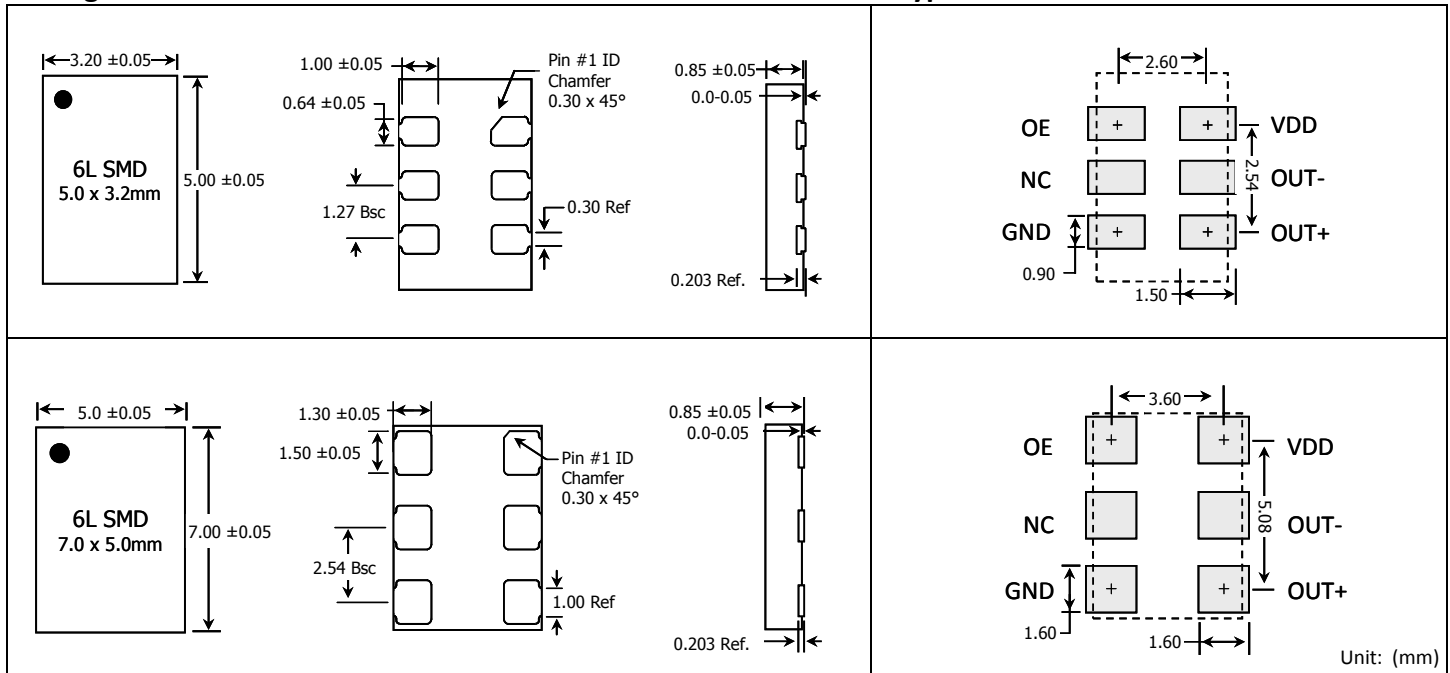| Frequency	Voltage	Package	Temperature	Shipping
100.000 MHz	A: 3.3 V B: 2.5 V	CTG: 5.0 x 3.2 CUG: 7.0 x 5.0	I: -40 to 85°C	Blank: Tubes 8: T/R

Pin Description

Pin #	Name	Description
1	OE	Output Enable*
2	NC	No Connect
3	GND	Ground
4	OUT+	Output
5	OUT−	Complementary Output
6	VDD	Power Supply Voltage
* Pulled high internally		

Solder Reflow Profile

Package Outline and Dimensions

6L SMD
5.0 x 3.2mm

3.20 ±0.05
5.00 ±0.05
1.00 ±0.05
0.64 ±0.05
Pin #1 ID Chamfer 0.30 x 45°
1.27 Bsc
0.30 Ref
0.85 ±0.05
0.0-0.05
0.203 Ref.

6L SMD
7.0 x 5.0mm

5.0 ±0.05
7.00 ±0.05
1.30 ±0.05
1.50 ±0.05
Pin #1 ID Chamfer 0.30 x 45°
2.54 Bsc
1.00 Ref
0.85 ±0.05
0.0-0.05
0.203 Ref.

Typical PCB Land Pattern

OE VDD
NC OUT-
GND OUT+
2.60 2.54 0.90 1.50

OE VDD
NC OUT-
GND OUT+
3.60 5.08 1.60 1.60

Unit: (mm)

Sales

800-345-7015 (inside USA)
+1 408-284-8200 (outside USA)

Technical Support

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