

# Automotive & Industrial Grade Miniature SMD Crystal Oscillator



ASAAIG



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

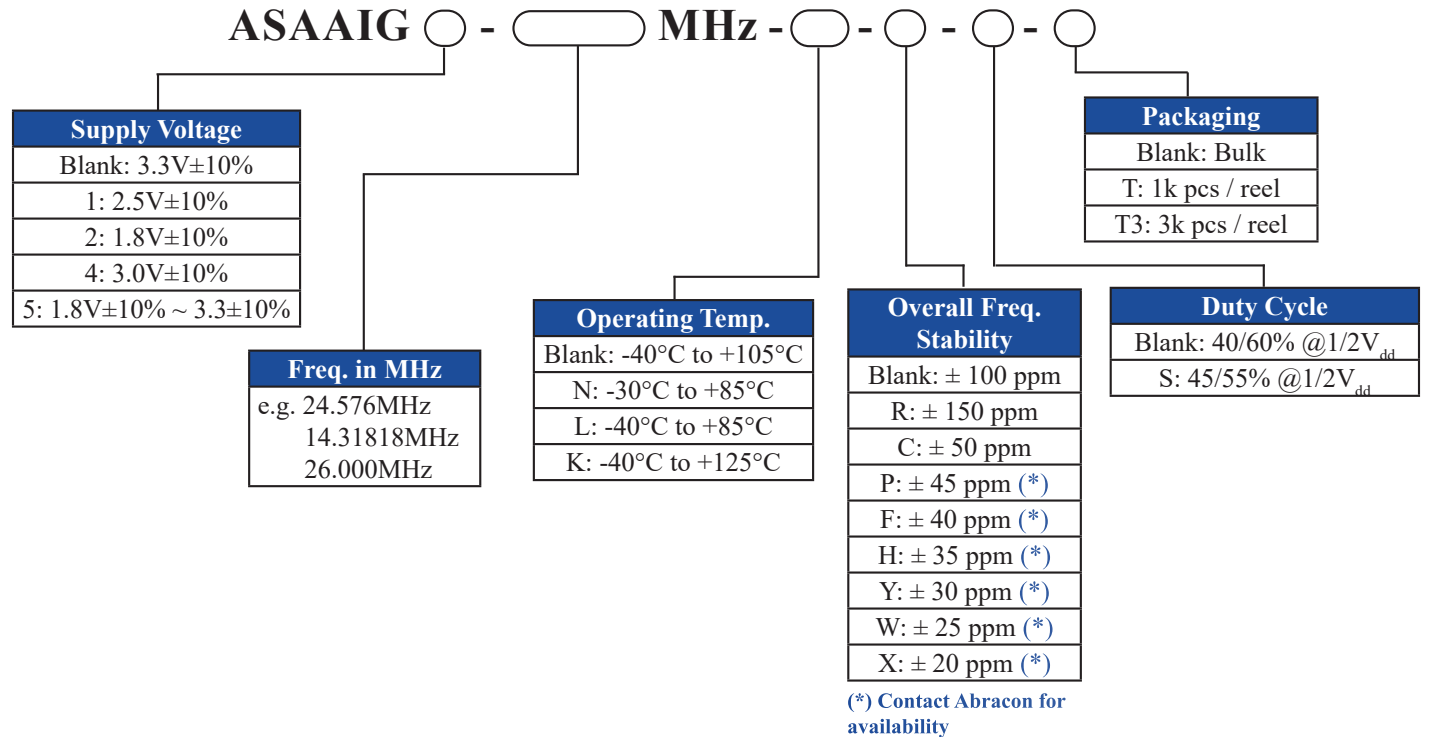
## Features

- 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 ≤ F ≤ 20 MHz		
						2.0	5.0	20 MHz < F ≤ 50 MHz
						4.0	10.0	50 MHz < F ≤ 100 MHz
		$V_{dd} = 3.0$ V				2.0	5.0	1.25MHz ≤ F ≤ 20 MHz
						3.5	10.0	20 MHz < F ≤ 50 MHz
						5.0	15.0	50 MHz < F ≤ 100 MHz
		$V_{dd} = 2.5$ V				2.0	5.0	1.25MHz ≤ F ≤ 20 MHz
						3.0	10.0	20 MHz < F ≤ 50 MHz
						4.5	15.0	50 MHz < F ≤ 100 MHz
		$V_{dd} = 1.8$ V				1.5	5.0	1.25MHz ≤ F ≤ 20 MHz
						2.5	5.0	20 MHz < F ≤ 50 MHz
						3.5	10.0	50 MHz < F ≤ 100 MHz
Disable Current				10.0	µA			
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; "0" ( $V_{IH} < 0.3 * V_{dd}$ ): No oscillation/Hi Z						
Aging		-2.0		+2.0	ppm	@25°C ± 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 (10 - 39MHz: 12kHz to 5MHz) (>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

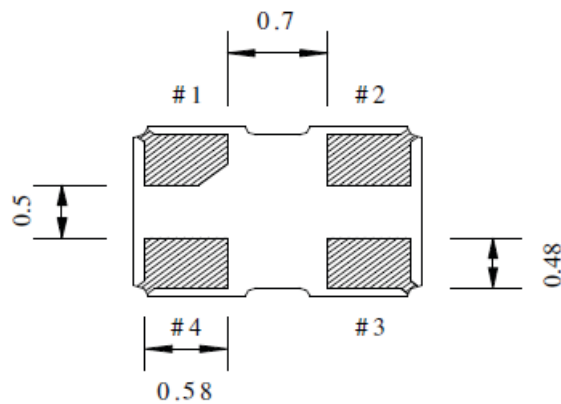
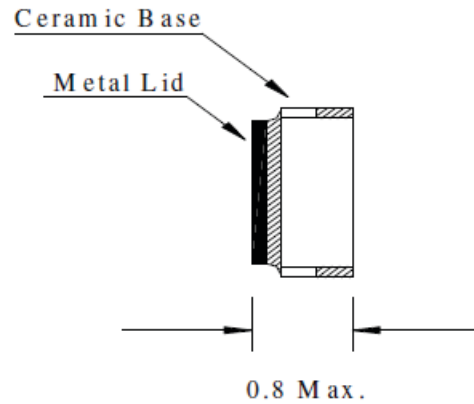
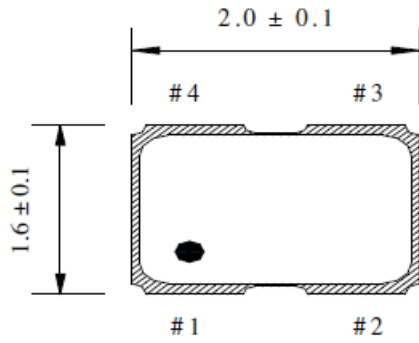


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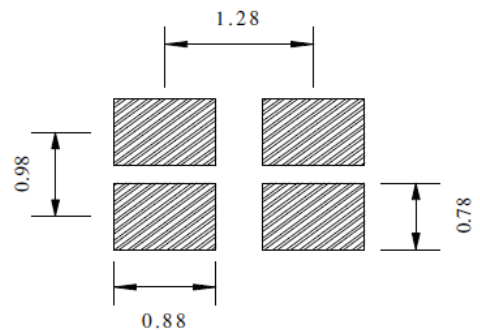


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## Mechanical Dimensions



## Recommended Land Pattern



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

Dimensions: mm

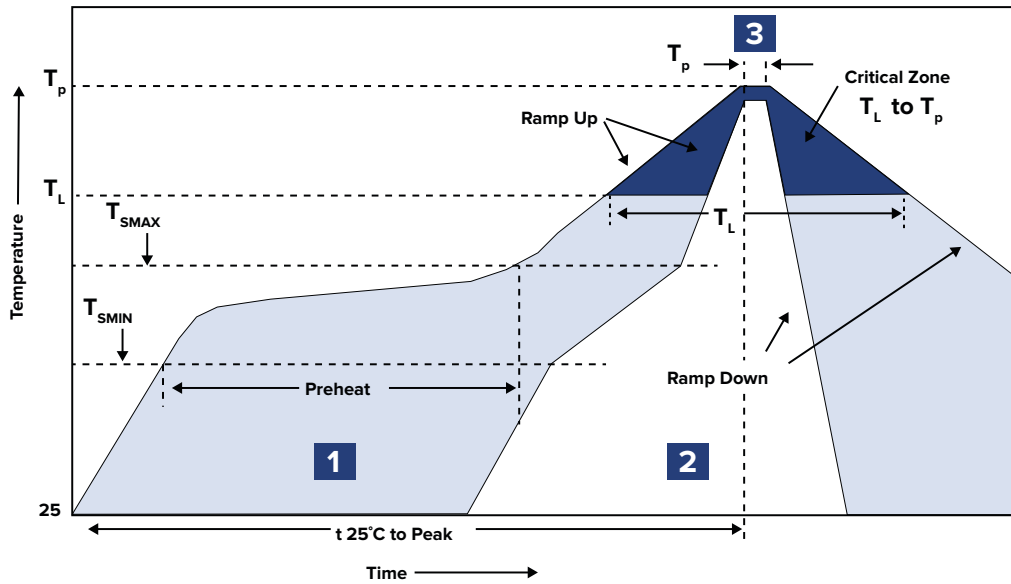


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## Reflow Profile



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



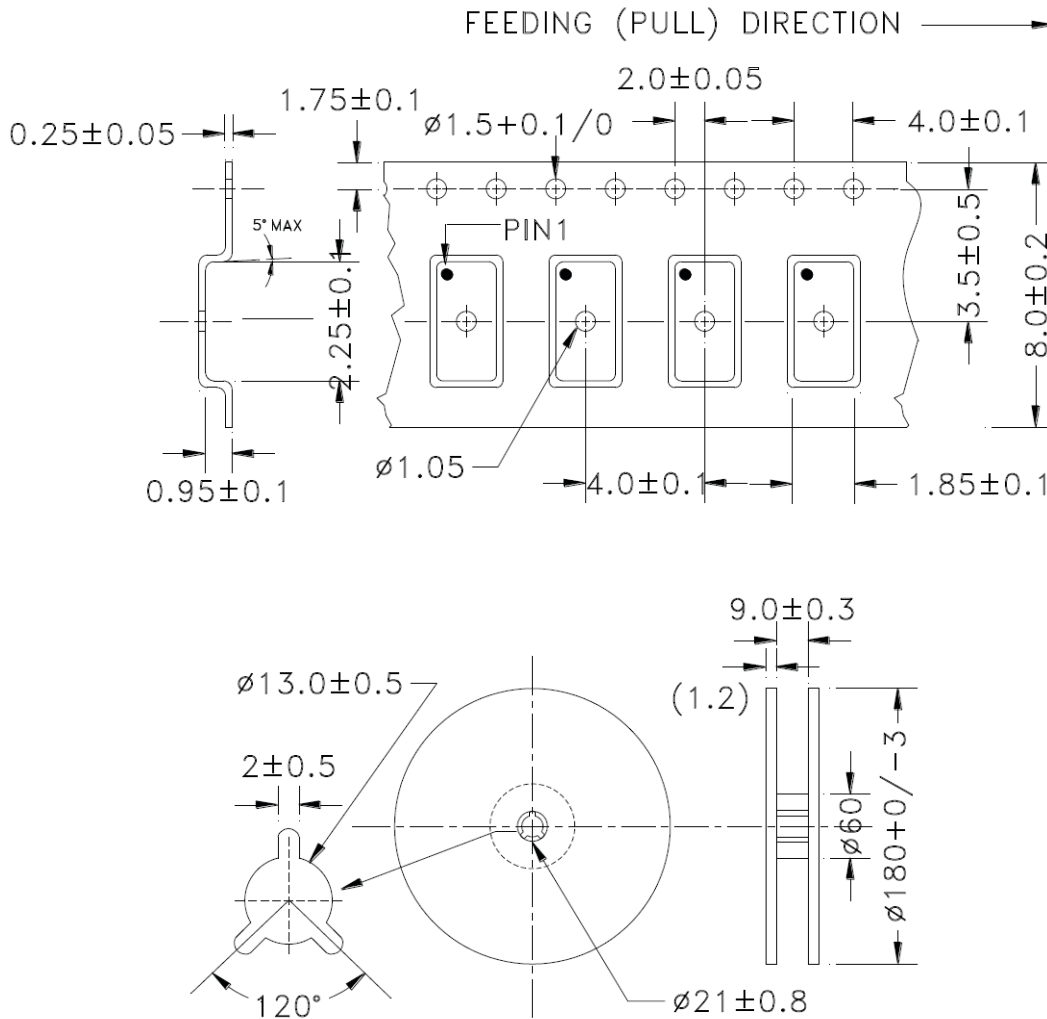
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## Packaging

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



Dimensions: mm

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