PLASTIC PACKAGE INDUSTRIAL GRADE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

Life Size

2.5 x 2.0 x 0.85 mm

ASDMB

Moisture Sensitivity Level – MSL 1

Pb RoHS Compliant

FEATURES:

- Ultra Miniature Pure Silicon™ Clock Oscillator
- 2nd Generation MEMS Technology with reduced jiter by Discera
- Low Power Consumption <10mA
- Exceptional Stability +/- 10ppm Over Temp. at -40 to +105°C, +/- 5ppm over -40 to +85°C
- Available in 30kG Shock Resistance Configuration
- 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

MEMS TECHNOLOGY

STANDARD 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 ~ +3.3			V	
Output Load:			15, 25, or 40	pF	See options
	10			kΩ	
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 "0" (VIL<0.25*Vdd) : Hi Z			V	
Aging:	-5.0	-----	+5.0	ppm	First year

Key Electrical Specifications – V_{dd}= 1.8V

Parameters		Minimum	Typical	Maximum	Units	Notes
Supply Current (no load):	1.0 to 39.9999MHz	-----	5	15	mA	CL=0p
	40.0 to 79.9999MHz	-----	6	15	mA	RL=∞
	80.0 to 124.9999MHz	-----	7	15	mA	T=25°C
	125.0 to 150MHz	-----	8	15	mA	(Standard CL: 15pF)
	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 150MHz	-----	9	15	mA	(CL option: 25pF)
	1.0 to 39.9999MHz	-----	7	15	mA	CL=0p
	40.0 to 79.9999MHz	-----	8	15	mA	RL=∞
	80.0 to 124.9999MHz	-----	9	15	mA	T=25°C
	125.0 to 150MHz	-----	10	15	mA	(CL option: 40pF)
Output Voltage:	V_{OH}	0.8*V_{dd}	-----	-----	V	
	V_{OL}	-----	-----	0.2*V_{dd}	V	CL=15, 25, 40pF
Rise Time: Fall Time:	Tr	-----	1.8	3.0	ns	CL=15pF; T=25°C
	Tf	-----	1.0	3.0	ns	20%/80%*VDD
	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

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Key Electrical Specifications – V_{dd} = 1.8V

Cycle to Cycle Jitter:	-----	100	-----	ps	F=100MHz CL=15pF
	-----	55	-----		F=100MHz CL=25pF
	-----	55	-----		F=100MHz CL=40pF
Period Jitter RMS:	-----	12	-----	ps	F=100MHz CL=15pF
	-----	10	-----		F=100MHz CL=25pF
	-----	10	-----		F=100MHz CL=40pF

Key Electrical Specifications –V_{dd}= 2.5V

Parameters		Minimum	Typical	Maximum	Units	Notes
Supply Current (no load):	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 150MHz	-----	9	15	mA	(Standard CL: 15pF)
	1.0 to 39.9999MHz	-----	7	15	mA	CL=0p
	40.0 to 79.9999MHz	-----	8	15	mA	RL=∞
	80.0 to 124.9999MHz	-----	9	15	mA	T=25°C
	125.0 to 150MHz	-----	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 150MHz	-----	11	16	mA	(CL option: 40pF)
Output Voltage:	V_{OH}	0.8*V_{dd}	-----	-----	V	
	V_{OL}	-----	-----	0.2*V_{dd}	V	CL=15, 25pF
	V_{OH}	0.9*V_{dd}	-----	-----	V	
	V_{OL}	-----	-----	0.1*V_{dd}	V	CL=40pF
Rise Time: Fall Time:	Tr	-----	1.0	2.0	ns	CL=15pF; T=25°C
	Tf	-----	0.9	2.0	ns	20%/80%*VDD
	Tr	-----	1.1	2.0	ns	CL=25pF; T=25°C
	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
Period Jitter RMS:		-----	6.5	-----	ps	F=100MHz CL=15pF
		-----	5	-----		F=100MHz CL=25pF
		-----	5	-----		F=100MHz CL=40pF
Cycle to Cycle Jitter:		-----	80	-----	ps	F=100MHz CL=15pF
		-----	40	-----		F=100MHz CL=25pF
		-----	40	-----		F=100MHz CL=40pF

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Key Electrical Specifications –V_{dd}= 3.3V

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

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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 HBM MM CDM		 4,000 200 1,500	V	

OPTIONS AND PART IDENTIFICATION: (Left Blank if Standard)

Programmed Orders (Quantity > 1,000pcs)

ASDMB - ☐ MHz - ☐☐ - ☐ - ☐

Frequency in MHz
e.g. 14.3181 MHz (Maximum 4 digits after decimal)

Operating Temp.
Blank: 0°C ~ +70°C
E: -20°C ~ +70°C
L: -40°C ~ +85°C
X: -40°C ~ +105°C

Overall Freq. Stability
C: ±50ppm (STD)
R5*: ±5 ppm
Y: ±10ppm
R: ±25 ppm

Output Load
Blank: 15pF
25: 25pF
40: 40pF

Packaging
Blank: 140pcs / Tube
T: 1,000pcs / reel
T3: 3,000pcs / reel
T5: 5,000pcs / reel
T10: 10,000pcs / reel

***R5: ±5ppm stability is available by request. Please contact Abracon for more information.**

.0.2 Un-Programmed Orders

Blank un-programmed oscillators and our low cost portable programmer are available for quick turn engineering requirements. Please call ABRACON or visit MEMSpeed Pro site http://www.abracon.com/memspeedpro/memspeedpro.html for more information.

ASDMB - BLANK - ☐☐ - ☐

Operating Temp.
Blank: 0°C ~ +70°C
E: -20°C ~ +70°C
L: -40°C ~ +85°C
X: -40°C ~ +105°C

Overall Freq. Stability
C: ±50ppm (STD)
Y: ±10ppm
R: ±25 ppm

Packaging
Blank: 140pcs / Tube
T: 1,000pcs / reel
T3: 3,000pcs / reel
T5: 5,000pcs / reel
T10: 10,000pcs / reel

Note: Available 15pF output load only for ASDMB blank MEMS oscillator

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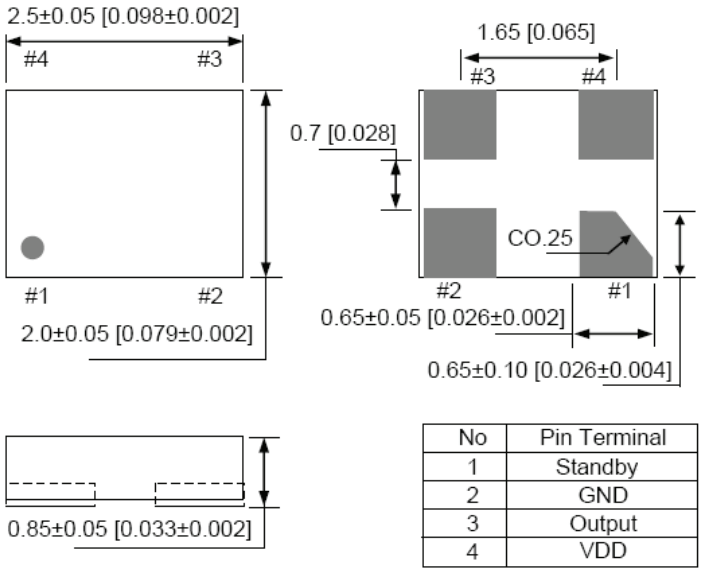
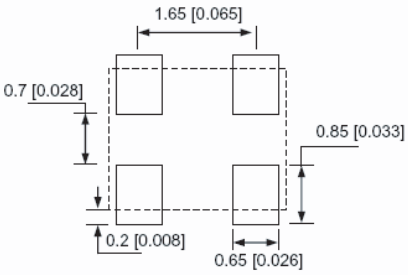
OUTLINE DIMENSIONS:



No	Pin Terminal
1	Standby
2	GND
3	Output
4	VDD

Recommended Land Pattern

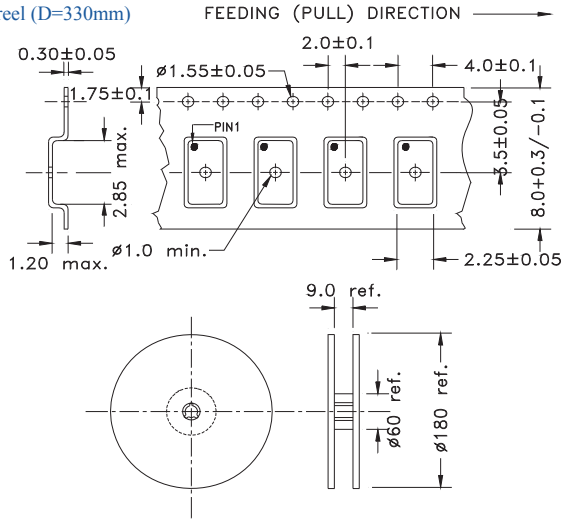


Note: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

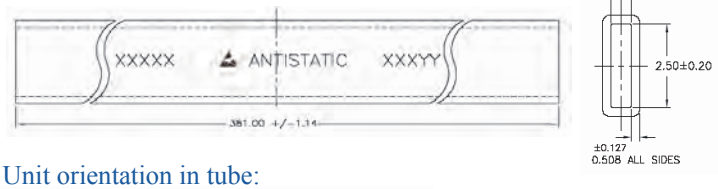
Dimensions: mm (inches)

TAPE AND REEL:

T= 1,000pcs/reel (D=180mm)
T3= 3,000pcs/reel (D=180mm)
T5= 5,000pcs/reel (D=330mm)
T10= 10,000pcs/reel (D=330mm)



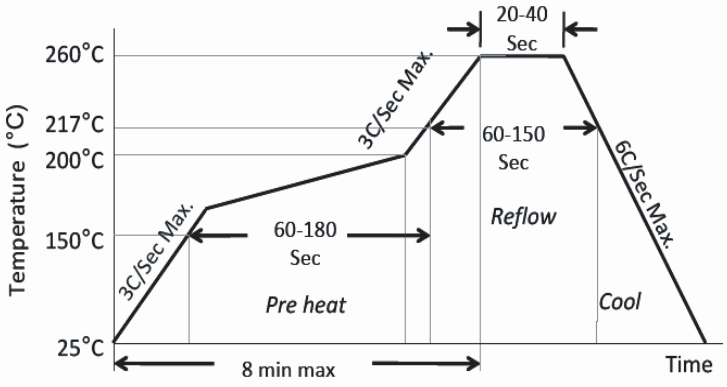
Tube: 140 pcs/tube



Unit orientation in tube:

Dimensions: mm

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.

Need a test socket for the ASDMB Series? To view compatible **PRECISION TEST SOCKETS** for these parts, **click here.**

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.

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Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
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Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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