



ASAAIG



2.0 x 1.6 x 0.8mm  
**RoHS/RoHS II Compliant**  
 MSL = N/A: Not Applicable

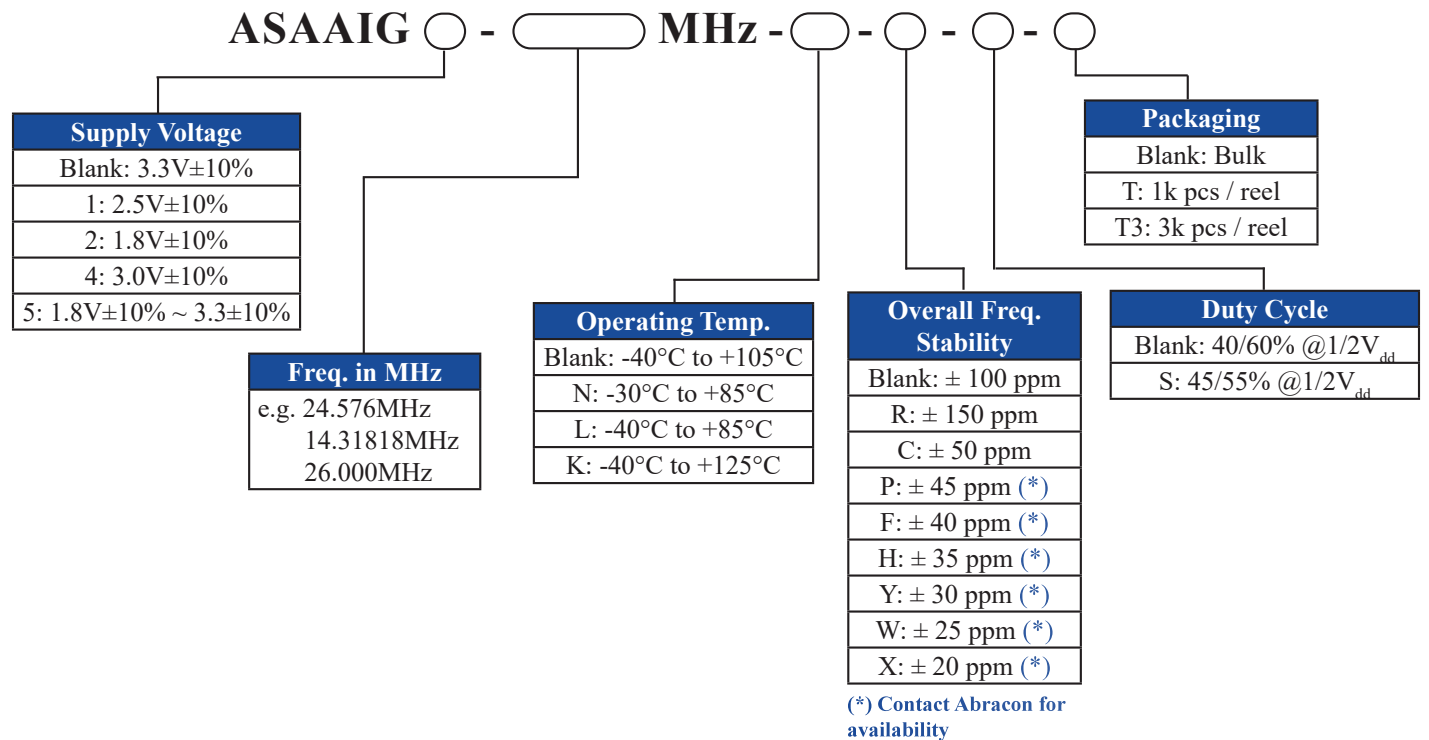
## Features

- AEC-Q200 Qualified
- Automotive Grade 1: -40°C to +125°C
- TS16949 Production Line Certified
- PPAP Available Upon Request
- Hermetically Seam-sealed Ceramic Package
- RoHS/RoHS II Compliant and Pb free

## Applications

- Infotainment Systems
- Keyless Entry & Startup
- GPS & Navigation
- Comfort control
- ADAS (Advanced Driver Assistance Systems)
- Vehicle to Vehicle Communication
- LiDAR (Light Detection and Ranging)
- In-vehicle Networking
- Powertrain & Drive Control
- Power Control & Conversion
- Industrial Control & Automation

## Part Identification (left blank if standard)





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## Electrical Specifications

| Parameters  |  | Min.   | Typ.        | Max.          | Unit    | Notes                          |      |                                |
|---|--|--|-------------|---------------|---------|--------------------------------|------|--------------------------------|
| Frequency Range   |  | 1.25   |             | 100           | MHz     |                                |      |                                |
| Operating Temperature Range   |  | -40  |             | +105          | °C      | Option "blank"; See options    |      |                                |
|   |  | -40  |             | +125          |         | Option "K"; See options        |      |                                |
| Storage Temperature   |  | -55  |             | +125          | °C      | Option "K, blank, L, N"        |      |                                |
| Overall Frequency Stability <sup>[Note 1]</sup>                                     |  | -50  |             | +50           | ppm     | Option "C"; See options        |      |                                |
|   |  | -100   |             | +100          |         | Option "blank"; See options    |      |                                |
|   |  | -150   |             | +150          |         | Option "R"; See options        |      |                                |
| Supply Voltage ( $V_{dd}$ )   |  | +1.62  | +1.8 ~ +3.3 | +3.63         | V       | Option "5"                     |      |                                |
|   |  | +2.97  | +3.3        | +3.63         |         | Option "blank"                 |      |                                |
|   |  | +2.70  | +3.0        | +3.30         |         | Option "4"                     |      |                                |
|   |  | +2.25  | +2.5        | +2.75         |         | Option "1"                     |      |                                |
|   |  | +1.62  | +1.8        | +1.98         |         | Option "2"                     |      |                                |
| Supply Current ( $I_{dd}$ ) into 15pF Load  |  | $V_{dd} = 3.3$ V   |             |               | mA      | 1.25MHz $\leq$ F $\leq$ 20 MHz |      |                                |
|   |  |  |             |               |         | 2.0                            | 5.0  | 20 MHz < F $\leq$ 50 MHz       |
|   |  |  |             |               |         | 4.0                            | 10.0 | 50 MHz < F $\leq$ 100 MHz      |
|   |  | $V_{dd} = 3.0$ V   |             |               |         | 2.0                            | 5.0  | 1.25MHz $\leq$ F $\leq$ 20 MHz |
|   |  |  |             |               |         | 3.5                            | 10.0 | 20 MHz < F $\leq$ 50 MHz       |
|   |  |  |             |               |         | 5.0                            | 15.0 | 50 MHz < F $\leq$ 100 MHz      |
|   |  | $V_{dd} = 2.5$ V   |             |               |         | 2.0                            | 5.0  | 1.25MHz $\leq$ F $\leq$ 20 MHz |
|   |  |  |             |               |         | 3.0                            | 10.0 | 20 MHz < F $\leq$ 50 MHz       |
|   |  |  |             |               |         | 4.5                            | 15.0 | 50 MHz < F $\leq$ 100 MHz      |
|   |  | $V_{dd} = 1.8$ V   |             |               |         | 1.5                            | 5.0  | 1.25MHz $\leq$ F $\leq$ 20 MHz |
|   |  |  |             |               |         | 2.5                            | 5.0  | 20 MHz < F $\leq$ 50 MHz       |
|   |  |  |             |               |         | 3.5                            | 10.0 | 50 MHz < F $\leq$ 100 MHz      |
| Disable Current   |  |  |             | 10.0          | $\mu$ A |                                |      |                                |
| Output Load   |  |  |             | 15            | pF      | CMOS                           |      |                                |
| Output Voltage  |  | $V_{OH}$   |             | 0.9* $V_{dd}$ | V       |                                |      |                                |
|   |  | $V_{OL}$   |             | 0.1* $V_{dd}$ |         |                                |      |                                |
| Tri-state function  |  | "1" ( $V_{IH} \geq 0.7 * V_{dd}$ ) or Open: Oscillation;<br>"0" ( $V_{IH} < 0.3 * V_{dd}$ ): No oscillation/Hi Z |             |               |         |                                |      |                                |
| Aging   |  | -2.0   |             | +2.0          | ppm     | @25°C $\pm$ 3°C First year     |      |                                |
| Symmetry @1/2 $V_{dd}$  |  | 40   | 50          | 60            | %       | Option "blank"                 |      |                                |
|   |  | 45   | 50          | 55            |         | Option "S"                     |      |                                |
| Start-up Time   |  |  | 2.0         | 5.0           | ms      |                                |      |                                |
| Rise/Fall Time ( $T_r/T_f$ )  |  |  |             | 10.0          | ns      |                                |      |                                |
| RMS Phase Jitter @ +25°C<br>(10 - 39MHz: 12kHz to 5MHz)<br>(>39MHz: 12kHz to 20MHz) |  |  | 0.5         | < 1.0         | ps      |                                |      |                                |

Note 1: Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and 1st year

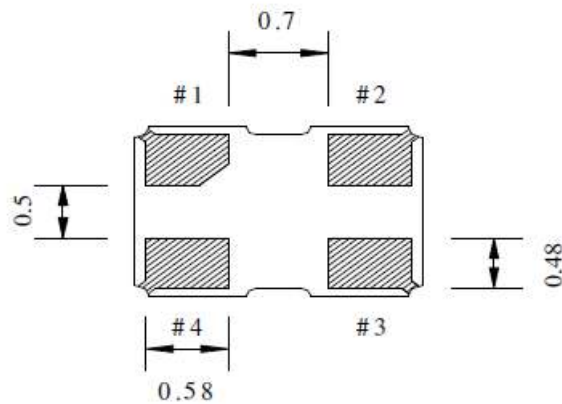
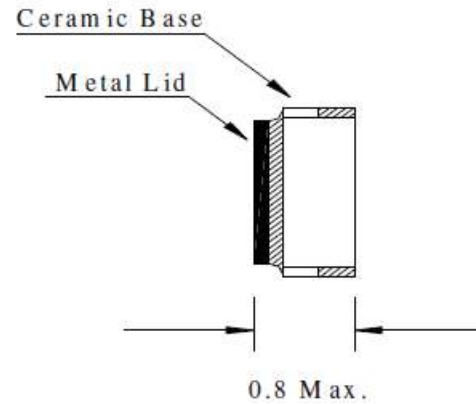
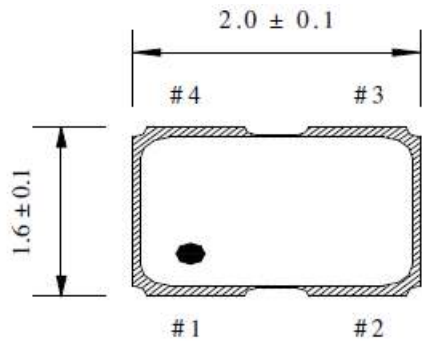


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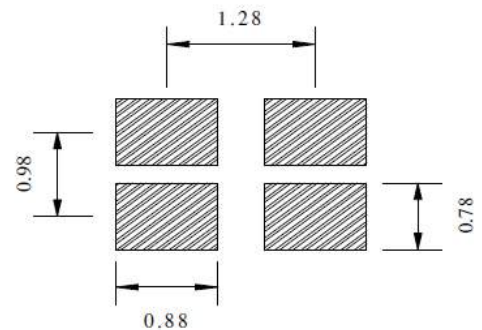


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## Mechanical Dimensions



## Recommended Land Pattern



| Pin # | Function        |
|-------|-----------------|
| 1     | Tri-state       |
| 2     | GND             |
| 3     | Output          |
| 4     | V <sub>dd</sub> |

Dimensions: mm

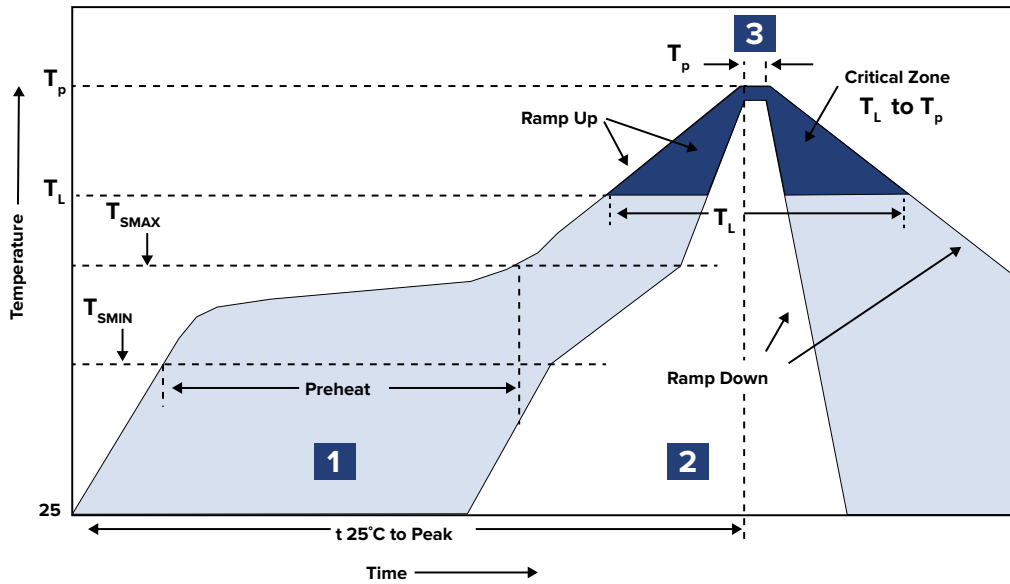


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## Reflow Profile



| Zone | Description    | Temperature                               | Time          |
|------|----------------|---|---------------|
| 1    | Preheat / Soak | $T_{SMIN} \sim T_{SMAX}$<br>150°C ~ 180°C | 60 ~ 120 sec. |
| 2    | Reflow         | $T_L$<br>230°C                            | 30 ~ 40 sec.  |
| 3    | Peak heat      | $T_P$<br>260°C±5°C                        | 5 sec. MAX    |



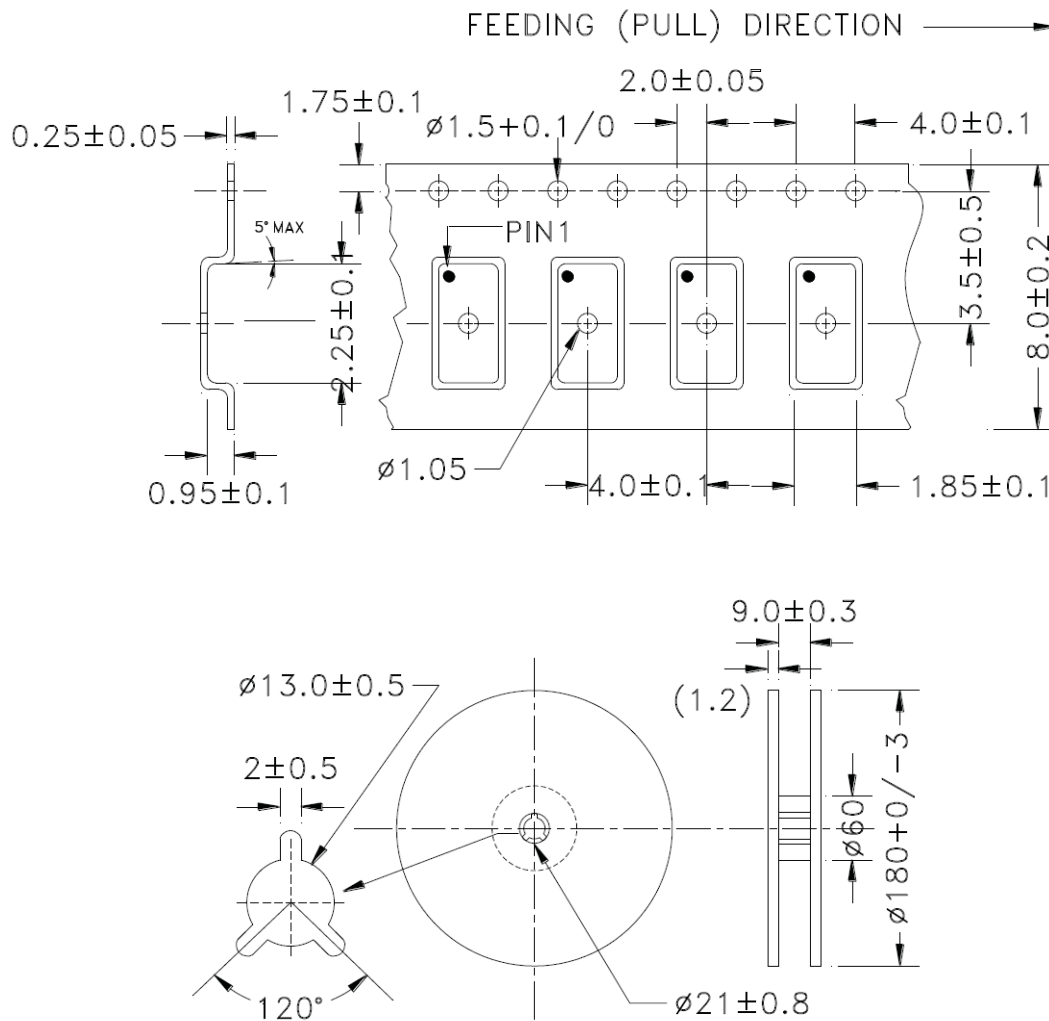
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## Packaging

Tape and Reel:  
 T: 1,000pcs/reel  
 T3: 3,000pcs/reel



Dimensions: mm

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