

Automotive and Industrial Grade HCMOS SMD Crystal Oscillator



ASDAIG



2.50 x 2.00 x 0.95mm
RoHS/RoHS II Compliant
MSL = N/A: Not Applicable

Features

- Ultra Miniature size and low profile
- AEC-Q200 qualified
- Seam sealed ceramic package assures high precision and reliability.
- Extended temperature -40°C to +125°C for automotive/industrial applications
- Suitable for RoHS reflow profile

Applications

- Automotive electronics
- Industrial electronics

Electrical Specifications

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range		20		48	MHz	
Operating Temperature		-40		+125	°C	See options
Storage Temperature		-55		+125	°C	
Overall Frequency Stability		-100		+100	ppm	See options
Supply Voltage (Vdd)		+3.135	+3.3	+3.465	V	Standard
		+2.85	+3.0	+3.15		Option “1”
		+2.375	+2.5	+2.625		Option “2”
		+1.71	+1.8	+1.89		Option “3”
Input Current (Idd) Into 15pF load	Vdd = 3.3 V		4	7	mA	20.000~39.999 MHz
			9	13		40.000~48.000 MHz
	Vdd = 3.0 V		3.5	6	mA	20.000~39.999 MHz
			8	12		40.000~48.000 MHz
	Vdd = 2.5 V		3	5	mA	20.000~39.999 MHz
			7	10		40.000~48.000 MHz
	Vdd = 1.8 V		2	4	mA	20.000~39.999 MHz
			4	7		40.000~48.000 MHz
Symmetry @ 1/2Vdd		40		60	%	See option
Output Load:				15	pF	CMOS
Output Voltage (VOH):		0.9* Vdd			V	
Output Voltage (VOL):				0.1* Vdd	V	
Rise and Fall Time (Tr/Tf):	Vdd = 3.3 V		2.5	6	ns	20.000~39.999 MHz
			2	4		40.000~48.000 MHz
	Vdd = 3.0 V		2.5	6	ns	20.000~39.999 MHz
			2	4		40.000~48.000 MHz
	Vdd = 2.5 V		3	7	ns	20.000~39.999 MHz
			2.5	5		40.000~48.000 MHz
	Vdd = 1.8 V		3.5	8	ns	20.000~39.999 MHz
			3	6		40.000~48.000 MHz



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Electrical Specifications (Continued)

Parameters		Minimum	Typical	Maximum	Units	Notes
Start-up Time:	Vdd = 3.3 V		6	10	ms	20.000~39.999 MHz
			5	10		40.000~48.000 MHz
	Vdd = 3.0 V		6	10	ms	20.000~39.999 MHz
			5	10		40.000~48.000 MHz
	Vdd = 2.5 V		6	10	ms	20.000~39.999 MHz
			5	10		40.000~48.000 MHz
	Vdd = 1.8 V		6	10	ms	20.000~39.999 MHz
			5	10		40.000~48.000 MHz
Tri-state function :		"1" (VIH≥0.7*Vdd) or Open: Oscillation; "0" (VIH<0.3*Vdd) : No oscillation/Hi Z				
Phase Jitter (<39MHz: 12kHz to 5MHz) (>39MHz: 12kHz to 20MHz)	Vdd = 3.3 V		0.4	1.0	ps	20.000~39.999 MHz
			0.3	1.0		40.000~48.000 MHz
	Vdd = 3.0 V		0.4	1.0	ps	20.000~39.999 MHz
			0.3	1.0		40.000~48.000 MHz
	Vdd = 2.5 V		0.5	1.0	ps	20.000~39.999 MHz
			0.5	1.0		40.000~48.000 MHz
	Vdd = 1.8 V		0.5	1.0	ps	20.000~39.999 MHz
			0.5	1.0		40.000~48.000 MHz
Period Jitter RMS	Vdd = 3.3 V		3.0	5.0	ps	20.000~48.000 MHz
	Vdd = 3.0 V		3.0	5.0		
	Vdd = 2.5 V		3.0	5.0		
	Vdd = 1.8 V		3.0	5.0		
Aging at 25°C/year		-5		+5	ppm	
Disable Current:				10	μA	



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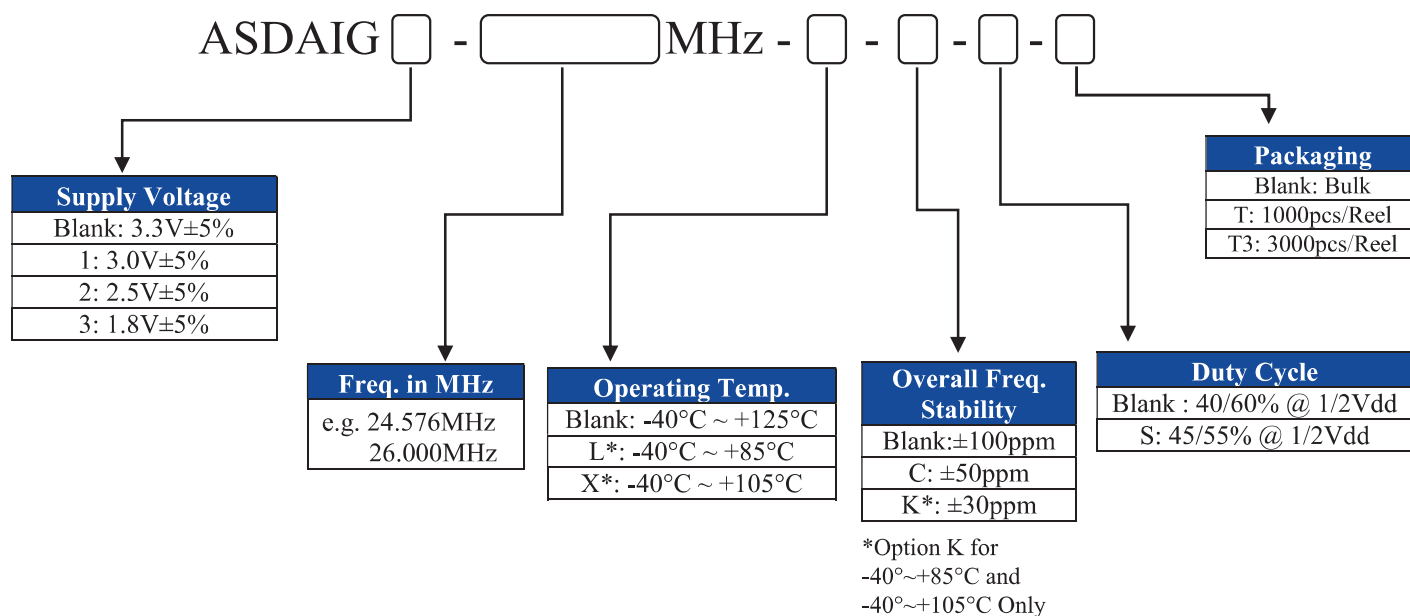


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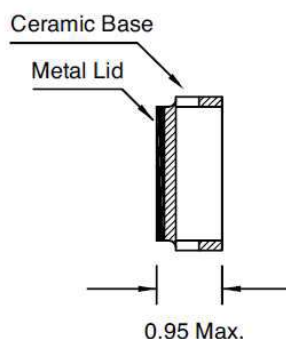
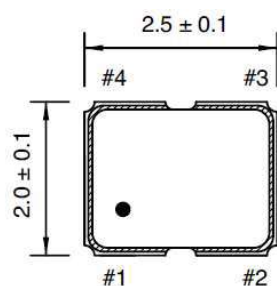


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Part Identification

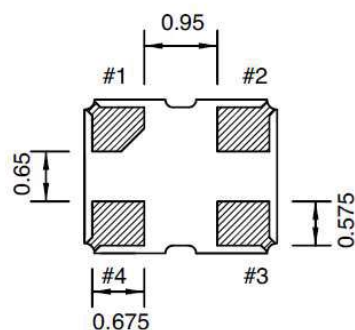


Outline Dimensions

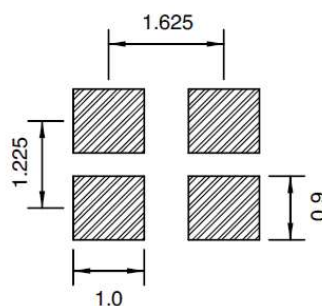


PIN #	Name
1	Tri-state
2	GND
3	Output
4	Vdd

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



Recommend Land Pattern



Dimensions: mm



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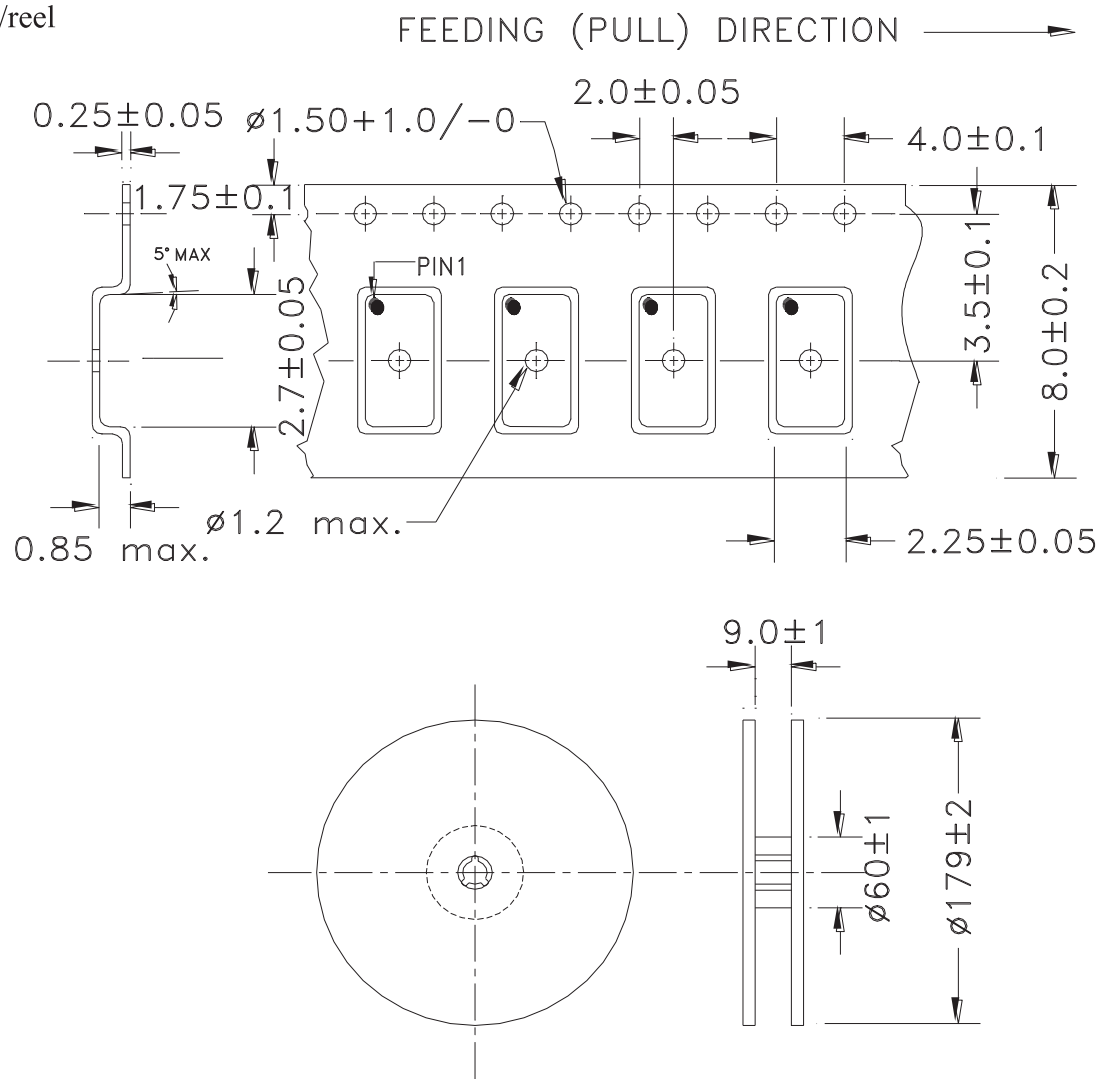
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Packaging

T: 1000pcs/reel
T3: 3000pcs/reel



Dimensions: mm



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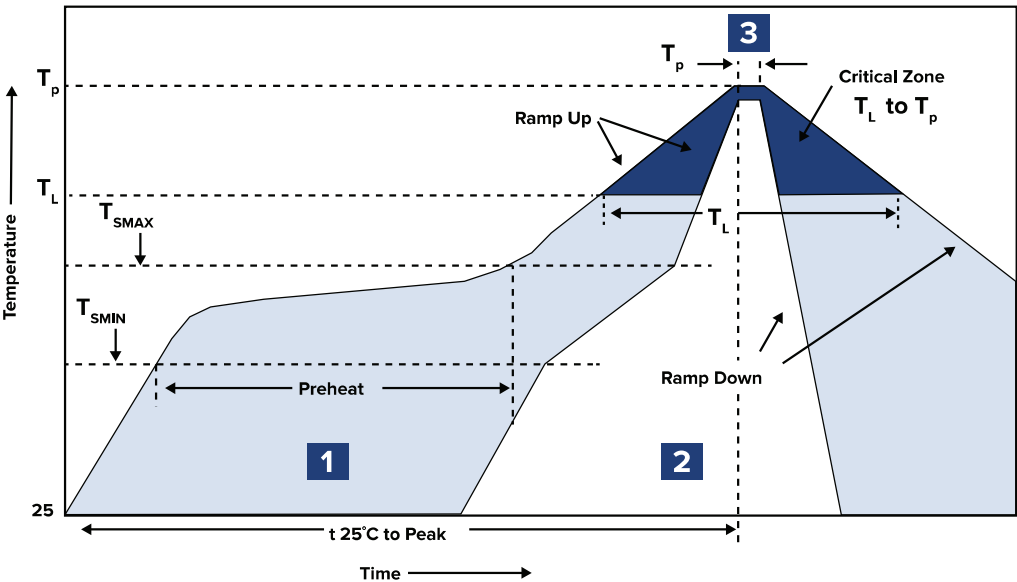


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Reflow Profile



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

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