



**THE DATASHEET OF
ASDMB-32.000MHZ-XY-T**



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ESD Sensitive



2.5 x 2.0 x 0.85 mm

RoHS/RoHS II Compliant

MSL Level = 1

Features

- Low Power Consumption <10mA
- Exceptional Stability +/- 10ppm Over Temp. at -40 to +105°C
- Compact QFN Plastic Packaging

Applications

- CCD Clock for VTR Camera
- Equipment Connected to PCs
- Low Profile Equipment
- Computers and Peripherals
- Portable Electronics
- Consumer Electronics
- Vibrant, Shock-Prone & Humid Environments for Industrial Equipment
- Demanding Military & Automotive Electronics

Common Key Electrical Specifications

| Parameters | Min. | Typ. | Max. | Units | Notes |
|---------------------------------|--|------|---------------|-------|-------------|
| Frequency Range: | 1.0 | | 150 | MHz | |
| Operating Temperature: | 0 | | +70 | °C | See options |
| Storage Temperature: | -55 | | +150 | °C | |
| Overall Frequency Stability*: | -50 | | +50 | ppm | See options |
| Supply Voltage (Vdd): | +1.8 ~ +3.3 | | | V | |
| Output Load: | | | 15, 25, or 40 | pF | See options |
| | 10 | | | kΩ | |
| Symmetry: | 45 | | 55 | % | @1/2Vdd |
| Startup Time: | | 1.5 | 3.0 | ms | |
| Disable Time: | | 20 | 100 | ns | |
| Disable Stand-by Current: | | | 15 | uA | |
| Tri-state Function (Stand-by) : | "1" (VIH≥0.75*Vdd) or Open: Oscillation | | | | |
| | "0" (VIL<0.25*Vdd) : Hi Z | | | V | |
| Aging: | -5.0 | | +5.0 | ppm | First year |



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INDUSTRIAL GRADE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ SMD CLOCK OSCILLATORS

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MSL Level = 1

Key Electrical Specifications - Vdd = 1.8V

| Parameters | | Min. | Typ. | Max. | Units | Notes |
|------------------------------|---------------------|---------------------|------|---------------------|-------|---|
| Supply Current (no load): | 1.0 to 39.9999MHz | | 5 | 15 | mA | CL=0pF RL=∞ T=25°C (Standard CL: 15pF) |
| | 40.0 to 79.9999MHz | | 6 | 15 | mA | |
| | 80.0 to 124.9999MHz | | 7 | 15 | mA | |
| | 125.0 to 150MHz | | 8 | 15 | mA | |
| | 1.0 to 39.9999MHz | | 6 | 15 | mA | CL=0pF RL=∞ T=25°C (CL option: 25pF) |
| | 40.0 to 79.9999MHz | | 7 | 15 | mA | |
| | 80.0 to 124.9999MHz | | 8 | 15 | mA | |
| | 125.0 to 150MHz | | 9 | 15 | mA | |
| | 1.0 to 39.9999MHz | | 7 | 15 | mA | CL=0pF RL=∞ T=25°C (CL option: 40pF) |
| | 40.0 to 79.9999MHz | | 8 | 15 | mA | |
| | 80.0 to 124.9999MHz | | 9 | 15 | mA | |
| | 125.0 to 150MHz | | 10 | 15 | mA | |
| Output Voltage: | V _{OH} | 0.8*V _{dd} | | | V | CL=15, 25, 40pF |
| | V _{OL} | | | 0.2*V _{dd} | V | |
| Rise Time: Fall Time: | Tr | | 1.8 | 3.0 | ns | CL=15pF; T=25°C 20%/80%*VDD |
| | Tf | | 1.0 | 3.0 | ns | |
| | Tr | | 1.5 | 3.0 | ns | CL=25pF; T=25°C 20%/80%*VDD |
| | Tf | | 1.2 | 3.0 | ns | |
| | Tr | | 1.4 | 3.0 | ns | CL=40pF; T=25°C 20%/80%*VDD |
| | Tf | | 1.1 | 3.0 | ns | |
| Cycle to Cycle Jitter: | | | 60 | | ps | F=100MHz |
| Period Jitter RMS: | | | 10 | | ps | F=100MHz |



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RoHS/RoHS II Compliant

MSL Level = 1

Key Electrical Specifications - Vdd = 2.5V

| Parameters | | Min. | Typ. | Max. | Units | Notes |
|------------------------------|---------------------|---------|------|---------|-------|---|
| Supply Current (no load): | 1.0 to 39.9999MHz | | 6 | 15 | mA | CL=0pF RL=∞ T=25°C (Standard CL: 15pF) |
| | 40.0 to 79.9999MHz | | 7 | 15 | mA | |
| | 80.0 to 124.9999MHz | | 8 | 15 | mA | |
| | 125.0 to 150MHz | | 9 | 15 | mA | |
| | 1.0 to 39.9999MHz | | 7 | 15 | mA | CL=0pF RL=∞ T=25°C (CL option: 25pF) |
| | 40.0 to 79.9999MHz | | 8 | 15 | mA | |
| | 80.0 to 124.9999MHz | | 9 | 15 | mA | |
| | 125.0 to 150MHz | | 10 | 15 | mA | |
| | 1.0 to 39.9999MHz | | 8 | 16 | mA | CL=0pF RL=∞ T=25°C (CL option: 40pF) |
| | 40.0 to 79.9999MHz | | 9 | 16 | mA | |
| | 80.0 to 124.9999MHz | | 10 | 16 | mA | |
| | 125.0 to 150MHz | | 11 | 16 | mA | |
| Output Voltage: | V _{OH} | 0.8*Vdd | | | V | CL=15, 25, 40pF |
| | V _{OL} | | | 0.2*Vdd | V | |
| | V _{OH} | 0.9*Vdd | | | V | CL=40pF |
| | V _{OL} | | | 0.1*Vdd | V | |
| Rise Time: Fall Time: | Tr | | 1.0 | 2.0 | ns | CL=15pF; T=25°C 20%/80%*VDD |
| | Tf | | 0.9 | 2.0 | ns | |
| | Tr | | 1.1 | 2.0 | ns | CL=25pF; T=25°C 20%/80%*VDD |
| | Tf | | 0.9 | 2.0 | ns | |
| | Tr | | 1.0 | 2.0 | ns | CL=40pF; T=25°C 20%/80%*VDD |
| | Tf | | 0.9 | 2.0 | ns | |
| Cycle to Cycle Jitter: | | | 50 | | ps | F=100MHz |
| Period Jitter RMS: | | | 5 | | ps | F=100MHz |



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RoHS/RoHS II Compliant

MSL Level = 1

Key Electrical Specifications - Vdd = 3.3V

| Parameters | Min. | Typ. | Max. | Units | Notes | |
|------------------------------|---------------------|---------|------|---------|-------|---|
| Supply Current (no load): | 1.0 to 39.9999MHz | | 7 | 15 | mA | CL=0pF RL=∞ T=25°C (Standard CL: 15pF) |
| | 40.0 to 79.9999MHz | | 8 | 15 | mA | |
| | 80.0 to 124.9999MHz | | 9 | 15 | mA | |
| | 125.0 to 150MHz | | 10 | 15 | mA | |
| | 1.0 to 39.9999MHz | | 8 | 16 | mA | CL=0pF RL=∞ T=25°C (CL option: 25pF) |
| | 40.0 to 79.9999MHz | | 9 | 16 | mA | |
| | 80.0 to 124.9999MHz | | 10 | 16 | mA | |
| | 125.0 to 150MHz | | 11 | 16 | mA | |
| | 1.0 to 39.9999MHz | | 8 | 16 | mA | CL=0pF RL=∞ T=25°C (CL option: 40pF) |
| | 40.0 to 79.9999MHz | | 9 | 16 | mA | |
| | 80.0 to 124.9999MHz | | 10 | 16 | mA | |
| | 125.0 to 150MHz | | 11 | 16 | mA | |
| Output Voltage: | V _{OH} | 0.8*Vdd | | | V | CL=15pF |
| | V _{OL} | | | 0.2*Vdd | V | |
| | V _{OH} | 0.9*Vdd | | | V | CL=25, 40pF |
| | V _{OL} | | | 0.1*Vdd | V | |
| Rise Time: Fall Time: | Tr | | 1.0 | 2.0 | ns | CL=15pF; T=25°C 20%/80%*VDD |
| | Tf | | 0.9 | 2.0 | ns | |
| | Tr | | 1.0 | 2.0 | ns | CL=25pF; T=25°C 20%/80%*VDD |
| | Tf | | 0.9 | 2.0 | ns | |
| | Tr | | 0.8 | 2.0 | ns | CL=40pF; T=25°C 20%/80%*VDD |
| | Tf | | 0.8 | 2.0 | ns | |
| Cycle to Cycle Jitter: | | | 50 | | ps | F=100MHz |
| Period Jitter RMS: | | | 5 | | ps | F=100MHz |



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Absolute Maximum Ratings

| Item | Min. | Max. | Units | Condition |
|-----------------|------|---------|-------|-----------|
| Supply Voltage | -0.3 | +4.0 | V | |
| Input Voltage | -0.3 | Vdd+0.3 | V | |
| Junction Temp. | | +150 | °C | |
| Storage Temp. | -55 | +150 | °C | |
| Soldering Temp. | | +260 | °C | 40sec max |
| ESD | | | V | |
| HBM | | 4,000 | | |
| MM | | 200 | | |
| CDM | | 1,500 | | |

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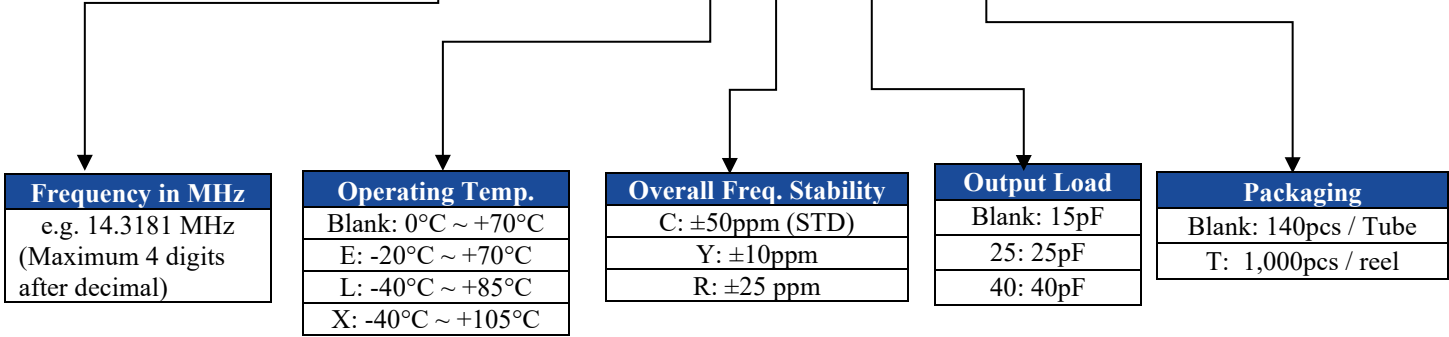
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2.5 x 2.0 x 0.85 mm
RoHS/RoHS II Compliant
 MSL Level = 1

Options and Part Identification

ASDMB - MHz - - -



| Frequency in MHz |
|--|
| e.g. 14.3181 MHz (Maximum 4 digits after decimal) |

| Operating Temp. |
|--------------------|
| Blank: 0°C ~ +70°C |
| E: -20°C ~ +70°C |
| L: -40°C ~ +85°C |
| X: -40°C ~ +105°C |

| Overall Freq. Stability |
|-------------------------|
| C: ±50ppm (STD) |
| Y: ±10ppm |
| R: ±25 ppm |

| Output Load |
|-------------|
| Blank: 15pF |
| 25: 25pF |
| 40: 40pF |

| Packaging |
|----------------------|
| Blank: 140pcs / Tube |
| T: 1,000pcs / reel |

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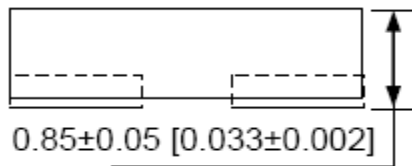
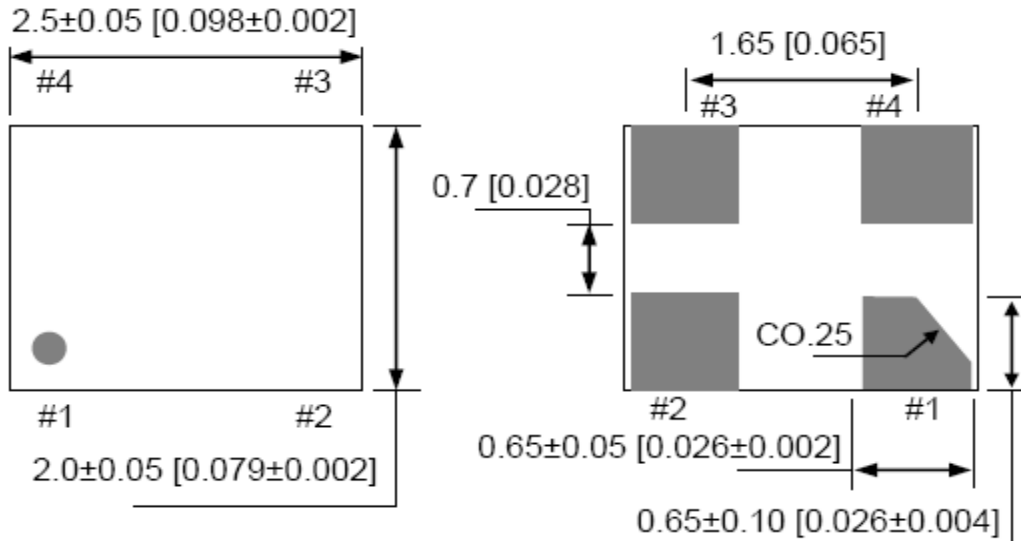


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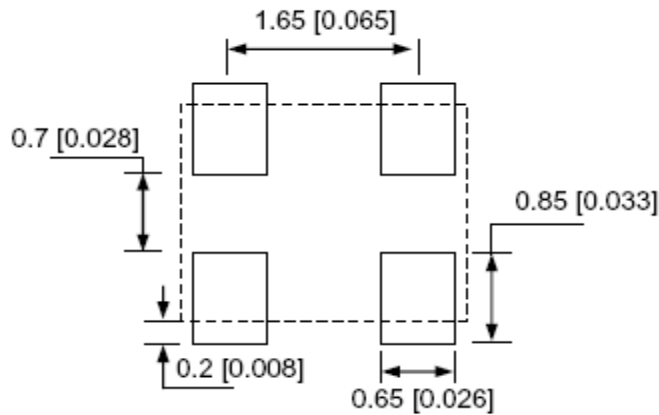
2.5 x 2.0 x 0.85 mm
RoHS/RoHS II Compliant
MSL Level = 1

Mechanical Dimensions



| No | Pin Terminal |
|----|--------------|
| 1 | Standby |
| 2 | GND |
| 3 | Output |
| 4 | VDD |

Recommended Land Pattern



Note: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

Dimensions: mm(inches)



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Reflow Profile [JEDEC J-STD-020]

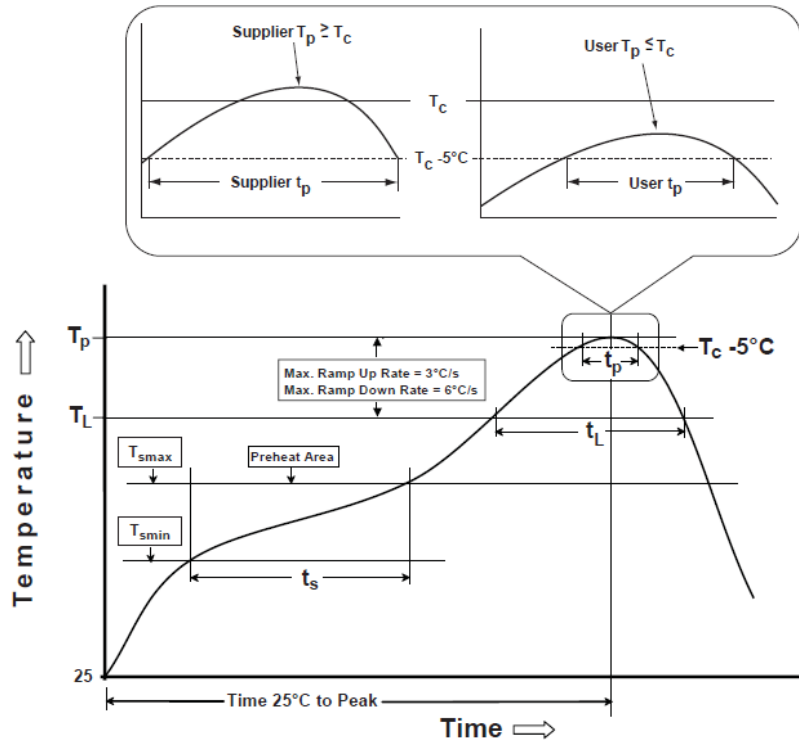


Table 1

SnPb Eutectic Process Classification Temperatures (T_C)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5 mm | 235 °C | 220 °C |
| ≥2.5 mm | 220 °C | 220 °C |

Table 2

Pb-Free Process Classification Temperatures (T_C)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ 350-2000 | Volume mm ³ >2000 |
|-------------------|-----------------------------|---------------------------------|------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 mm - 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|---|-------------------------|------------------|
| Preheat / soak | | |
| Temperature minimum (T_{smin}) | 100°C | 150°C |
| Temperature maximum (T_{smax}) | 150°C | 200°C |
| Time (T_{smin} to T_{smax}) (t_s) | 60 - 120 sec. | 60 - 120 sec. |
| Average ramp-up rate (T_{smax} to T_p) | 3°C/sec. max | 3°C/sec. max |
| Liquidous temperature (T_L) | 183°C | 217°C |
| Time at liquidous (t_L) | 60 - 150 sec. | 60 - 150 sec. |
| Peak package body temperature (T_p)* | see Table 1 | see Table 2 |
| Time (t_p)** within 5°C of the specified classification temperature (T_C) | 20 sec. | 30 sec. |
| Ramp-down rate (T_p to T_{smax}) | 6°C/sec. max | 6°C/sec. max |
| Time 25°C to peak temperature | 6 min. max | 8 min. max |
| Reflow cycles | 2 max | 2 max |

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) is defined as supplier minimum and a user maximum.



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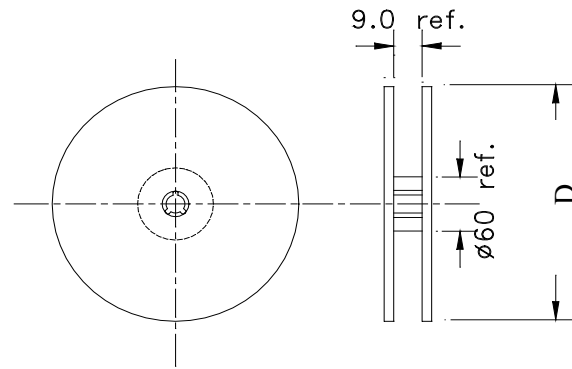
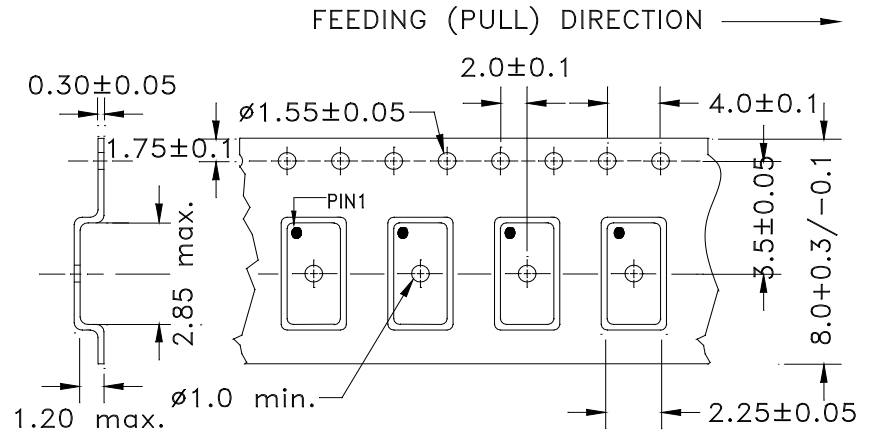
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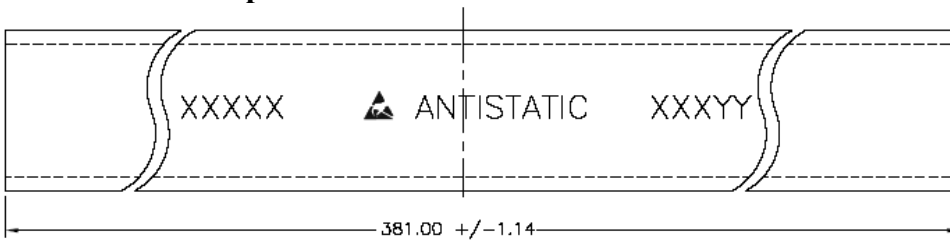
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Packaging

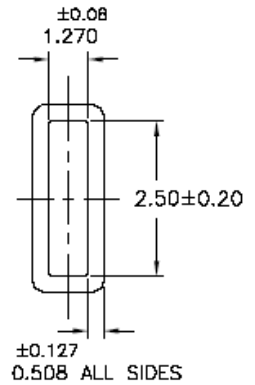
T= 1,000pcs/reel (D=180mm)



Tube: 140 pcs/tube



Unit orientation in tube:



Dimensions: mm

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- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management