

Automotive and Industrial Grade CMOS SMD Crystal Oscillator



3.2 x 2.5 x 1.2mm

ASEAIG

Pb RoHS/RoHS II Compliant

Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive - MSL = N/A: Not Applicable

FEATURES:

- 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

STANDARD SPECIFICATIONS

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range		1.75		60	MHz	
Operating Temperature		-40		+125	°C	STD (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"
Supply Current (I _{dd}) Into 15pF load	Vdd = 3.3V		2.5	7	mA	1.75 ~ 20 MHz
			4.4	13		20.1 ~ 40.0 MHz
			6.5	19		40.01 ~ 60.0 MHz
	Vdd = 3.0V		2.5	7		1.75 ~ 20 MHz
			4.4	13		20.1 ~ 40.0 MHz
			6.5	19		40.01 ~ 60.0 MHz
	Vdd = 2.5V		2	8		1.75 ~ 20 MHz
			3	8		20.1 ~ 40.0 MHz
			5	15		40.01 ~ 60.0 MHz
	Vdd = 1.8V		1	4		1.75 ~ 20 MHz
			2	4		20.1 ~ 40.0 MHz
			3	6		40.01 ~ 60.0 MHz
Symmetry @ 1/2V _{dd}		40	50	60	%	See options
Rise and Fall Time (Tr/Tf)	Vdd = 3.3V		2.5	4.0	ns	
	Vdd = 3.0V		2.5	4.0		
	Vdd = 2.5V		3	5		
	Vdd = 1.8V		3	6		
Output Load				15	pF	CMOS
Output Voltage (VOH)		0.9* V _{dd}			V	
Output Voltage (VOL)				0.1* V _{dd}	V	
Start-up Time	Vdd = 3.3V		1	2.0	ms	
	Vdd = 3.0V		1	2.0		
	Vdd = 2.5V		0.6	3.0		
	Vdd = 1.8V		3	5		

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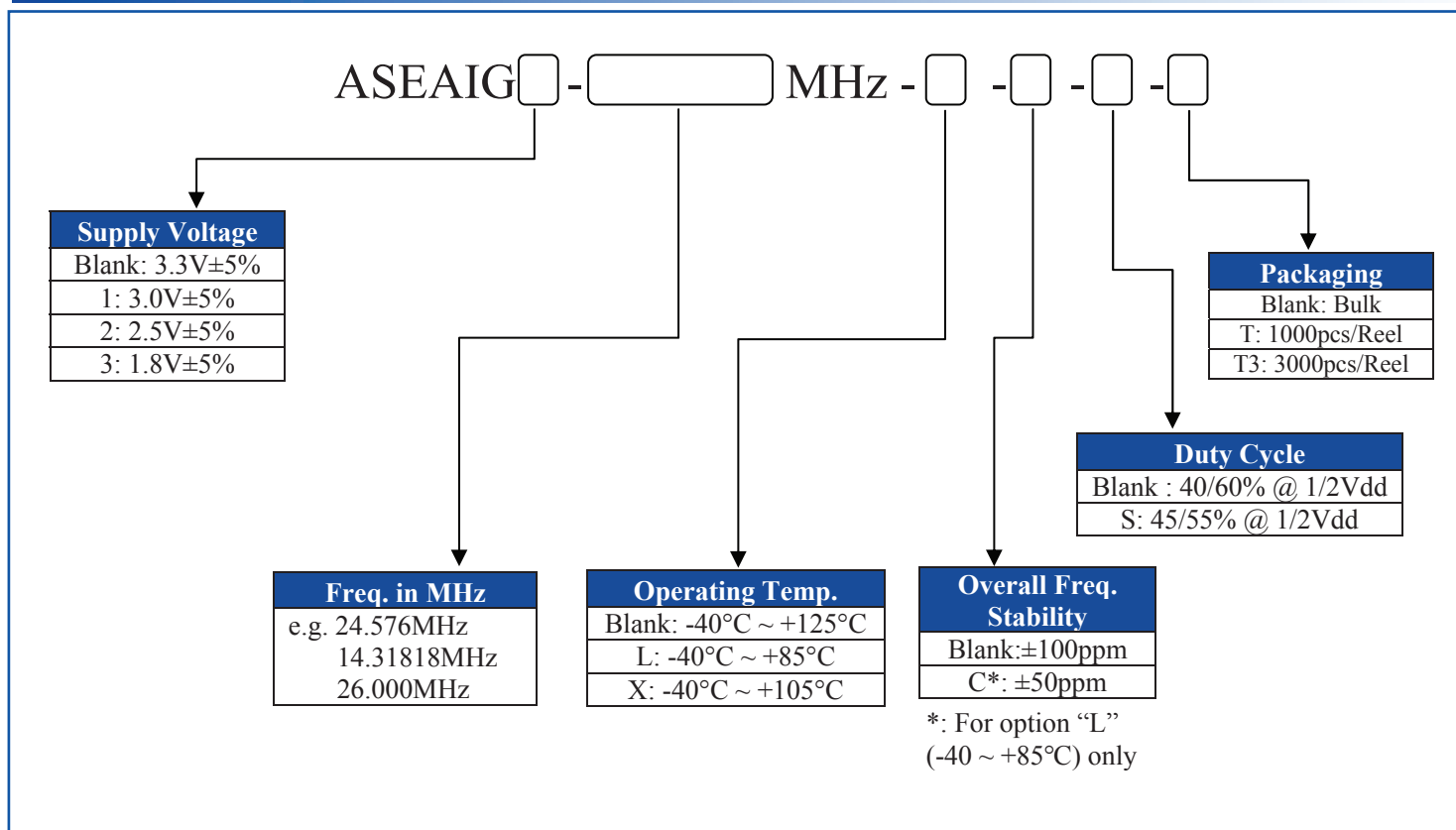
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Key Electrical Specifications (continued)

Parameters	Minimum	Typical	Maximum	Units	Notes
Tri-state function	"1" ($V_{IH} \geq 0.7 \cdot V_{DD}$) or Open: Oscillation; "0" ($V_{IL} < 0.3 \cdot V_{DD}$): No oscillation/Hi Z				
RMS Jitter:		3	5	ps	
Aging at 25°C (first year)	-3		+3	ppm	
Disable Current:	-40 ~+85°C		10	μA	
	-40 ~+125°C		20		

PART IDENTIFICATION:



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OUTLINE DIMENSIONS

Ceramic Base
Metal Lid

1.2 Max.

Pin	Function
1	Tri-State
2	GND/Case
3	Output
4	Vdd

Recommended Land Pattern

Note1: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

Dimensions: inches (mm)

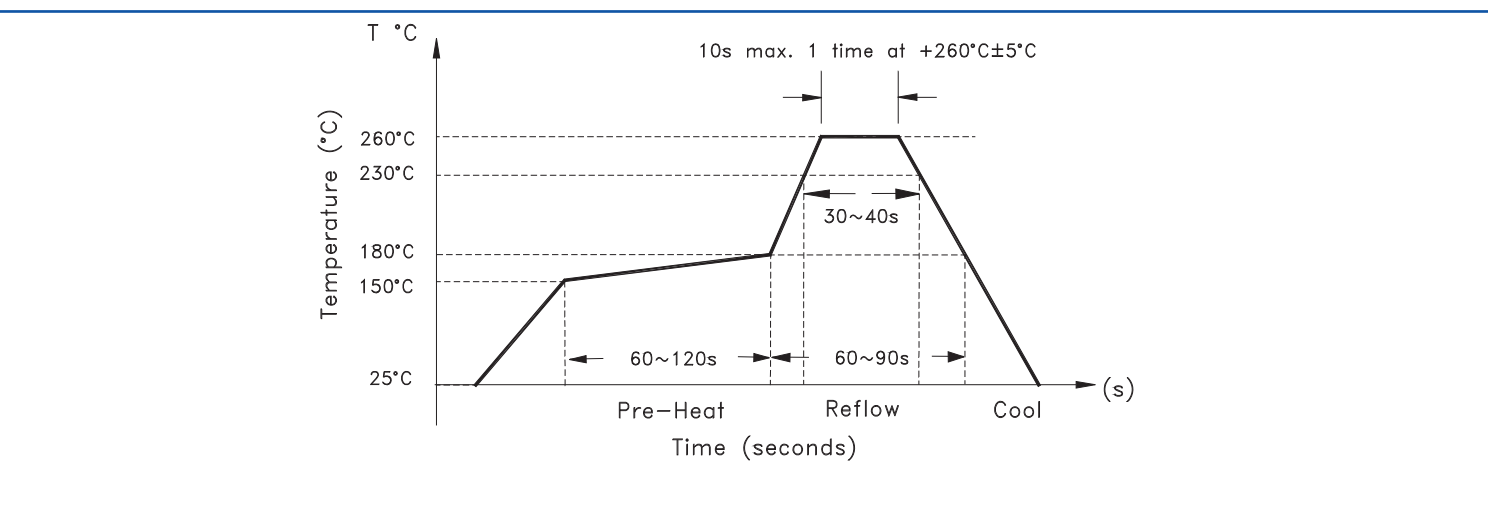
TAPE & REEL

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

FEEDING (PULL) DIRECTION →

Dimensions: mm

REFLOW PROFILE



ATTENTION: Abracon Corporation's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependant Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon Corporation is required. Please contact Abracon Corporation for more information.

ABRACON IS
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CERTIFIED

Member of
AIAG
Automotive Industry Action Group



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Pierce Analyzer System (PAS) Advanced Board Characterization Service

Abracon PAS System enables us to offer Automotive, Medical, and Industrial application customers a comprehensive, automated assessment of the Pierce Oscillator loop, in concert with the customers selected Quartz Crystal. The PAS System Circuit Analysis report is ideally suited for PPAP documentation, design history reporting, and overall assurance of a reliable optimized circuit.

Features:

- Circuit characterization; providing best possible match between Quartz Crystal, oscillator loop and associated components
- Eliminates probability of oscillator start-up issues related to inadequate design or marginal component performance
- Eliminates production launch issues related to crystal oscillator based timing circuit
- Solves design margin uncertainty

Deliverables: A detail Report encompassing:

• Stand alone Quartz Crystal characteristics including:

- Motional parameters (Cm, Lm, ESR & C0)
- Narrow Band Frequency Response Plot
- Wide Band Frequency Response Plot
- Admittance versus Susceptance plot
- Frequency dependence versus load capacitance plot

• Oscillator loop characteristics including:

- Initial frequency accuracy and drive level as seen by the crystal with measured ESR
- Worst case projected drive level with maximum specified ESR
- Safety Factor of the oscillator loop under both typical and maximum ESR
- Recommendation on proper component selection (C1, C2 & Rs when applicable) for best compromise with respect to Safety Factor and Frequency accuracy
- Recommendation on the Abracon Crystal part # with proper plating load and other key attributes to enable the most robust design, specific to the μ controller/processor implemented

Ordering information:

PAS-BC1WK	Analysis & Report with 1-week maximum lead-time
PAS-BC2WK	Analysis & Report with 2-week maximum lead-time
PAS-BC3WK	Analysis & Report with 3-week maximum lead-time

For detailed information, click here:



For additional information, please contact at: tech-support@abracon.com