

# RoHS/RoHS II Compliant

**ASVMB** 

7.0 x 5.0 x 0.85 mm

## **Moisture Sensitivity Level – MSL 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
- Lower Cost Crystal Oscillator Replacement
- Portable Electronics (MP3 Players, Games)
- Consumer Electronics such as TV's, DVR's, etc.
- Vibrant, Shock-Prone & Humid Environments for Industrial Equipment
- Demanding Military & Automotive Electronics

## **► STANDARD SPECIFICATIONS:**

#### Common Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	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):		$+1.8 \sim +3.3$		V	
Output Load:			15, 25, or 40	pF	Sac antions
Output Load.	10			kΩ	See options
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			V	
Thi-state Function (Stand-by).	"0" (7	"0" (VIL<0.25*Vdd) : Hi Z			
Aging:	-5.0		+5.0	ppm	First year

### **Key Electrical Specifications** – $V_{dd} = 1.8V$

Parameters			Minimum	Typical	Maximum	Units	Notes
	1.0 to 39.9999MHz			5	15	mA	CL=0p
	40.0 to 79.999	40.0 to 79.9999MHz		6	15	mА	RL=∞
	80.0 to 124.99	99MHz		7	15	mA	T=25°C
	125.0 to 150M	Hz		8	15	mΑ	(Standard CL: 15pF)
	1.0 to 39.9999	MHz		6	15	mA	CL=0p
Supply Current	40.0 to 79.999	40.0 to 79.9999MHz		7	15	mA	RL=∞
(no load):	80.0 to 124.99	99MHz		8	15	mА	T=25°C
	125.0 to 150M	Hz		9	15	mA	(CL option: 25pF)
	1.0 to 39.9999MHz			7	15	mA	CL=0p
	40.0 to 79.9999MHz			8	15	mΑ	RL=∞
	80.0 to 124.9999MHz			9	15	mΑ	T=25°C
	125.0 to 150M	Hz		10	15	mА	(CL option: 40pF)
O		$V_{OH}$	$0.8*V_{dd}$			V	
Output voitage:	Output Voltage:				$0.2*V_{dd}$	V	CL=15, 25, 40pF
		Tr		1.8	3.0	ns	CL=15pF; T=25°C
	Tf			1.0	3.0	ns	20%/80%*VDD
Fall Time:		Tr		1.5	3.0	ns	CL=25pF; T=25°C
		Tf		1.2	3.0	ns	20%/80%*VDD
		Tr		1.4	3.0	ns	CL=40pF; T=25°C
		Tf		1.1	3.0	ns	20%/80%*VDD
Cycle to Cycle Jitter:			60		ps	F=100MHz	
Period Jitter RMS:			10		ps	F=100MHz	



ISO9001-2015 CERTIFIED

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7.0 x 5.0 x 0.85 mm

# $Key\ Electrical\ Specifications - V_{dd} = 2.5V$

Parameters		Minimum	Typical	Maximum	Units	Notes	
	1.0 to 39.9999MHz			6	15	mA	CL=0p
	40.0 to 79.9999MHz			7	15	mA	RL=∞
	80.0 to 124.9999MHz			8	15	mA	T=25°C
	125.0 to 150	0MHz		9	15	mA	(Standard CL: 15pF)
	1.0 to 39.99	1.0 to 39.9999MHz		7	15	mA	CL=0p
Supply Current	40.0 to 79.9	999MHz		8	15	mA	RL=∞
(no load):	80.0 to 124.	9999MHz		9	15	mA	T=25°C
	125.0 to 150	0MHz		10	15	mA	(CL option: 25pF)
	1.0 to 39.9999MHz			8	16	mA	CL=0p
	40.0 to 79.9999MHz			9	16	mA	RL=∞
	80.0 to 124.9999MHz			10	16	mA	T=25°C
	125.0 to 150	0MHz		11	16	mA	(CL option: 40pF)
		$V_{OH}$	$0.8*V_{dd}$			V	
Output Voltage:		$V_{OL}$			$0.2*V_{dd}$	V	CL=15, 25pF
Output voltage.		$V_{OH}$	$0.9*V_{dd}$			V	
		$V_{OL}$			$0.1*V_{dd}$	V	CL=40pF
		Tr		1.0	2.0	ns	CL=15pF; T=25°C
	Rise Time: Tr			0.9	2.0	ns	20%/80%*VDD
Rise Time:				1.1	2.0	ns	CL=25pF; T=25°C
Fall Time:		Tf		0.9	2.0	ns	20%/80%*VDD
		Tr		1.0	2.0	ns	CL=40pF; T=25°C
		Tf		0.9	2.0	ns	20%/80%*VDD
Cycle to Cycle Jitter:			50		ps	F=100MHz	
Period Jitter RMS:			5		ps	F=100MHz	

## $Key\ Electrical\ Specifications - V_{dd} = 3.3V$

Parameters		Minimum	Typical	Maximum	Units	Notes	
	1.0 to 39.9999MHz			7	15	mA	CL=0p
	40.0 to 79.9999MHz			8	15	mA	RL=∞
	80.0 to 124.9	80.0 to 124.9999MHz		9	15	mA	T=25°C
	125.0 to 150	125.0 to 150MHz		10	15	mΑ	(Standard CL: 15pF)
	1.0 to 39.999	1.0 to 39.9999MHz		8	16	mA	CL=0p
Supply Current	40.0 to 79.99	999MHz		9	16	mА	RL=∞
(no load):	80.0 to 124.9	9999MHz		10	16	mА	T=25°C
	125.0 to 150	)MHz		11	16	mA	(CL option: 25pF)
	1.0 to 39.999	99MHz		8	16	mA	CL=0p
	40.0 to 79.9999MHz 80.0 to 124.9999MHz			9	16	mΑ	RL=∞
				10	16	mΑ	T=25°C (CL option: 40pF)
125.0 to 150		)MHz		11	16	mA	
		$V_{OH}$	$0.8*V_{dd}$			V	
Output Voltage:		$V_{OL}$			0.2*V <sub>dd</sub>	V	CL=15pF
Output voltage.		$V_{OH}$	0.9*V <sub>dd</sub>			V	
		$V_{OL}$			$0.1*V_{dd}$	V	CL=25, 40pF
		Tr		1.0	2.0	ns	CL=15pF; T=25°C
		Tf		0.9	2.0	ns	20%/80%*VDD
Rise Time:		Tr		1.0	2.0	ns	CL=25pF; T=25°C
Fall Time:		Tf		0.9	2.0	ns	20%/80%*VDD
		Tr		0.8	2.0	ns	CL=40pF; T=25°C
		Tf		0.8	2.0	ns	20%/80%*VDD
Cycle to Cycle Jitter:			50		ps	F=100MHz	
Period Jitter RMS:			5		ps	F=100MHz	







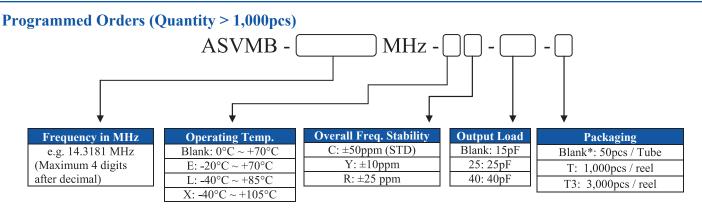


7.0 x 5.0 x 0.85 mm

## **Absolute Maximum Ratings**

Item	Minimum	Maximum	Unit	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		

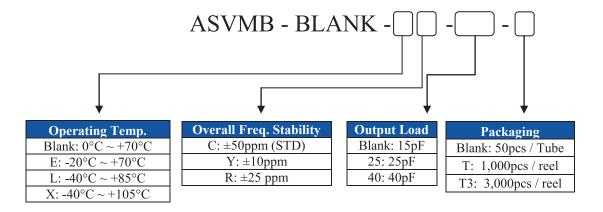
## **OPTIONS AND PART IDENTIFICATION: (Left Blank if Standard)**



<sup>\*</sup> For Quick turn-around programmable orders < 1000pcs: Due to the immediate availability of stock and the qty of the order, the parts may be delivered as BULK: Cut Tape, Loose parts in Antistatic Bag or in Tube(s). The MOQ per the series will still apply for Tube packaging.

#### **Un-Programmed Orders**

Blank un-programmed oscillators are available for quick turn engineering requirements. Please call ABRACON for more information





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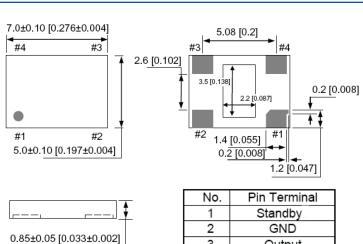
**ASVMB** 





7.0 x 5.0 x 0.85 mm

# **OUTLINE DIMENSIONS:**

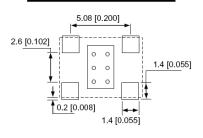


Center Pad: NC/GND

3

4

#### **Recommended Land Pattern**



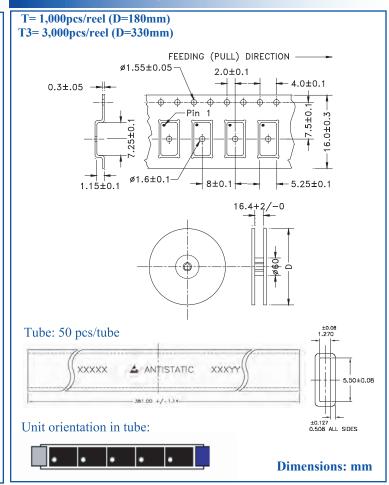
Note: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

Output

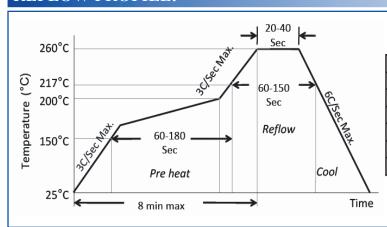
VDD

**Dimensions: mm (inches)** 

### **TAPE AND REEL:**



## **REFLOW PROFILE:**



Ramp-Up Rate (200°C to Peak Temp)	3°C/Sec Max.
Preheat Time 150°C to 200°C	60-180 Sec
Time maintained above 217°C	60-150 Sec
Peak Temperature	255-260°C
Time within 5°C of actual Peak	20-40 Sec
Ramp-Down Rate	6°C/Sec Max.
Time 25°C to Peak Temperature	8 min Max.

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