

# Ultra-Low Phase Jitter LVDS SMD Clock Oscillator

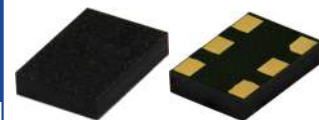
ASVMX-156.250MHz-3BBB



ESD Sensitive



RoHS/RoHS II compliant



7.0 x 5.0 x 1.4mm

Moisture Sensitivity Level – MSL 3

## FEATURES:

- 156.25MHz LVDS
- Typical phase noise: 80fs (Integration range: 1.875MHz-20MHz)
- $\pm 50$ ppm total frequency stability over  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  temperature range
- Industry standard 6-Pin 7 x 5mm LGA package

## APPLICATIONS:

- 10/40/400 Gigabit Ethernet
- Fibre Channel 10G/12G SERDES

## KEY ELECTRICAL SPECIFICATIONS

Item	Minimum	Maximum	Unit	Condition
Supply Voltage	-0.3	+3.6	V	
Storage Temp.	-55	+125	$^{\circ}\text{C}$	
Lead Temp.(soldering, 10s)		+260	$^{\circ}\text{C}$	
ESD (HBM)		2	kV	

VDD = 2.375 - 3.63V, TA =  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , outputs terminated with 100 Ohms between Q and /Q.<sup>(1)</sup>

Parameters	Minimum	Typical	Maximum	Units	Notes	
Frequency	156.250			MHz		
Operating Temperature (TA)	-40		+85	$^{\circ}\text{C}$		
Overall Frequency Stability <sup>(2)</sup>	-50		+50	ppm		
Supply Voltage (VDD)	+2.375		+3.63	V		
Supply Current (IDD)			90	mA		
Output Logic Level	V <sub>OH</sub>	1.248	1.375	1.602	V	V <sub>OH max</sub> = V <sub>CM max</sub> + 1/2 V <sub>OD max</sub>
	V <sub>OL</sub>	0.898	1.025	1.252	V	V <sub>OL min</sub> = V <sub>CM min</sub> - 1/2 V <sub>OD max</sub>
Output Differential Voltage (V <sub>OD</sub> )	247	350	454	mV		
Common Mode Output voltage (V <sub>CM</sub> )	1.125	1.2	1.375	V		
Start-up Time			20	ms		
Rise Time (Tr)	300			ps	RL=100 $\Omega$ , CL=0pF 20% to 80%	
Fall Time (Tf)	300					
Duty Cycle	45		55	%		
Phase Noise	Integration Range: 12kHz to 20MHz		175	fsRMS		
	Integration Range: 1.875MHz to 20MHz		80			

### Notes:

1. Guaranteed after thermal equilibrium
2. Inclusive of initial accuracy, temperature drift, aging, shock, vibration from  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

## PART IDENTIFICATION

ASVMX-156.250MHz -3BBB -



### Packing

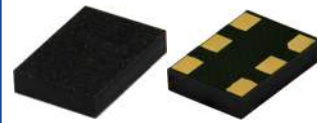
Blank: Bulk or Tube  
T: Tape & Reel (1k/reel)

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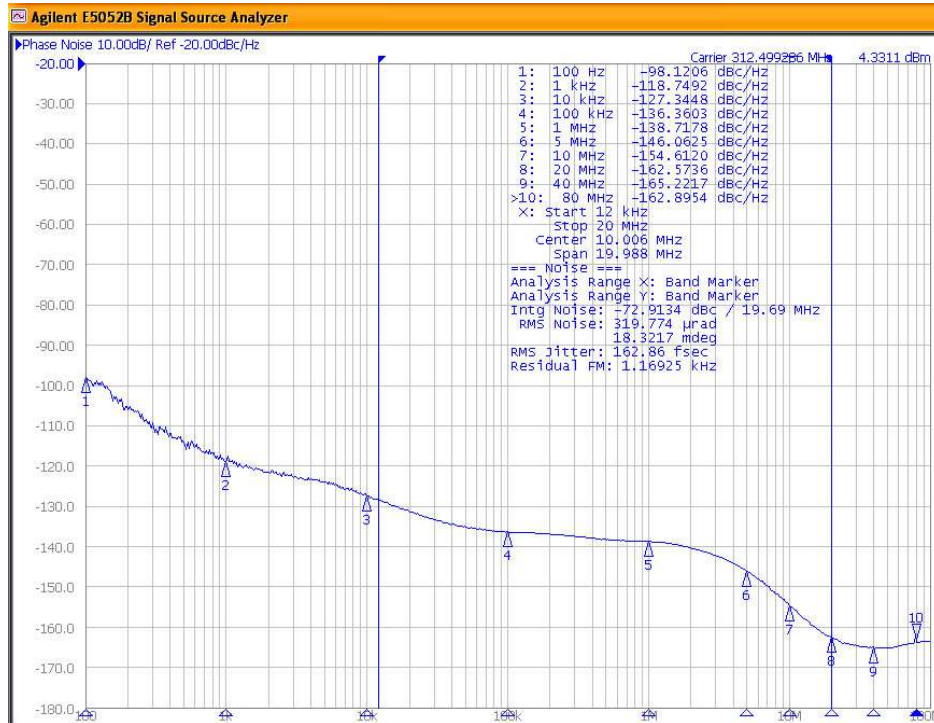
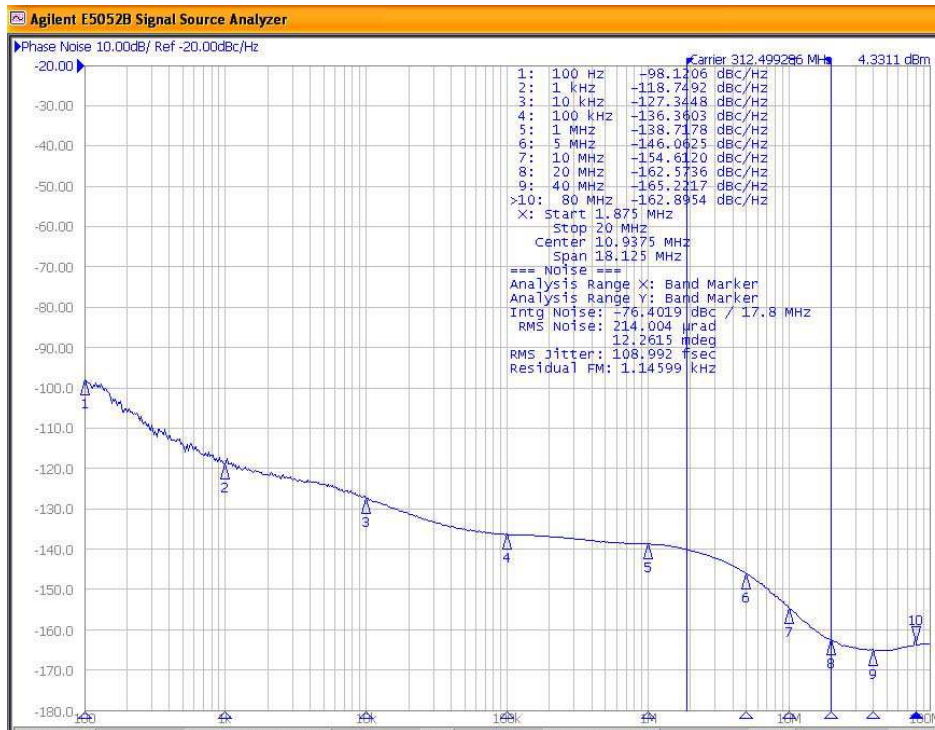


RoHS/RoHS II compliant



7.0 x 5.0 x 1.4mm

## TYPICAL PHASE NOISE



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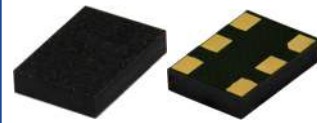
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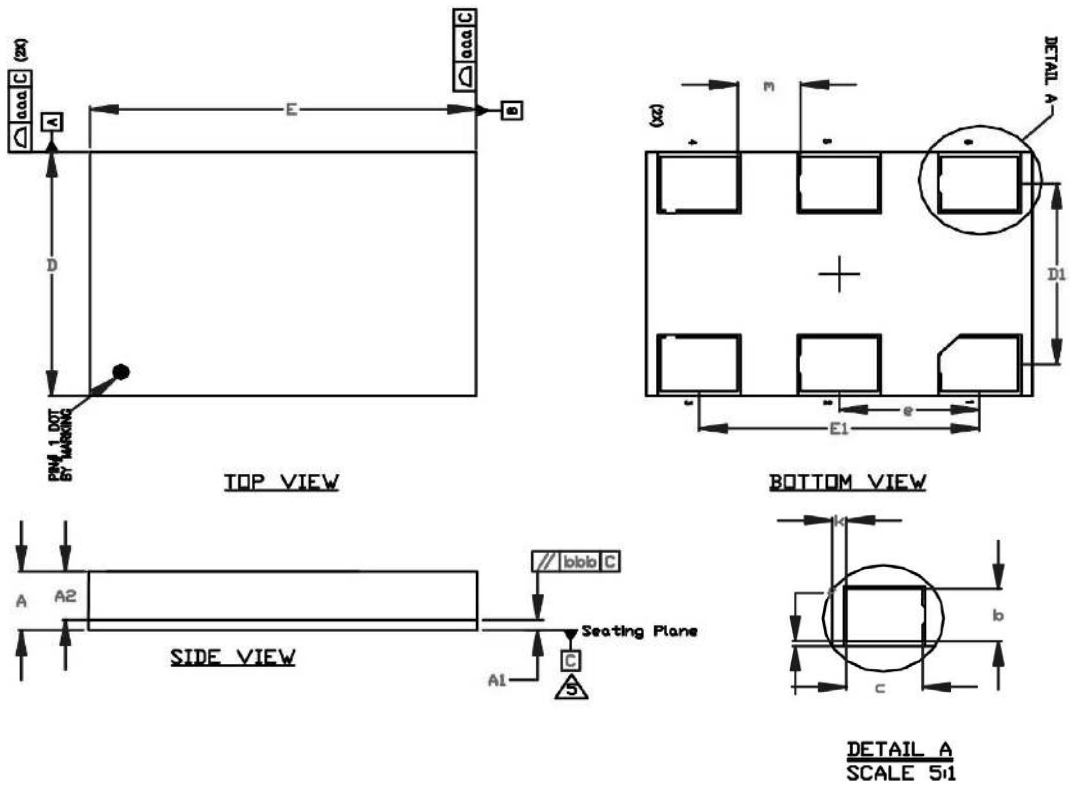


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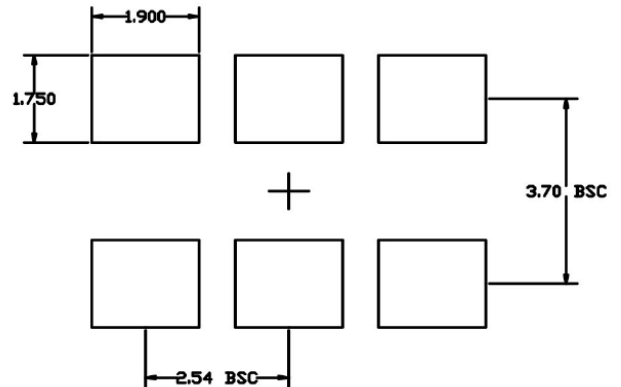
## OUTLINE DIMENSION



Ref.	Min.	Nom.	Max.
A	1.260	1.330	1.400
A1	0.190	0.230	0.270
A2	1.070	1.100	1.130
D	4.900	5.000	5.100
D1	3.700 BSC		
E	6.900	7.000	7.100
E1	5.080 BSC		
b	1.050	1.100	1.150
c	1.350	1.400	1.450
e	2.540 BSC		
f	0.050	0.100	0.150
k	0.210	0.260	0.310
m	1.090	1.140	1.190
n	36		

Dimensional Tolerance	
aaa	0.100
bbb	0.070

## Recommended Land Pattern



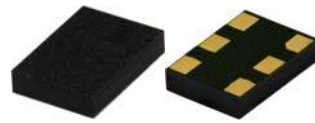
Dimensions: mm

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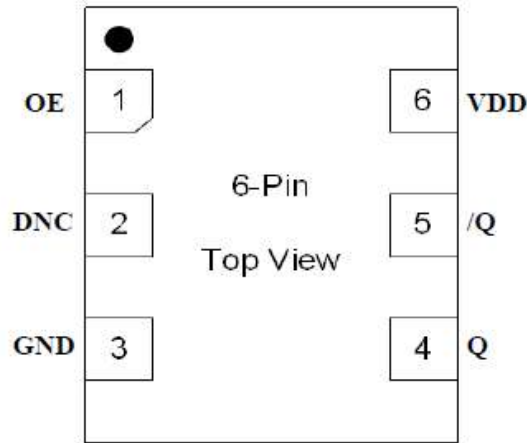


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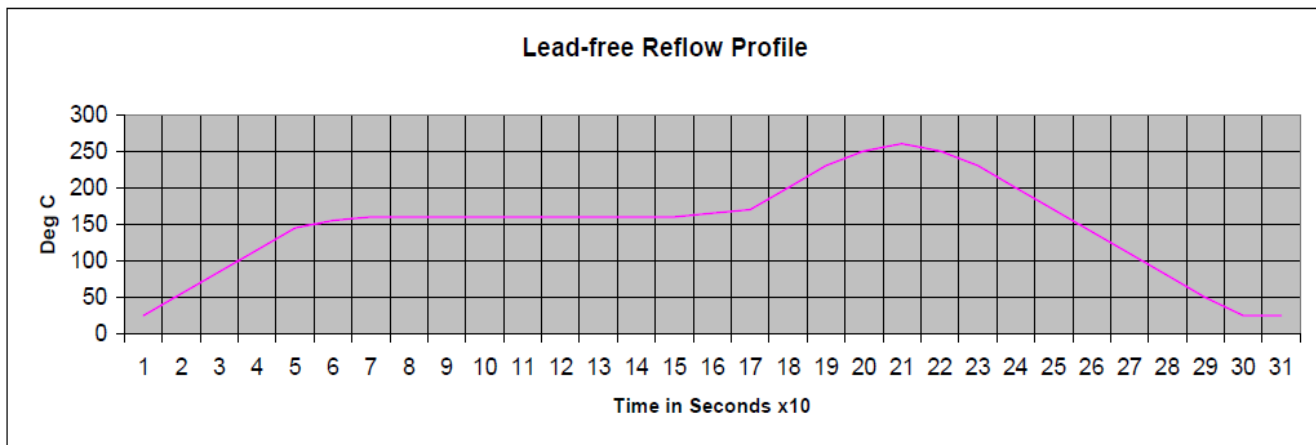
7.0 x 5.0 x 1.4mm

## PIN CONFIGURATION



Pin #	Pin Name	Pin Type	Pin Level	Pin Function
1	OE	I, SE	LVC MOS	Output Enable, disables output to tri-state. 0 = Disabled, 1 = Enabled, 50k $\Omega$ Pull-up
2	DNC			Make no connection, leave floating
3	GND	PWR		Power Supply Ground
4	Q	O	LVPECL	Clock Output
5	/Q	O	LVPECL	Complimentary Clock Output
6	VDD	PWR		Power Supply

## REFLOW PROFILE



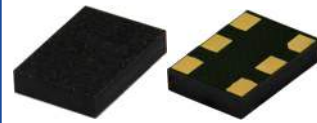
Parameters	Specifications
Average Ramp-up Rate	3°C / second max.
Pre-Heat Temp 150 – 200°C	60 – 180 second
Temp > 217°C	60 – 150 second
Time @ Peak Temperature	20 – 40 second
Peak Temperature	260°C + 0°C / -5°C
Ramp-down Rate	-6°C / second max.
Time 25°C to Peak Temp.	8 minutes max.

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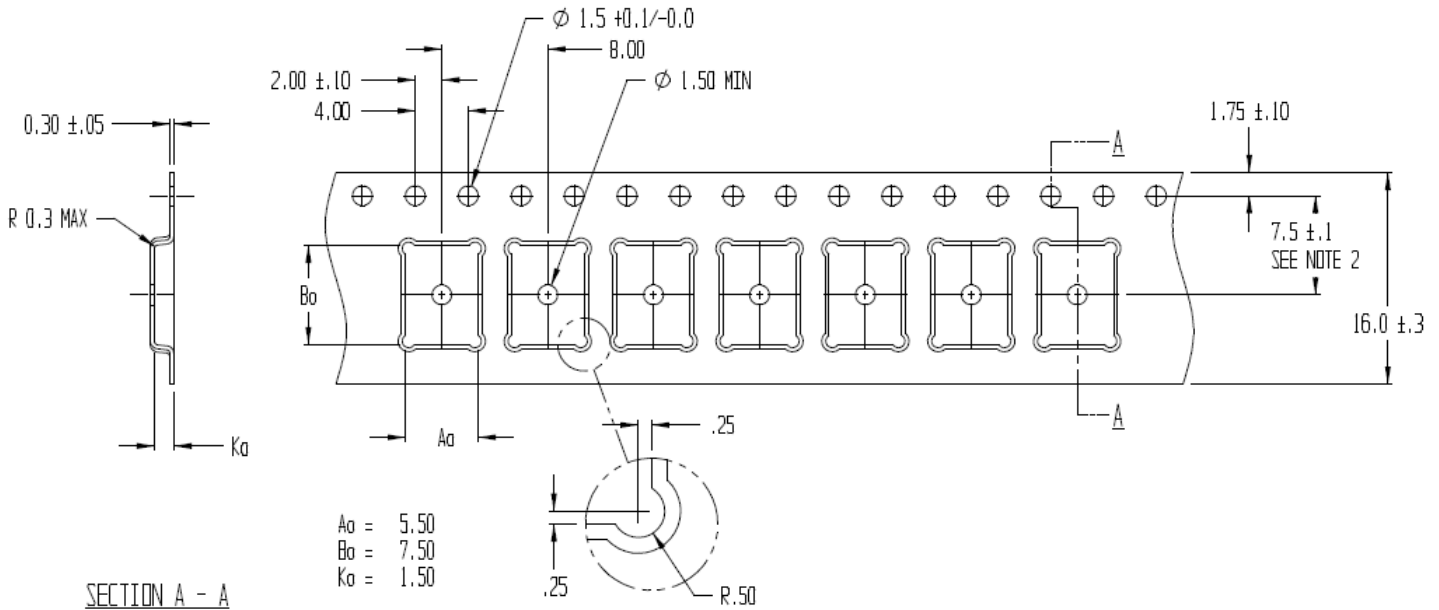


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## TAPE & REEL

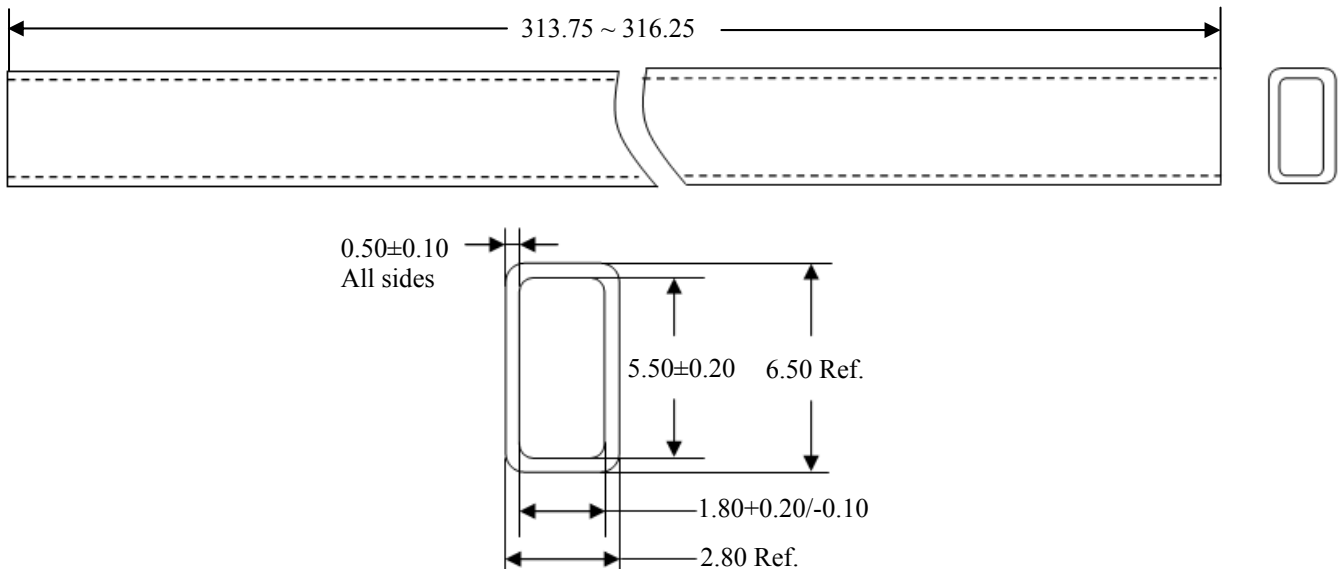
**T= Tape & Reel, 1000pcs/reel. Reel Size = 7-inch Reel**

**MSL-3 packaging applies to -T option.**



**Blank = Bulk or Tube (43pcs/tube)**

**MSL-3 packaging applies to MOQ=43 units (tube)**



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