

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



7.0 x 5.0 x 0.85mm

ASVMP

Moisture Sensitivity Level – MSL 1



RoHS
Compliant

FEATURES:

- Ultra Miniature Pure Silicon™ Clock Oscillator
- High Performance MEMS Technology by Discera
- Low Power Consumption for high speed communication
- Exceptional Stability Over Temp. at -40 to +85°C, ±15ppm
- Extended Automotive Grade Temp. stability at -55 to +125°C, ±25ppm
- Available in 50kG Shock Resistance Configuration upon request
- MIL-STD-883 shock and vibration compliant
- Durable QFN Plastic Compact Packaging
- Standby or Disable Tri-state function
- Low jitter (Period jitter RMS and Phase jitter RMS)
- High power supply noise reduction, -50dBc

APPLICATIONS:

- Storage Area Networks (SATA, SAS, Fiber Channel)
- Passive Optical Networks (EPON, 10G-EPON, GPON, 10G-PON)
- Ethernet (1G, 10GBASE-T/KR/LR/SR, FCoE)
- HD/SD/SDI Video & Surveillance
- PCI Express
- Display port

Low Jitter
High Performance
3G MEMS Technology!

STANDARD SPECIFICATIONS:

Common Key Electrical Specifications – CMOS, LVPECL, LVDS, and HCSL

Parameters	Minimum	Typical	Maximum	Units	Notes	
Frequency Range	CMOS	10.000	-----	170.000	MHz	Commercial, Industrial Temp range
	CMOS	10.000	-----	100.000		Automotive -55 ~ +125°C
	LVPECL	10.000	-----	460.000		Commercial, Industrial Temp range
	LVDS	10.000	-----	460.000		Commercial, Industrial Temp range
	HCSL	10.000	-----	460.000		Commercial, Industrial Temp range
Operating Temperature	-20	-----	+70	°C	See options	
Storage Temperature	-55	-----	+150	°C		
Overall Frequency Stability	-50	-----	+50	ppm	See options	
Supply Voltage (Vdd)	+2.25	-----	+3.6	V		
Startup Time	-----	-----	5	ms		
Enable Time	-----	-----	20	ms	STD (Tri-state)	
	-----	-----	5		PD option (Power Down)	
Disable Time	-----	-----	5	ns		
Stand-by Current	-----	20	22	mA	STD (Tri-state)	
Disable Current	-----	-----	0.095		PD option (Power Down)	
Tri-state Function (Stand-by)	"1" (VIH ≥ 0.75*Vdd) or Open: Oscillation "0" (VIL < 0.25*Vdd) : Hi Z			V	40kΩ pull-up resistor embedded	
Aging	-5.0	-----	+5.0	ppm	First year	

Key Electrical Specifications – CMOS

Parameters	Minimum	Typical	Maximum	Units	Notes
Supply Current (I _{dd})	-----	31	35	mA	CL=15pF, 125MHz
Output Logic Level	V _{OH}	0.9*V _{dd}	-----	V	I=±6mA
	V _{OL}	-----	0.1*V _{dd}	V	
Rise Time	-----	1.1	2.0	ns	CL=15pF 20%/80%*VDD
Fall Time	-----	1.3	2.0	ns	
Duty Cycle	45	-----	55	%	
Integrated Phase Jitter (J _{PHI})	-----	0.30	2	ps	200kHz ~ 20MHz, 125MHz
	-----	0.38	2		100kHz ~ 20MHz, 125MHz
	-----	1.70	2		12kHz ~ 20MHz, 125MHz
Period Jitter RMS (J _{PER})	-----	3.0	-----	ps	

ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 07.15.12**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



7.0 x 5.0 x 0.85mm

ASVMP



RoHS
Compliant

Key Electrical Specifications – LVPECL

Parameters	Minimum	Typical	Maximum	Units	Notes
Supply Current (I_{dd})	-----	56.5	58	mA	RL=50Ω
Output Logic Level	V_{OH}	$V_{dd}-1.08$	-----	V	RL=50Ω
	V_{OL}	-----	$V_{dd}-1.55$	V	
Peak to Peak Output Swing (V_{pp})	-----	800	-----	mV	Single ended
Rise Time	T_r	-----	250	-----	RL=50Ω , CL=0pF 20%/80%*VDD
Fall Time	T_f	-----	250	-----	
Duty Cycle	48	-----	52	%	Differential
Integrated Phase Jitter (J_{PH})	-----	0.25	2	ps	200kHz ~ 20MHz @156.25MHz
	-----	0.38	2		100kHz ~ 20MHz @156.25MHz
	-----	1.70	2		12kHz ~ 20MHz @156.25MHz
Period Jitter RMS (J_{PER})	-----	2.5	-----	ps	

Key Electrical Specifications – LVDS

Parameters	Minimum	Typical	Maximum	Units	Notes
Supply Current (I_{dd})	-----	29	32	mA	RL=100Ω
Output Offset Voltage (V_{OS})	1.125	-----	1.4	V	RL=100Ω differential
Delta Offset Voltage (ΔV_{OS})	-----	-----	50	mV	
Peak to Peak Output Swing (V_{pp})	-----	350	-----	mV	Single ended
Rise Time	T_r	-----	200	-----	RL=50Ω , CL=2pF 20%/80%*VDD
Fall Time	T_f	-----	200	-----	
Duty Cycle	48	-----	52	%	Differential
Integrated Phase Jitter (J_{PH})	-----	0.28	2	ps	200kHz ~ 20MHz @156.25MHz
	-----	0.40	2		100kHz ~ 20MHz @156.25MHz
	-----	1.70	2		12kHz ~ 20MHz @156.25MHz
Period Jitter RMS (J_{PER})	-----	2.5	-----	ps	

Key Electrical Specifications – HCSL

Parameters	Minimum	Typical	Maximum	Units	Notes
Supply Current (I_{dd})	-----	40	42	mA	RL=50Ω
Output Logic Level	V_{OH}	0.725	-----	V	RL=50Ω
	V_{OL}	-----	-----	0.1	
Peak to Peak Output Swing (V_{pp})	-----	750	-----	mV	Single ended
Rise Time	T_r	200	-----	400	RL=50Ω , CL=2pF 20%/80%*VDD
Fall Time	T_f	200	-----	400	
Duty Cycle	48	-----	52	%	Differential
Integrated Phase Jitter (J_{PH})	-----	0.25	2	ps	200kHz ~ 20MHz @156.25MHz
	-----	0.37	2		100kHz ~ 20MHz @156.25MHz
	-----	1.70	2		12kHz ~ 20MHz @156.25MHz
Period Jitter RMS (J_{PER})	-----	2.5	-----	ps	

ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 07.15.12**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



7.0 x 5.0 x 0.85mm

ASVMP



RoHS
Compliant

Absolute Maximum Ratings

Item	Minimum	Maximum	Unit	Condition
Supply Voltage	-0.3	+4.0	V	
Input Voltage	-0.3	V _{dd} +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)

Programmed Orders (Quantity > 1,000pcs)

ASVMP - MHz - - -

Output Type	Frequency in MHz	Operating Temp.	Overall Freq. Stability	Tri-state (Pin 1)	Packaging
C: CMOS	e.g. 156.2500 MHz (Maximum 4 digits after decimal)	Blank: -20°C ~ +70°C L: -40°C ~ +85°C X**: -40°C ~ +105°C Z**: -55°C ~ +125°C	Blank: ±50ppm Y: ±10ppm* R: ±25 ppm	Blank: Tri-state PD: Power Down	Blank: Tube (50pcs / Tube) T: Tape & Reel (1kpcs / reel) T3: Tape & Reel (3kpcs / reel)
LP: LVPECL					
LV: LVDS					
HC: HCSL					

* Temp option L, or -20°C ~ +70°C, only

** CMOS output only

*** 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 and our low cost portable programmer are available for quick turn engineering requirements. Please call ABRACON or visit MEMSpeed Pro II site <http://www.abracon.com/memspeedpro/MEMSpeedProFlyerII.pdf> for more information.

ASVMP - BLANK - - -

Output Type	Operating Temp.	Overall Freq. Stability	Tri-state (Pin 1)	Packaging
C: CMOS	Blank: -20°C ~ +70°C L: -40°C ~ +85°C X**: -40°C ~ +105°C Z**: -55°C ~ +125°C	Blank: ±50ppm Y: ±10ppm* R: ±25 ppm	Blank: Tri-state PD: Power Down	Blank: Tube (110pcs / Tube) T: Tape & Reel (1kpcs / reel) T3: Tape & Reel (3kpcs / reel)
LP: LVPECL				
LV: LVDS				
HC: HCSL				

* Temp option L, or -20°C ~ +70°C, only

** CMOS output only

ABRACON IS
ISO9001:2008
CERTIFIED



Visit www.abracon.com for Terms & Conditions of Sale **Revised: 07.15.12**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



7.0 x 5.0 x 0.85mm

ASVMP

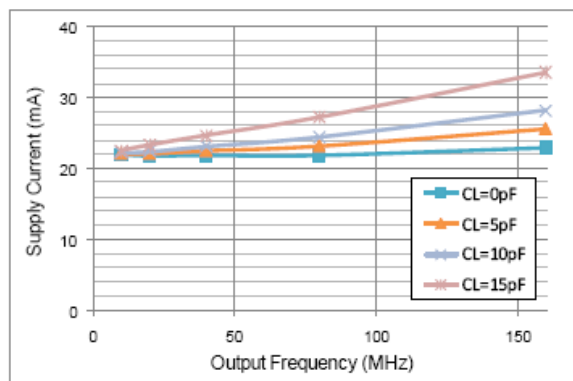


RoHS
Compliant

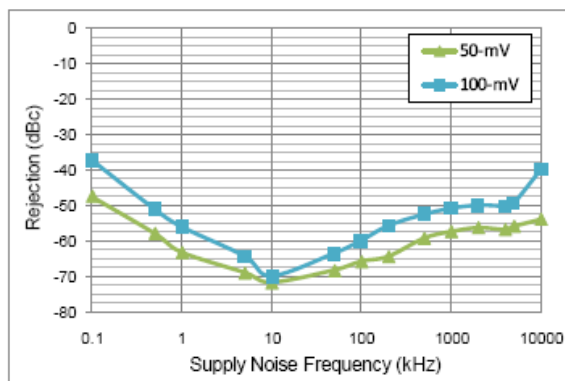
NOMINAL PERFORMANCE PARAMETERS

(Unless specified otherwise: T=25° C, VDD=3.3 V)

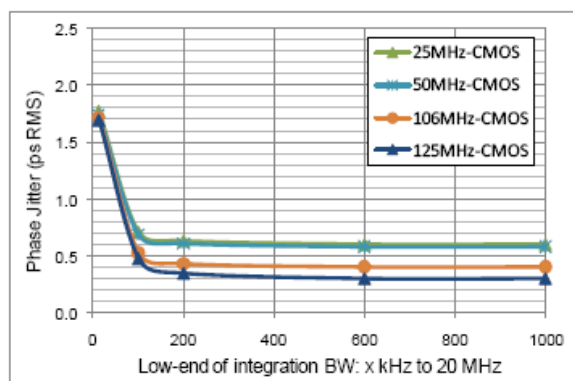
CMOS OUTPUT



Supply current over freq

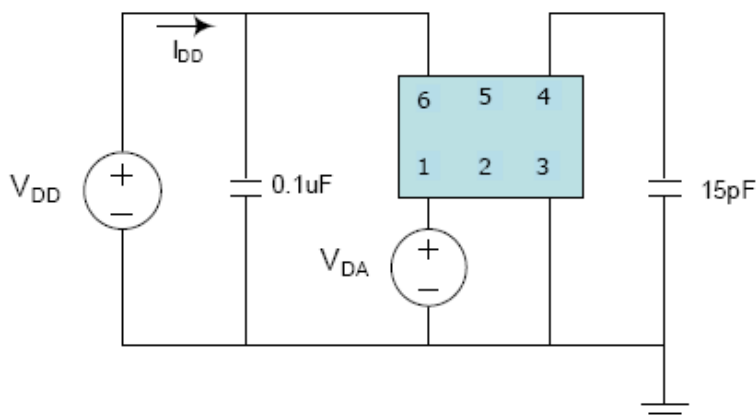


Power supply rejection ratio



Phase jitter (integrated phase noise)

Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP

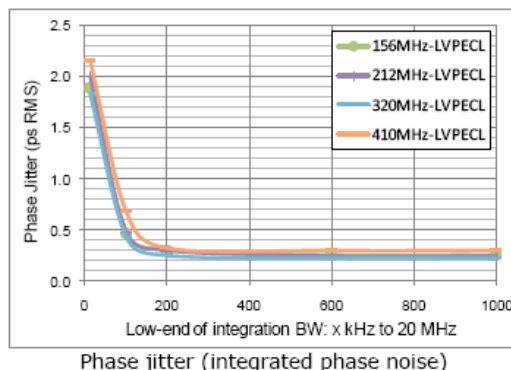
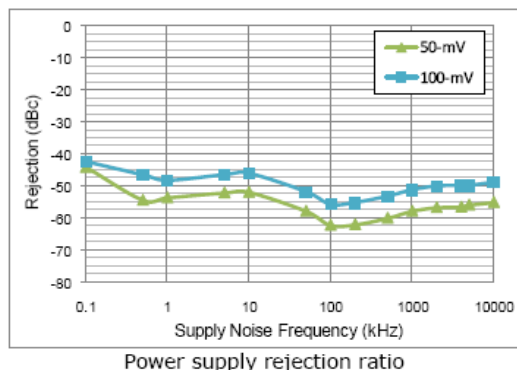


7.0 x 5.0 x 0.85mm

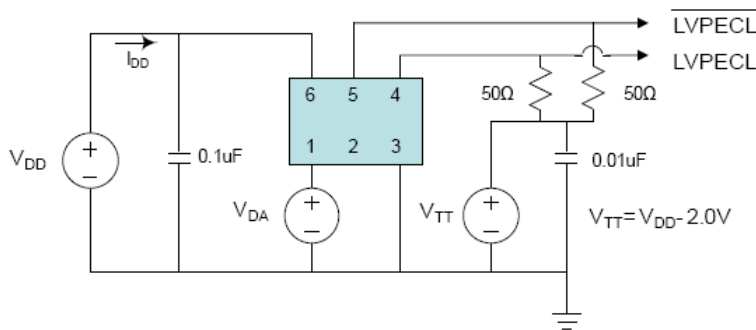
ASVMP



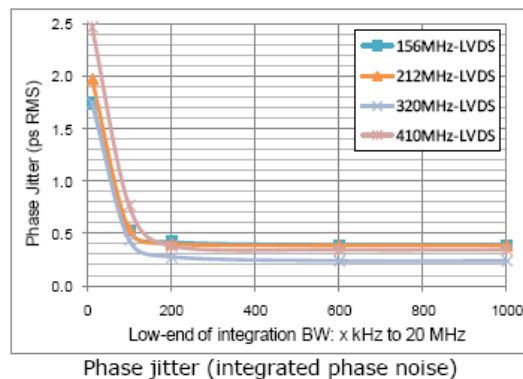
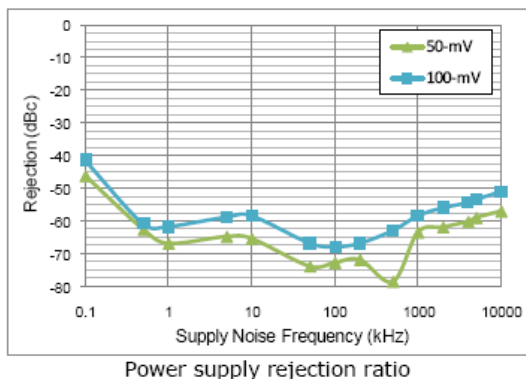
LVPECL OUTPUT



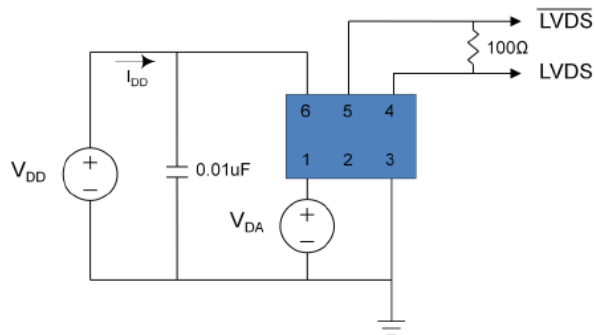
Test Circuit



LVDS OUTPUT



Test Circuit



ABRACON IS
ISO9001:2008
CERTIFIED



Visit www.abracon.com for Terms & Conditions of Sale **Revised: 07.15.12**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



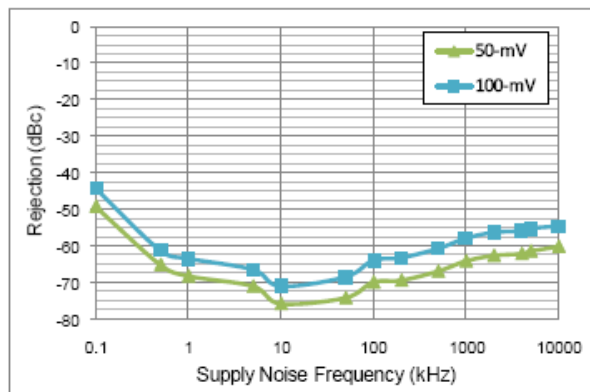
7.0 x 5.0 x 0.85mm

ASVMP

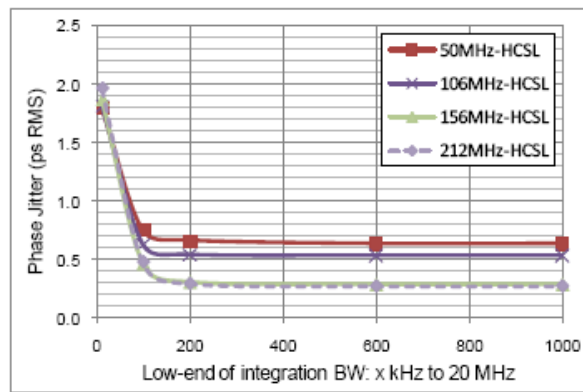


RoHS
Compliant

HCSL OUTPUT

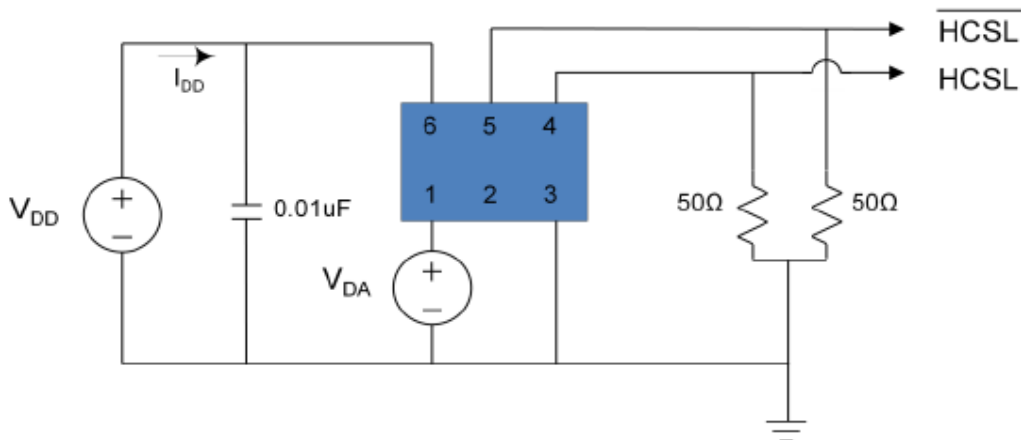


Power supply rejection ratio



Phase jitter (integrated phase noise)

Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



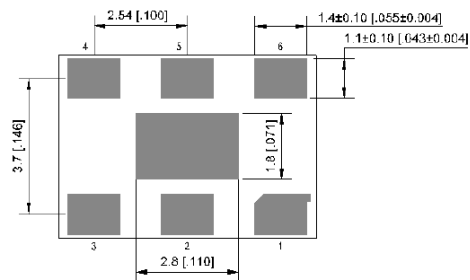
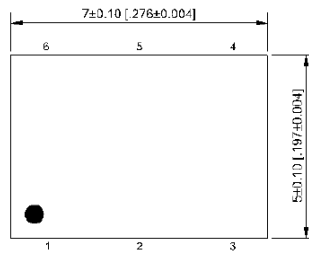
7.0 x 5.0 x 0.85mm

ASVMP

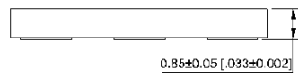


RoHS
Compliant

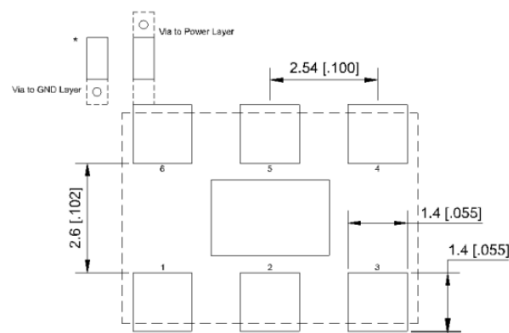
OUTLINE DIMENSIONS:



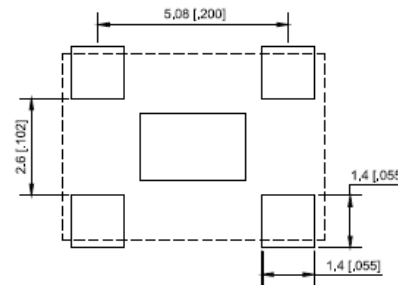
Center pad: NC / GND



Pin #	Function
1	Tri-state
2	NC
3	GND
4	Output
5	NC (CMOS) Output (LVPECL, LVDS, HCSL)
6	Vdd



Recommended Land Pattern for LVPECL, LVDS, HCSL

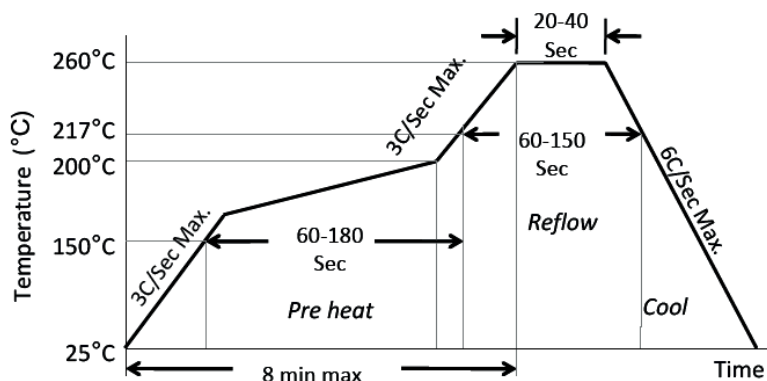


Recommended Land Pattern for CMOS

Note: Recommend using an approximately 0.01µF bypass capacitor between PIN 6 and 3.

Dimensions: mm (inches)

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.

ABRACON IS
ISO9001:2008
CERTIFIED



Visit www.abracon.com for Terms & Conditions of Sale **Revised: 07.15.12**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASVMP



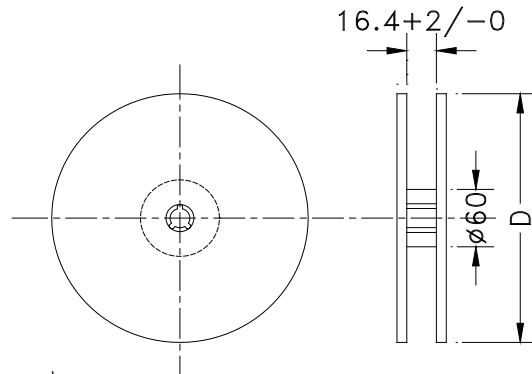
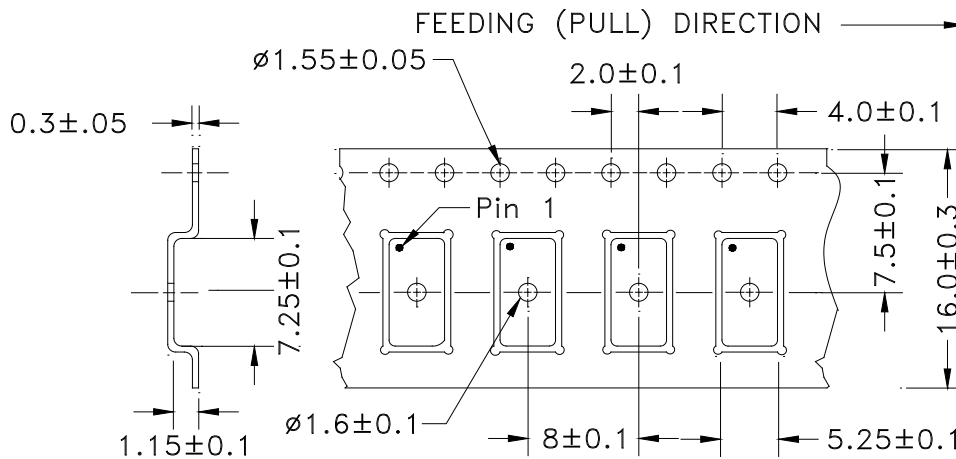
7.0 x 5.0 x 0.85mm

ASVMP

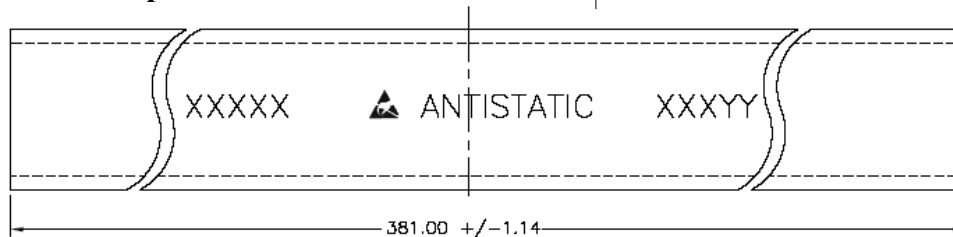


TAPE AND REEL:

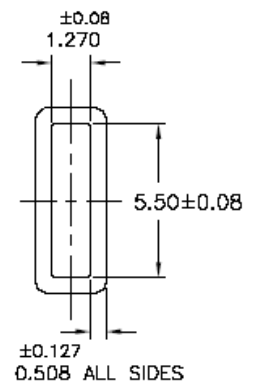
T= 1,000pcs/reel (D=180mm)
T3= 3,000pcs/reel (D=330mm)



Tube: 50 pcs/tube



Unit orientation in tube:



Dimensions: mm

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
ISO9001:2008
CERTIFIED



Visit www.abracon.com for Terms & Conditions of Sale **Revised: 07.15.12**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ABRACON:

[ASVMPC-10.000MHZ-LR-T](#) [ASVMPC-10.000MHZ-LY-T3](#) [ASVMPC-10.000MHZ-T3](#) [ASVMPC-10.000MHZ-Z-T](#)
[ASVMPC-100.000MHZ-LR-T](#) [ASVMPC-100.000MHZ-LY-T3](#) [ASVMPC-100.000MHZ-T3](#) [ASVMPC-100.000MHZ-Z-T](#)
[ASVMPC-106.250MHZ-LR-T](#) [ASVMPC-106.250MHZ-LY-T3](#) [ASVMPC-106.250MHZ-T3](#) [ASVMPC-106.250MHZ-Z-T](#)
[ASVMPC-11.0592MHZ-LR-T](#) [ASVMPC-11.0592MHZ-LY-T3](#) [ASVMPC-11.0592MHZ-T3](#) [ASVMPC-11.0592MHZ-Z-T](#)
[ASVMPC-12.000MHZ-LR-T](#) [ASVMPC-12.000MHZ-LY-T3](#) [ASVMPC-12.000MHZ-T3](#) [ASVMPC-12.000MHZ-Z-T](#)
[ASVMPC-12.288MHZ-LR-T](#) [ASVMPC-12.288MHZ-LY-T3](#) [ASVMPC-12.288MHZ-T3](#) [ASVMPC-12.288MHZ-Z-T](#)
[ASVMPC-12.352MHZ-LR-T](#) [ASVMPC-12.352MHZ-LY-T3](#) [ASVMPC-12.352MHZ-T3](#) [ASVMPC-12.352MHZ-Z-T](#)
[ASVMPC-12.500MHZ-LR-T](#) [ASVMPC-12.500MHZ-LY-T3](#) [ASVMPC-12.500MHZ-T3](#) [ASVMPC-12.500MHZ-Z-T](#)
[ASVMPC-120.000MHZ-LR-T](#) [ASVMPC-120.000MHZ-LY-T3](#) [ASVMPC-120.000MHZ-T3](#) [ASVMPC-120.000MHZ-Z-T](#)
[ASVMPC-125.000MHZ-LR-T](#) [ASVMPC-125.000MHZ-LY-T3](#) [ASVMPC-125.000MHZ-T3](#) [ASVMPC-125.000MHZ-Z-T](#)
[ASVMPC-13.000MHZ-LR-T](#) [ASVMPC-13.000MHZ-LY-T3](#) [ASVMPC-13.000MHZ-T3](#) [ASVMPC-13.000MHZ-Z-T](#)
[ASVMPC-133.333MHZ-LR-T](#) [ASVMPC-133.333MHZ-LY-T3](#) [ASVMPC-133.333MHZ-T3](#) [ASVMPC-133.333MHZ-Z-T](#)
[ASVMPC-14.31818MHZ-LR-T](#) [ASVMPC-14.31818MHZ-LY-T3](#) [ASVMPC-14.31818MHZ-T3](#) [ASVMPC-14.31818MHZ-Z-T](#)
[ASVMPC-14.7456MHZ-LR-T](#) [ASVMPC-14.7456MHZ-LY-T3](#) [ASVMPC-14.7456MHZ-T3](#) [ASVMPC-14.7456MHZ-Z-T](#)
[ASVMPC-15.000MHZ-LR-T](#) [ASVMPC-15.000MHZ-LY-T3](#) [ASVMPC-15.000MHZ-T3](#) [ASVMPC-15.000MHZ-Z-T](#)
[ASVMPC-150.000MHZ-LR-T](#) [ASVMPC-150.000MHZ-LY-T3](#) [ASVMPC-150.000MHZ-T3](#) [ASVMPC-150.000MHZ-Z-T](#)
[ASVMPC-16.000MHZ-LR-T](#) [ASVMPC-16.000MHZ-LY-T3](#) [ASVMPC-16.000MHZ-T3](#) [ASVMPC-16.000MHZ-Z-T](#)
[ASVMPC-16.384MHZ-LR-T](#) [ASVMPC-16.384MHZ-LY-T3](#) [ASVMPC-16.384MHZ-T3](#) [ASVMPC-16.384MHZ-Z-T](#)
[ASVMPC-18.432MHZ-LR-T](#) [ASVMPC-18.432MHZ-LY-T3](#) [ASVMPC-18.432MHZ-T3](#) [ASVMPC-18.432MHZ-Z-T](#)
[ASVMPC-19.440MHZ-LR-T](#) [ASVMPC-19.440MHZ-LY-T3](#) [ASVMPC-19.440MHZ-T3](#) [ASVMPC-19.440MHZ-Z-T](#)
[ASVMPC-20.000MHZ-LR-T](#) [ASVMPC-20.000MHZ-LY-T3](#) [ASVMPC-20.000MHZ-T3](#) [ASVMPC-20.000MHZ-Z-T](#)
[ASVMPC-24.000MHZ-LR-T](#) [ASVMPC-24.000MHZ-LY-T3](#) [ASVMPC-24.000MHZ-T3](#) [ASVMPC-24.000MHZ-Z-T](#)
[ASVMPC-24.576MHZ-LR-T](#) [ASVMPC-24.576MHZ-LY-T3](#) [ASVMPC-24.576MHZ-T3](#) [ASVMPC-24.576MHZ-Z-T](#)
[ASVMPC-25.000MHZ-LR-T](#) [ASVMPC-25.000MHZ-LY-T3](#) [ASVMPC-25.000MHZ-T3](#) [ASVMPC-25.000MHZ-Z-T](#)
[ASVMPC-26.000MHZ-LR-T](#) [ASVMPC-26.000MHZ-LY-T3](#) [ASVMPC-26.000MHZ-T3](#) [ASVMPC-26.000MHZ-Z-T](#)