



# 100.00 MHz LVPECL Oscillator

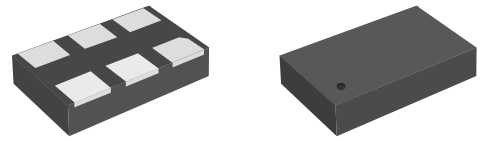
High Performance Differential MEMS Oscillator

4MA100000Z3

## DATASHEET

### Features

- Frequency: 100.00 MHz
- Output Type: LVPECL
- Frequency Stability:  $\pm 50$ ppm
- 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

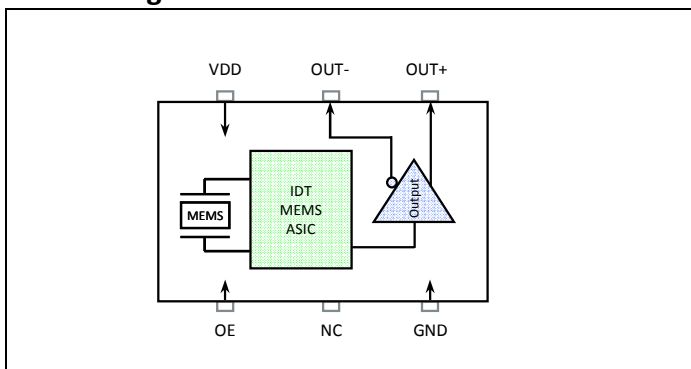


7.0 x 5.0 mm package shown  
(also available in 5.0 x 3.2mm pkg)

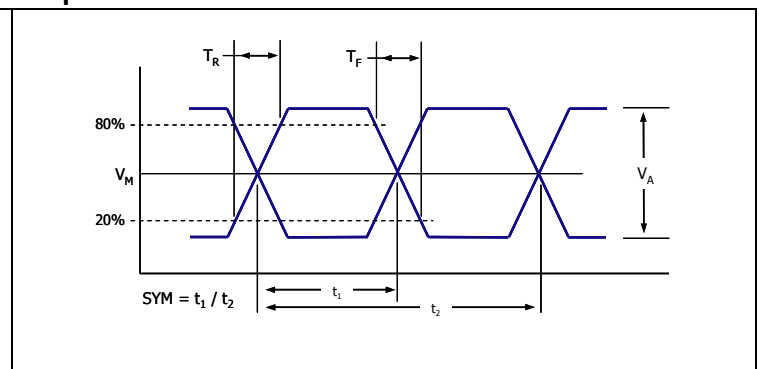
### Specification

| 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 <sub>DD</sub>   |                      |                      | 0.3V <sub>DD</sub>   | V     | At OE pin   |
| Input HIGH level            | 0.7V <sub>DD</sub>   |                      |                      | 0.7V <sub>DD</sub>   |                      |                      | V     | At OE pin   |
| Output LOW level            |                      | 0.8                  | V <sub>DD</sub> -1.8 |                      | 1.5                  | V <sub>DD</sub> -1.8 | V     |   |
| Output HIGH level           | V <sub>DD</sub> -1.0 | 1.6                  |                      | V <sub>DD</sub> -1.1 | 2.3                  |                      | V     |   |
| Amplitude ( $V_A$ )         |                      | 0.75                 |                      |                      | 0.75                 |                      | V     | Single Ended output swing (Pk-Pk)   |
| Mid Level ( $V_M$ )         |                      | V <sub>DD</sub> -1.3 |                      |                      | V <sub>DD</sub> -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                       |                      | $\pm 5$              |                      |                      | $\pm 5$              |                      | ppm   | 25°C, 10 years  |

### Block Diagram



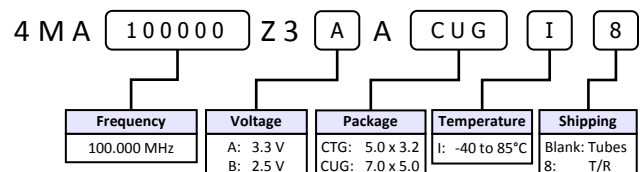
### Output Waveform



### 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)

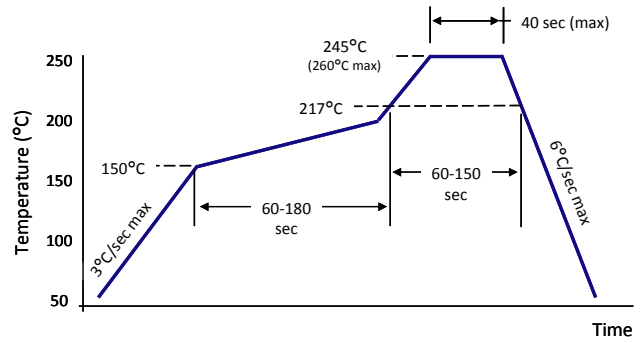


**Pin Description**

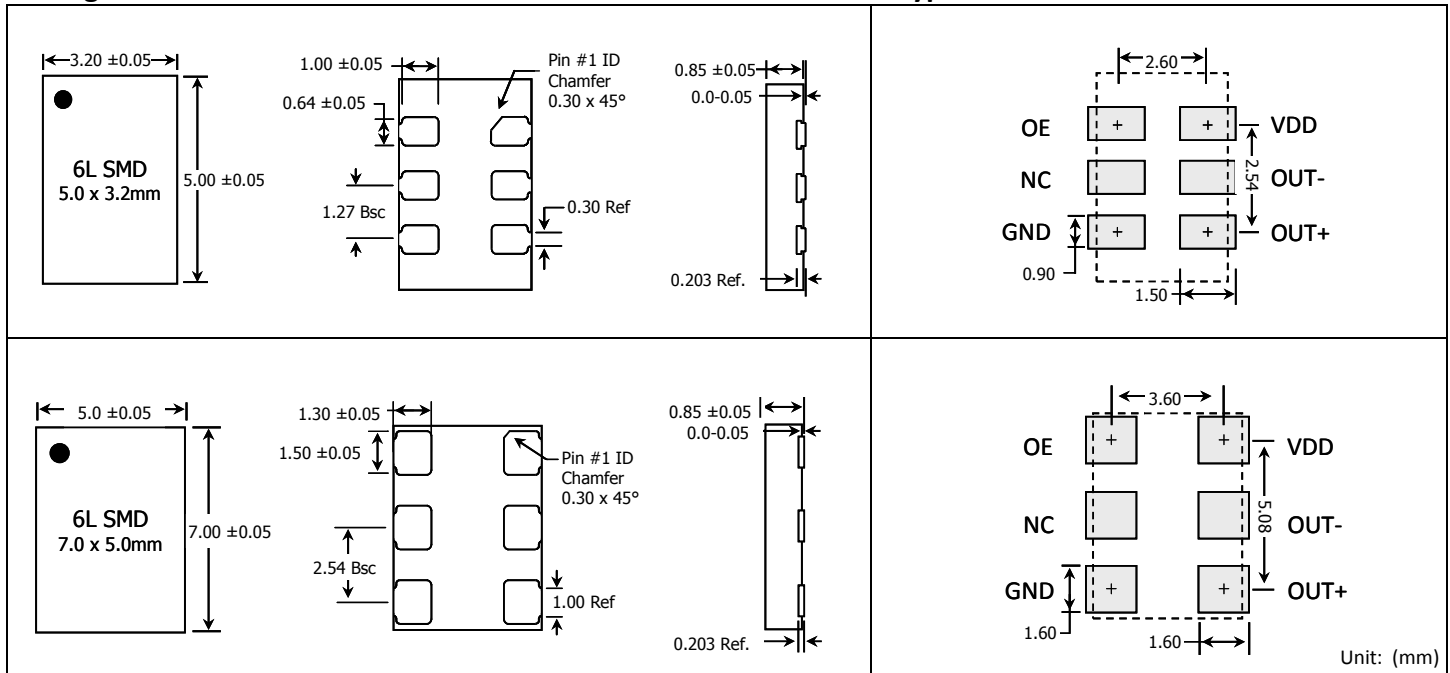
| Pin # | Name | Description          |
|-------|------|----------------------|
| 1     | OE   | Output Enable*       |
| 2     | NC   | No Connect           |
| 3     | GND  | Ground               |
| 4     | OUT+ | Output               |
| 5     | OUT- | Complementary Output |
| 6     | VDD  | Power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

\* Pulled high internally

**Solder Reflow Profile**



**Package Outline and Dimensions**



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