

Ultra-Low Phase Jitter LVPECL SMD Clock Oscillator

ASFLMX-156.250MHz-3BBA



ESD Sensitive



RoHS/RoHS II compliant



5.0 x 3.2 x 1.4mm

Moisture Sensitivity Level – MSL 3

FEATURES:

- 156.25MHz LVPECL
- Typical phase noise: 110fs (Integration range: 1.875MHz-20MHz)
- ±50ppm total frequency stability over -40°C to +85°C temperature range
- Industry standard 6-Pin 5 x 3.2mm LGA package

APPLICATIONS:

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

KEY ELECTRICAL SPECIFICATIONS

Absolute Maximum Ratings

| Item | Minimum | Maximum | Unit | Condition |
|----------------------------|---------|---------|------|-----------|
| Supply Voltage | -0.3 | +3.6 | V | |
| Storage Temp. | -55 | +125 | °C | |
| Lead Temp.(soldering, 10s) | | +260 | °C | |
| ESD (HBM) | | 2 | kV | |

VDD = 2.375 - 3.63V, TA = -40°C to +85°C, outputs terminated with 50 Ohms to VDD - 2.⁽¹⁾

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|---|---|-----------------------|-----------------------|----------------------|-------------------------------|
| Frequency | 156.250 | | | MHz | |
| Operating Temperature (T _A) | -40 | | +85 | °C | |
| Overall Frequency Stability ⁽²⁾ | -50 | | +50 | ppm | |
| Supply Voltage (V _{DD}) | +2.375 | | +3.63 | V | |
| Supply Current (I _{DD}) | | | 120 | mA | |
| Output Logic Level | V _{OH} | V _{DD} -1.35 | V _{DD} -1.01 | V _{DD} -0.8 | V |
| | V _{OL} | V _{DD} -2.0 | V _{DD} -1.78 | V _{DD} -1.6 | V |
| Peak to Peak Output Swing (V _{swing}) | 0.65 | 0.77 | 0.95 | V | Single ended |
| Start-up Time | | | 20 | ms | |
| Rise Time (Tr) | 85 | | 350 | ps | RL=50Ω , CL=0pF 20% to 80% |
| Fall Time (Tf) | 85 | | 350 | | |
| Duty Cycle | 45 | | 55 | % | |
| Phase Noise | Integration Range: 12kHz to 20MHz | | 165 | fsRMS | |
| | Integration Range: 1.875MHz to 20MHz | | 110 | | |

Notes:

1. Guaranteed after thermal equilibrium
2. Inclusive of initial accuracy, temperature drift, aging, shock, vibration from -40°C to +85°C.

PART IDENTIFICATION

ASFLMX-156.250MHz -3ABB -

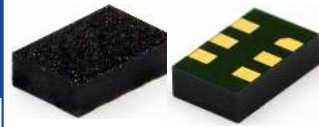
| Packing |
|--------------------------|
| Blank: Bulk or Tube |
| T: Tape & Reel (1k/reel) |

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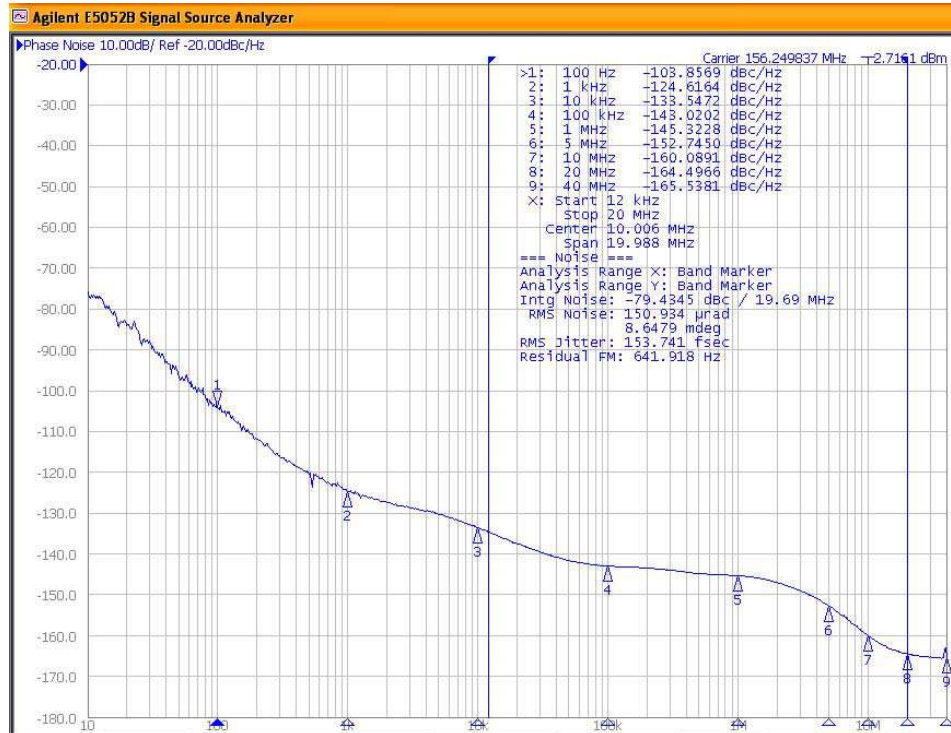
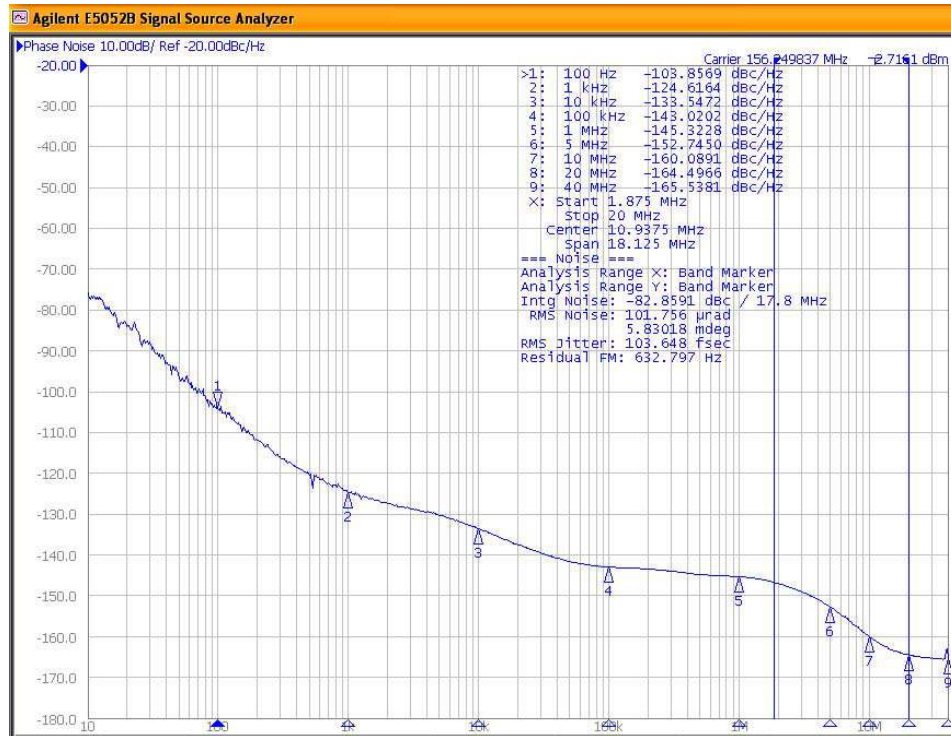


RoHS/RoHS II compliant



5.0 x 3.2 x 1.4mm

TYPICAL PHASE NOISE



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2 Faraday, Suite# B | Irvine | CA 92618 Revised: 04.15.15
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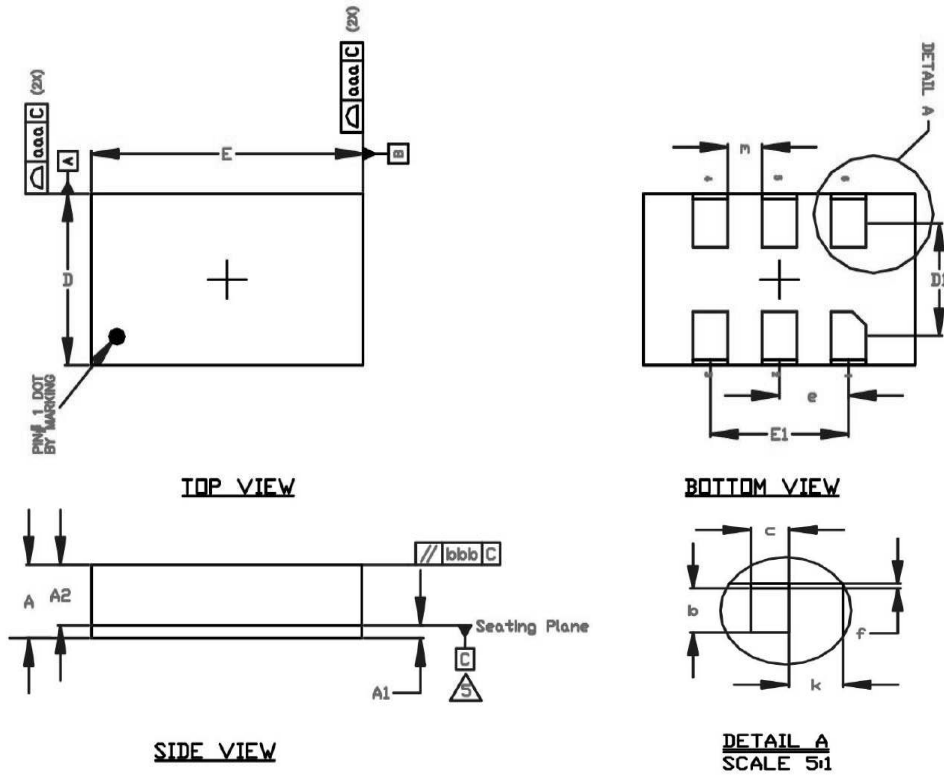


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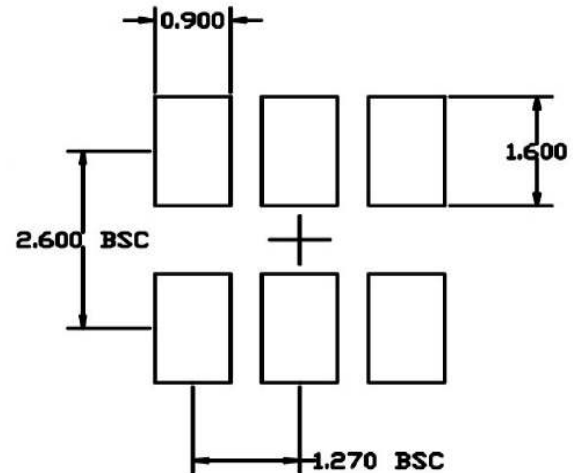
OUTLINE DIMENSION



| 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 | 5.000 | 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 | 0.050 | 0.100 | 0.150 |
| k | 0.860 | 0.910 | 0.960 |
| m | 0.580 | 0.630 | 0.680 |
| n | 6 | | |

| Dimensional Tolerance | |
|-----------------------|-------|
| aaa | 0.100 |
| bbb | 0.070 |

Recommended Land Pattern



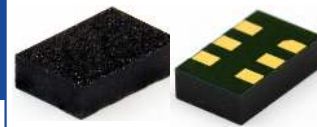
Dimensions: mm

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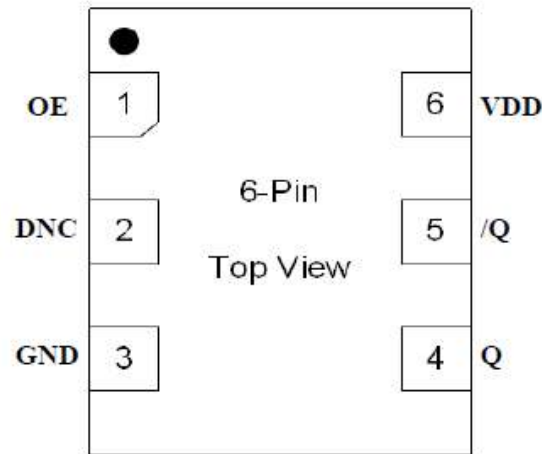


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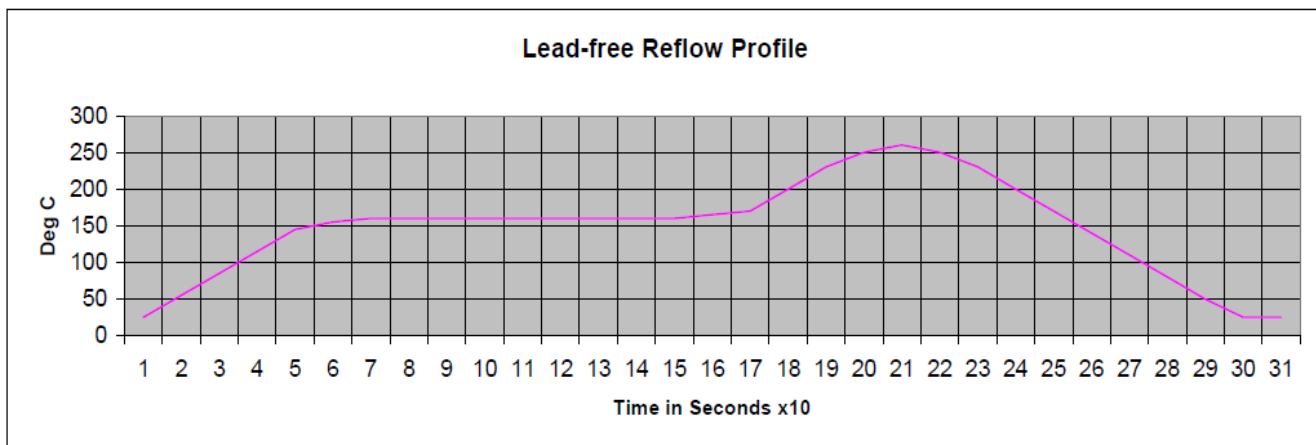
5.0 x 3.2 x 1.4mm

PIN CONFIGURATION



| Pin # | 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 |
| 2 | DNC | | | Make no connection, leave floating |
| 3 | GND | PWR | | Power Supply Ground |
| 4 | Q | O | LVPECL | Clock Output |
| 5 | /Q | O | LVPECL | Complimentary Clock Output |
| 6 | VDD | PWR | | Power Supply |

REFLOW PROFILE



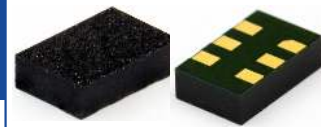
| Parameters | Specifications |
|---------------------------|--------------------|
| Average Ramp-up Rate | 3°C /second max. |
| Pre-Heat Temp 150 – 200°C | 60 – 180 second |
| Temp > 217°C | 60 – 150 second |
| Time @ Peak Temperature | 20 – 40 second |
| Peak Temperature | 260°C + 0°C / -5°C |
| Ramp-down Rate | -6°C / second max. |
| Time 25°C to Peak Temp. | 8 minutes max. |

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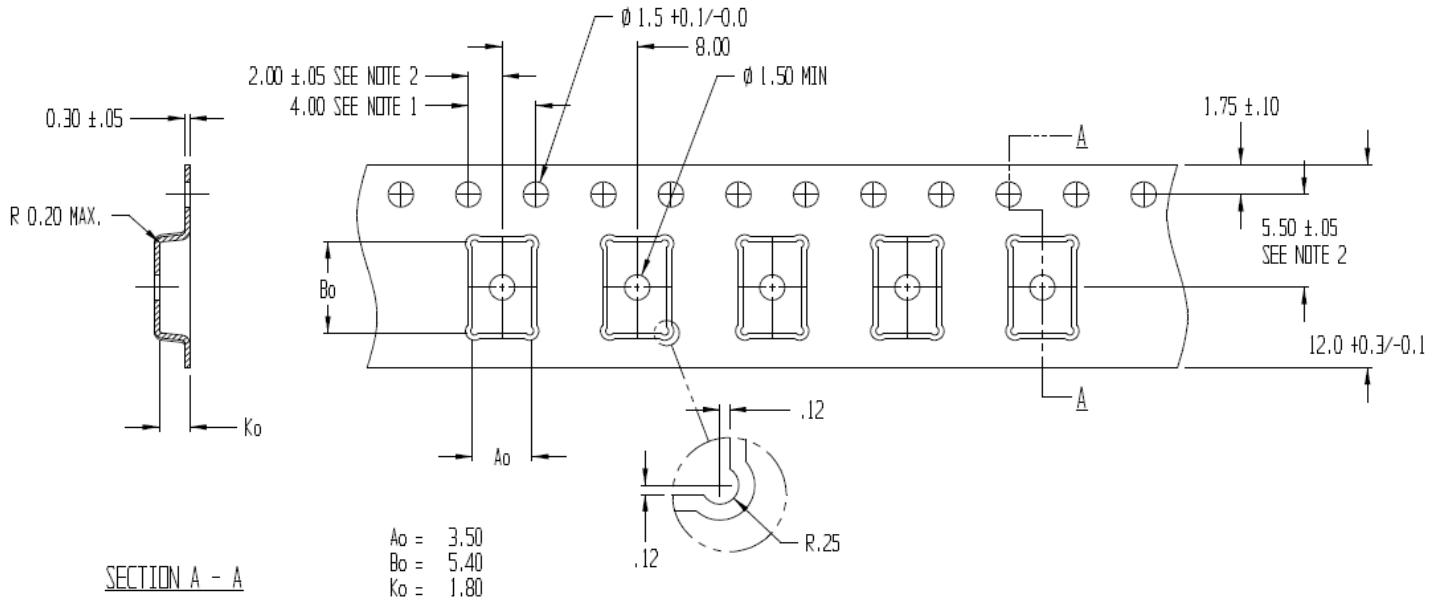


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TAPE & REEL

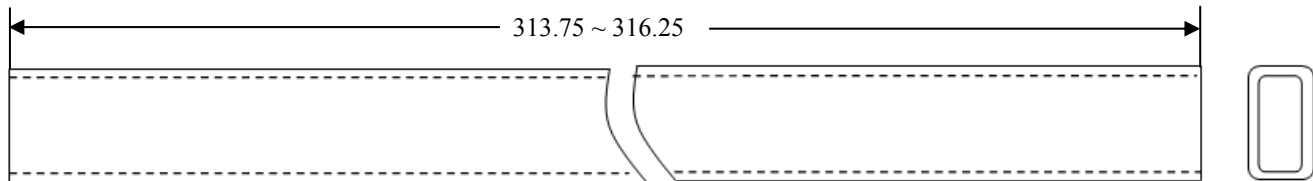
T= Tape & Reel, 1000pcs/reel. Reel Size = 7-inch Reel

MSL-3 packaging applies to -T option.



Blank = Bulk or Tube (60pcs/tube)

MSL-3 packaging applies to MOQ=60 units (tube)



Dimensions: mm

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