



# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive



5.0 x 3.2 x 0.85 mm

RoHS/RoHS II Compliant

MSL Level = 1

## Features

- 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
- 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)
- PCI Express
- Display port

## Key Electrical Specifications CMOS, LVPECL, LVDS, and HCSL

Parameters		Min.	Typ.	Max.	Units	Notes
Frequency Range	CMOS	2.3000*		170.0000	MHz	-20 ~ +70°C -40 ~ +85°C
	CMOS	3.3000*		170.0000		-40 ~ +105°C -55 ~ +125°C
	LVPECL	2.3000*		460.0000		Commercial, Industrial temp. range
	LVDS	2.3000*		460.0000		Commercial, Industrial temp. range
	HCSL	2.3000*		460.0000		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	ns	STD (Tri-state)
				5	ms	PD option (Power Down)
Disable Time				5	ns	
Disable Current			20	22	mA	STD (Tri-state)
				0.095		PD option (Power Down)
Tri-state Function (Standby/Disable)		"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



5101 Hidden Creek Ln Spicewood TX 78669  
 Phone: 512-371-6159 | Fax: 512-351-8858  
 For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 09-21-23

ABRACON IS  
 ISO9001-2015  
 CERTIFIED

# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive



5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Key Electrical Specifications– CMOS

Parameters	Min.	Typ.	Max.	Units	Notes
Supply Current (I <sub>dd</sub> )		31	35	mA	CL=15pF, 125MHz
Output Logic Level	V <sub>OH</sub>	0.9*V <sub>dd</sub>		V	I=±6mA
	V <sub>OL</sub>		0.1*V <sub>dd</sub>	V	
Rise Time		1.1	2.0	ns	CL=15pF 20% to 80%
Fall Time		1.3	2.0	ns	
Duty Cycle	45		55	%	
Integrated Phase Jitter (JPH)		0.30	2	ps	200kHz ~ 20MHz@125MHz
		0.38	2		100kHz ~ 20MHz@125MHz
		1.70	2		12kHz ~ 20MHz@125MHz
Period Jitter RMS (JPER)		3.0		ps	

## Key Electrical Specifications– LVPECL

Parameters	Min.	Typ.	Max.	Units	Notes
Supply Current (I <sub>dd</sub> )		56.5	58	mA	RL=50Ω
Output Logic Level	V <sub>OH</sub>	V <sub>dd</sub> -1.08		V	RL=50Ω
	V <sub>OL</sub>		V <sub>dd</sub> -1.55	V	
Peak to Peak Output Swing (V <sub>pp</sub> )		800		mV	Single ended
Rise Time		250		ps	RL=50Ω , CL=0pF 20% to 80%
Fall Time		250			
Duty Cycle		48	52	%	Differential
Integrated Phase Jitter (J <sub>PH</sub> )		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 <sub>PER</sub> )		2.5		ps	



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
www.abracon.com

REVISED: 09-21-23

ABRACON IS  
ISO9001-2015  
CERTIFIED

# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive



5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Key Electrical Specifications– LVDS

Parameters	Min.	Typ.	Max.	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 ( $\Delta V_{OS}$ )			50	mV	
Peak to Peak Output Swing ( $V_{pp}$ )		350		mV	Single ended
Rise Time		200		ps	RL=50Ω , CL=2pF 20% to 80%
Fall Time		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	Min.	Typ.	Max.	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	V	
Peak to Peak Output Swing ( $V_{pp}$ )		750		mV	Single ended
Rise Time		200	400	ps	RL=50Ω , CL=2pF 20% to 80%
Fall Time		200	400		
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	



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
www.abracon.com

REVISED: 09-21-23

ABRACON IS  
ISO9001-2015  
CERTIFIED

# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive



5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Absolute Maximum Ratings

Parameters	Min.	Max.	Units	Condition
Supply Voltage	-0.3	+4.0	V	
Input Voltage	-0.3	V <sub>dd</sub> +0.3	V	
Junction Temp.		+150	°C	
Storage Temp.	-55	+150	°C	
Soldering Temp.		+260	°C	40sec max
ESD			V	
HBM		4,000		
MM		400		
CDM		1,500		

# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory

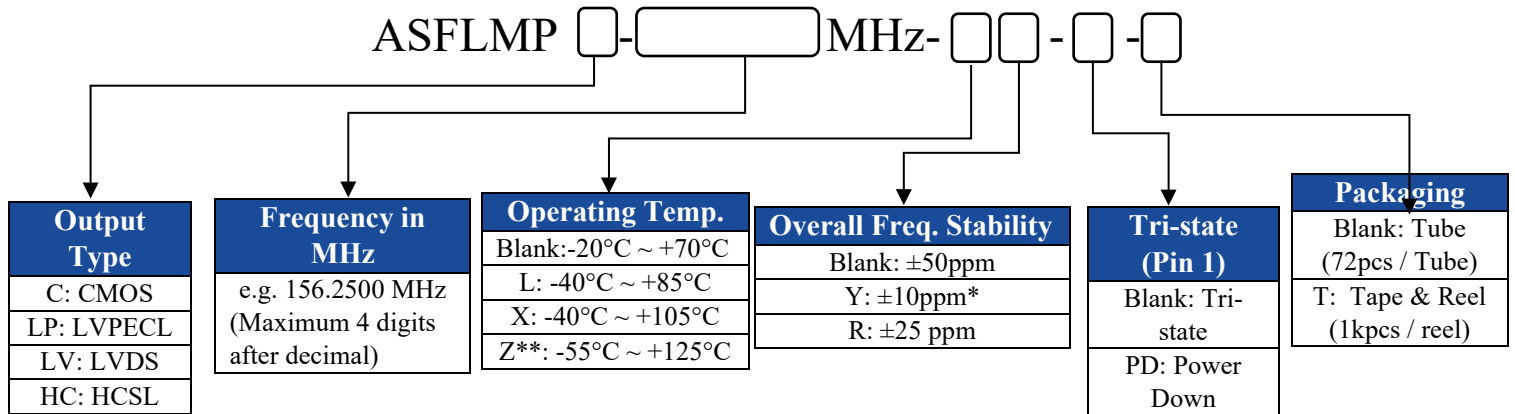


ESD Sensitive



5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Options and Part Identification (left blank if standard)



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

\*\* CMOS output only

ASFLMP

Request Samples



Check Inventory



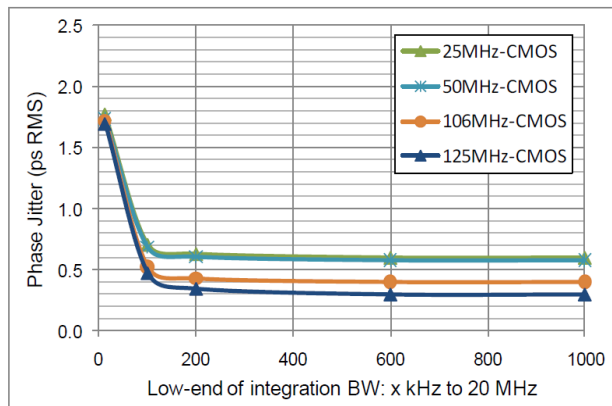
ESD Sensitive



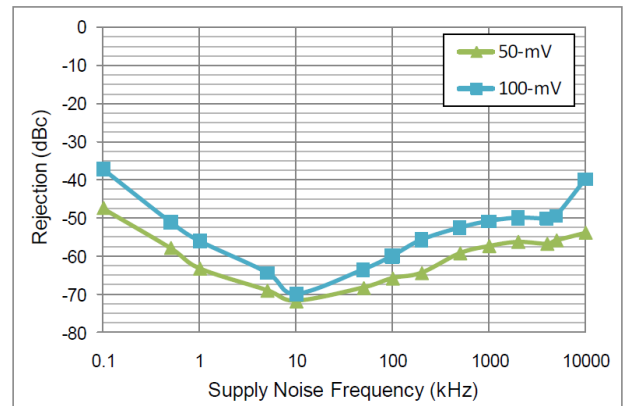
5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

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

CMOS output

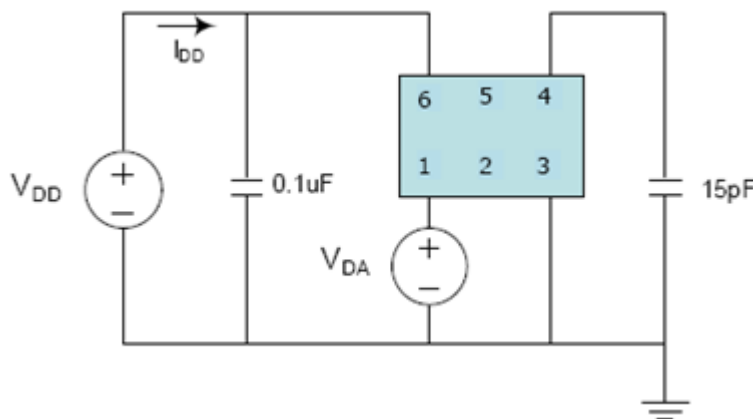


Phase jitter (integrated phase noise)



Power supply rejection ratio

Test Circuit



ASFLMP

Request Samples



Check Inventory

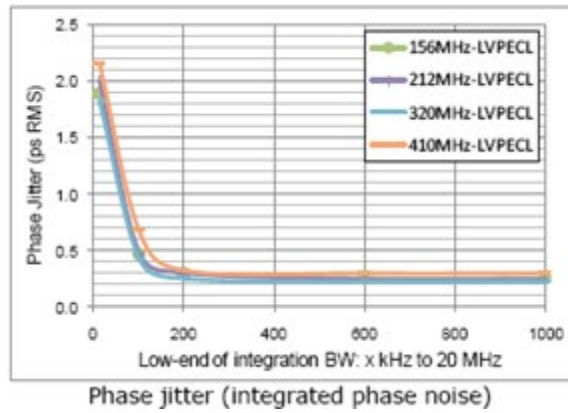
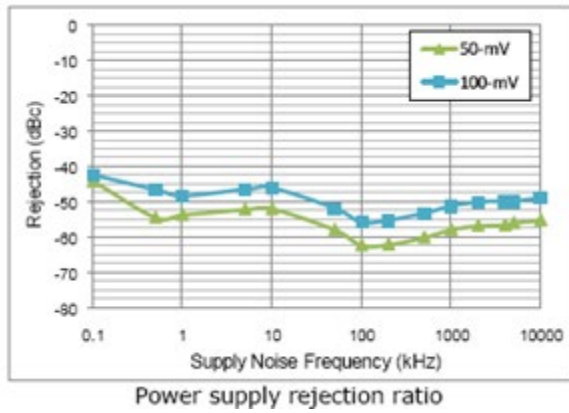


ESD Sensitive

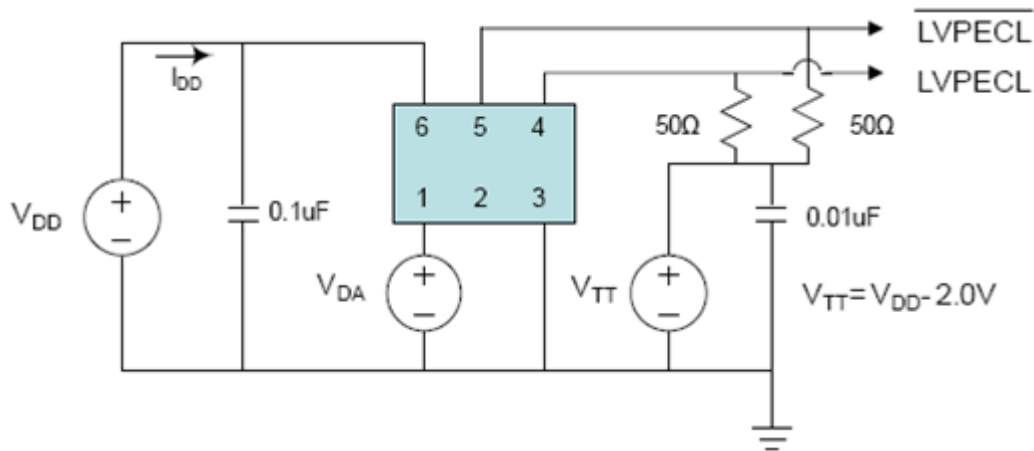


5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

LVPECL output



Test Circuit



# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

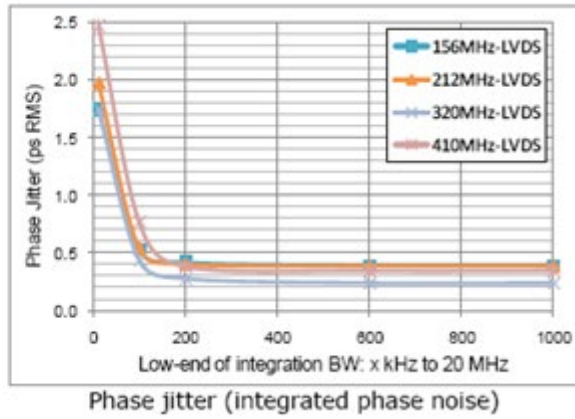
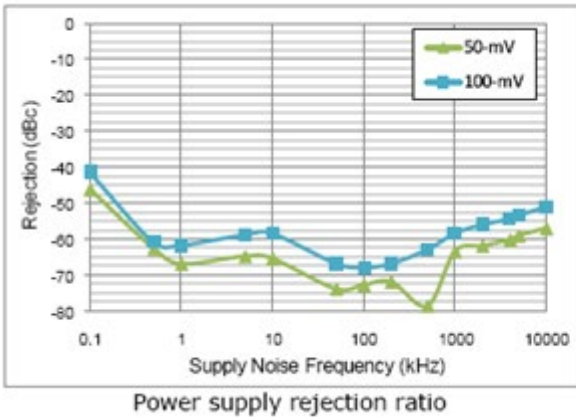
Request Samples 

Check Inventory 

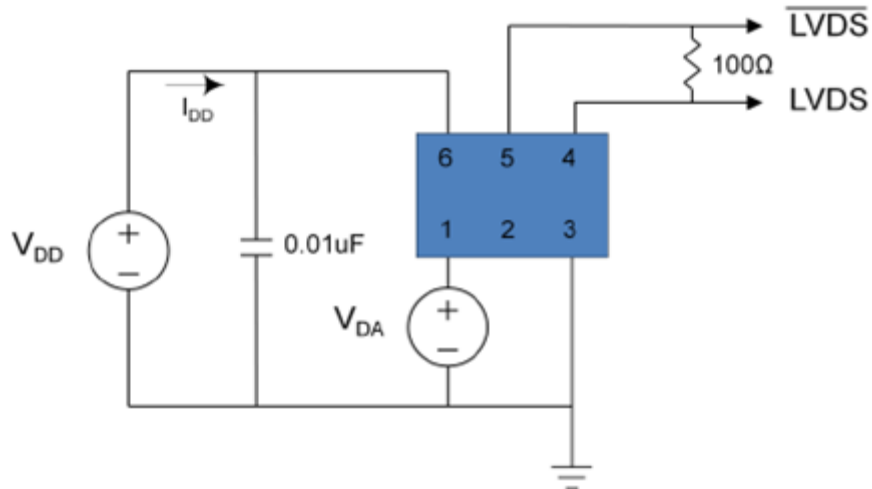
 ESD Sensitive 

5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## LVDS output



## Test Circuit



# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory

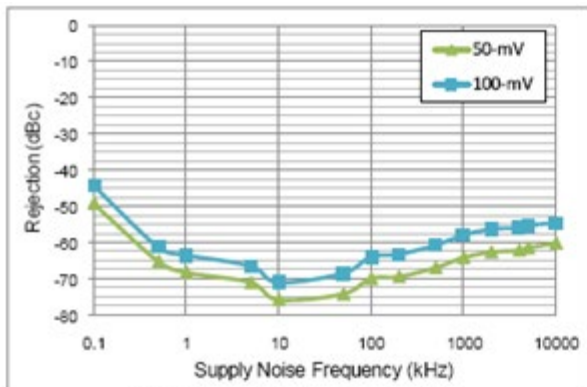


ESD Sensitive

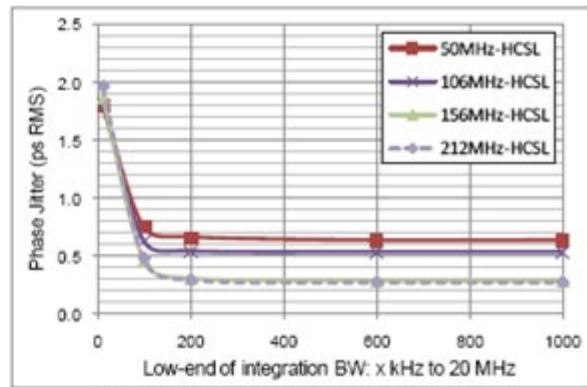


5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## HCSL output

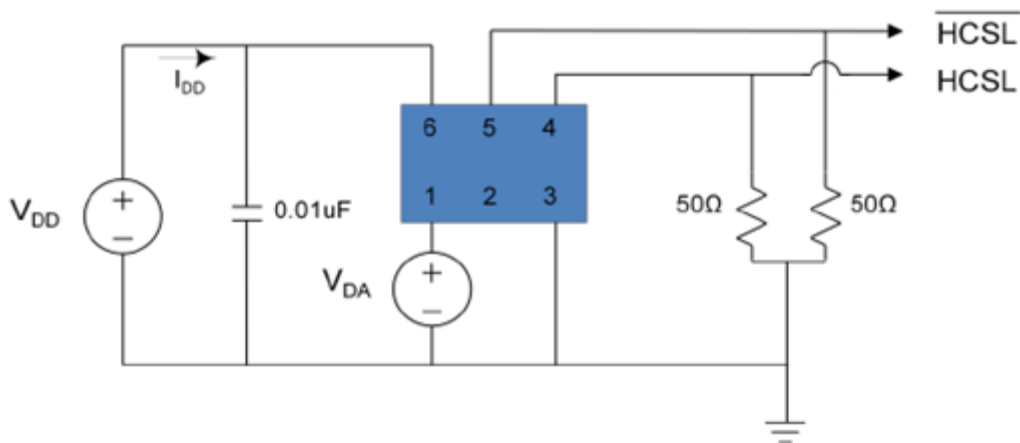


Power supply rejection ratio



Phase jitter (integrated phase noise)

## Test Circuit



ASFLMP

Request Samples



Check Inventory

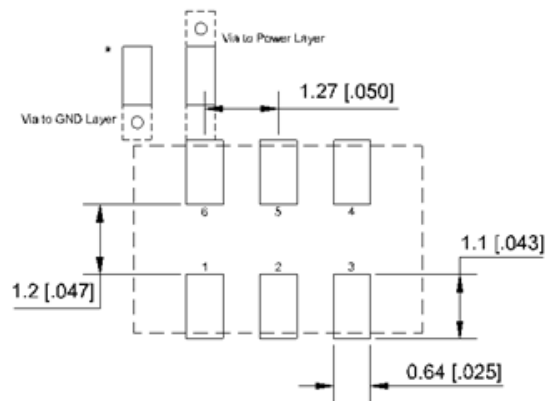
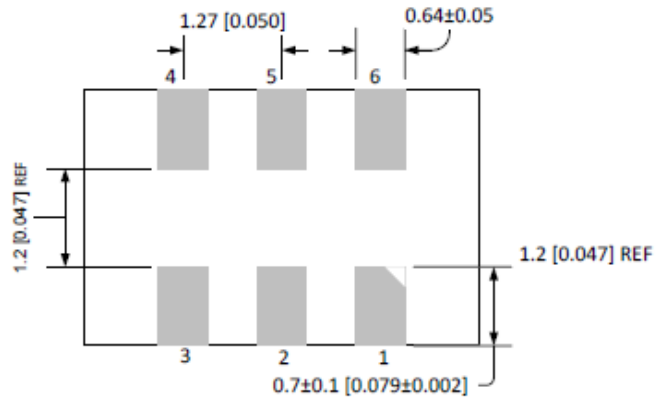
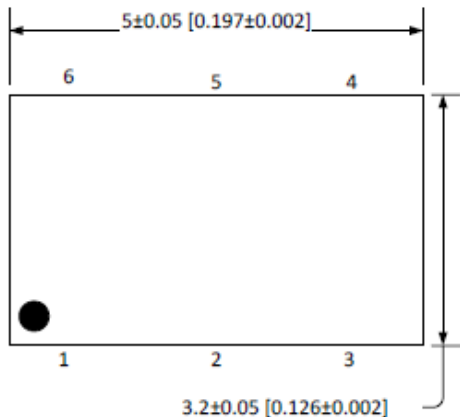


ESD Sensitive



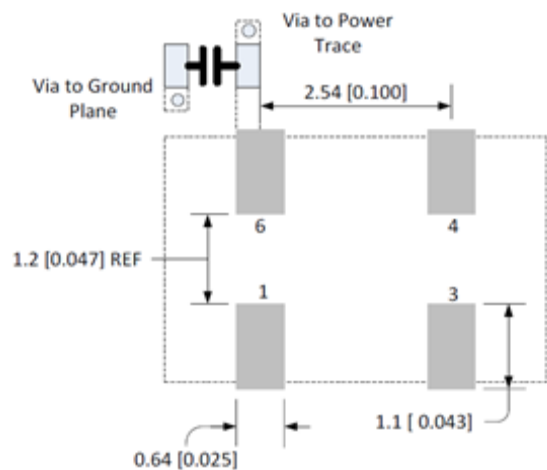
5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

Mechanical Dimensions



Recommended Land Pattern for LVPECL, LVDS, HCSL

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



recommended Land Pattern for CMOS

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

Dimensions: mm (inches)



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
www.abracon.com

REVISED: 09-21-23

ABRACON IS  
ISO9001-2015  
CERTIFIED

# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive



5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Reflow Profile [JEDEC J-STD-020]

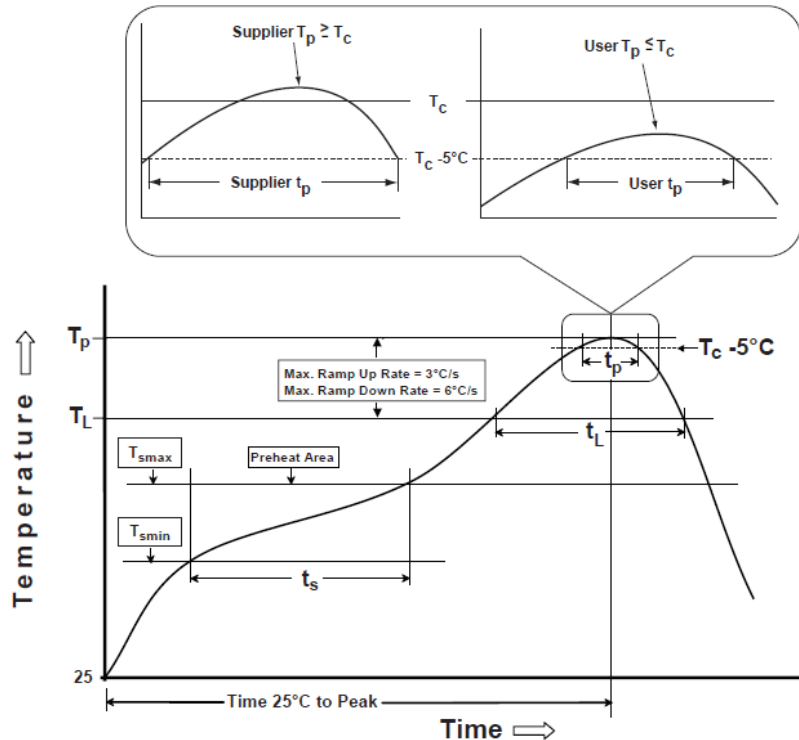


Table 1

### SnPb Eutectic Process Classification Temperatures (T<sub>c</sub>)

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

### Pb-Free Process Classification Temperatures (T<sub>c</sub>)

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T <sub>smmin</sub> )	100°C	150°C
Temperature maximum (T <sub>smax</sub> )	150°C	200°C
Time (T <sub>smmin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/sec. max	3°C/sec. max
Liquidous temperature (T <sub>L</sub> )	183°C	217°C
Time at liquidous (t <sub>L</sub> )	60 - 150 sec.	60 - 150 sec.
Peak package body temperature (T <sub>p</sub> )*	see Table 1	see Table 2
Time (t <sub>p</sub> )** within 5°C of the specified classification temperature (T <sub>c</sub> )	20 sec.	30 sec.
Ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

\*Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as supplier minimum and a user maximum.



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
www.abracon.com

REVISED: 09-21-23

ABRACON IS  
ISO9001-2015  
CERTIFIED

# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive

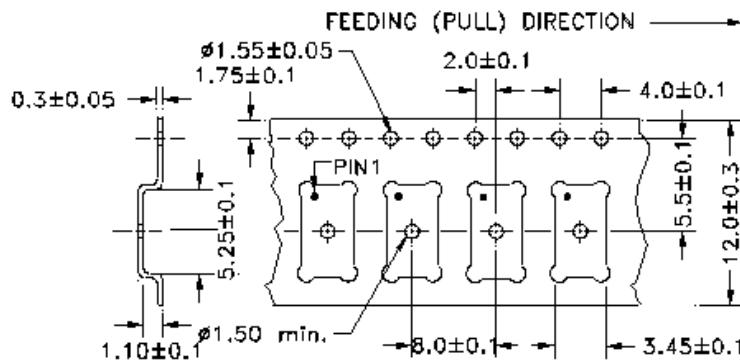


5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

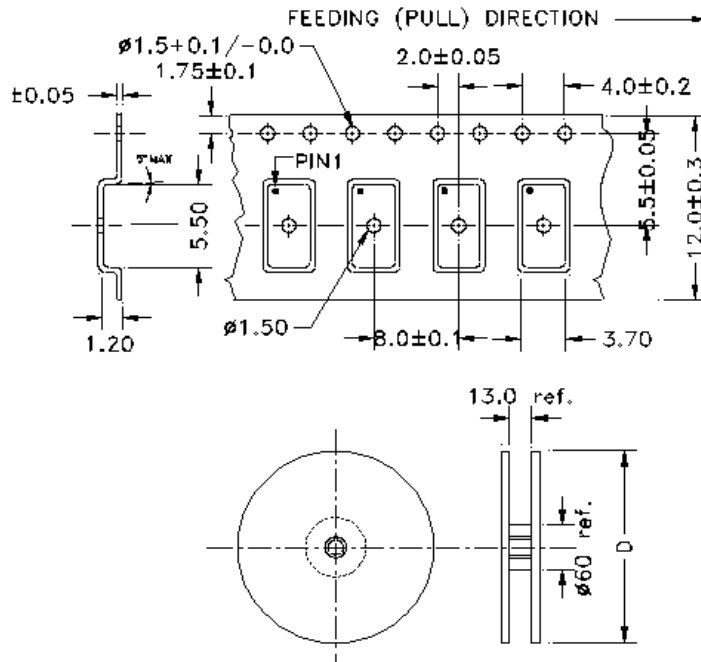
## Packaging

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

Tape 1



Tape 2



# PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory

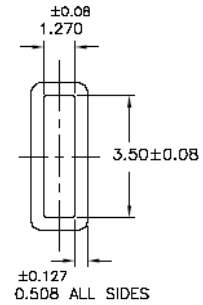
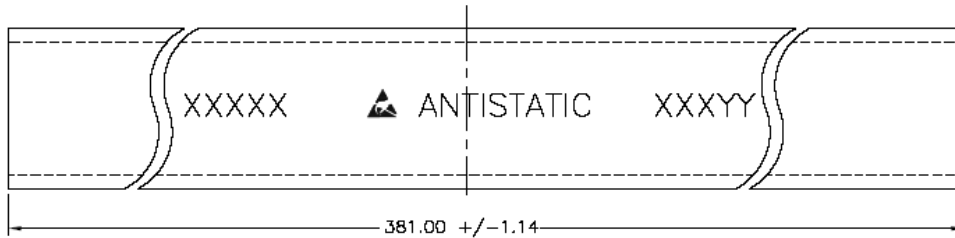


ESD Sensitive



5.0 x 3.2 x 0.85 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

Tube: 72 pcs/tube



Unit orientation in tube:



Dimensions: mm

**ATTENTION:** Abracon LLC'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-dependent 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 LLC is required. Please contact Abracon LLC for more information.



5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 09-21-23

ABRACON IS  
ISO9001-2015  
CERTIFIED

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View ASFLMPC-10.000MHZ-Z-T on WIN SOURCE](#)
- ⊖ [Abracon LLC Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management