

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

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 _{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	T _r		1.1	2.0	ns	CL=15pF 20% to 80%
Fall Time	T _f		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 _{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		ps	RL=50Ω, CL=0pF 20% to 80%
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	



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 (ΔV_{OS})			50	mV	
Peak to Peak Output Swing (V_{pp})		350		mV	Single ended
Rise Time	Tr	200		ps	RL=50Ω , CL=2pF 20% to 80%
Fall Time	Tf	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	Tr	200	400	ps	RL=50Ω , CL=2pF 20% to 80%
Fall Time	Tf	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	$V_{dd}+0.3$	V	
Junction Temp.		+150	°C	
Storage Temp.	-55	+150	°C	
Soldering Temp.		+260	°C	40sec max
ESD			V	
HBM		4,000		
MM		400		
CDM		1,500		

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive

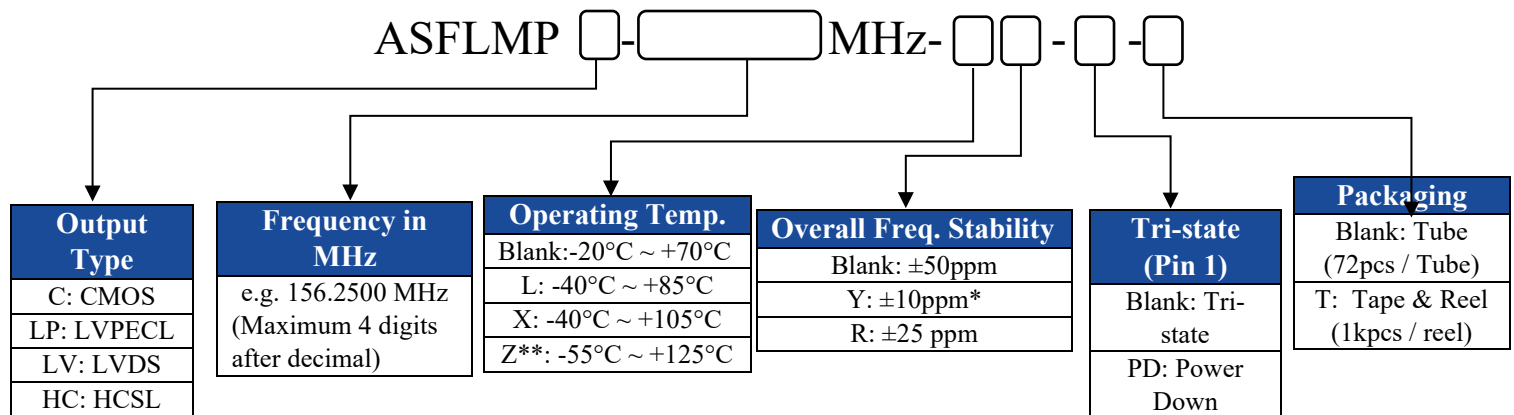


5.0 x 3.2 x 0.85 mm

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



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



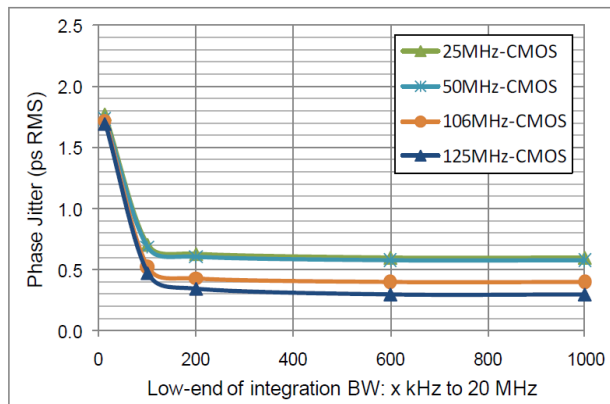
5.0 x 3.2 x 0.85 mm

RoHS/RoHS II Compliant

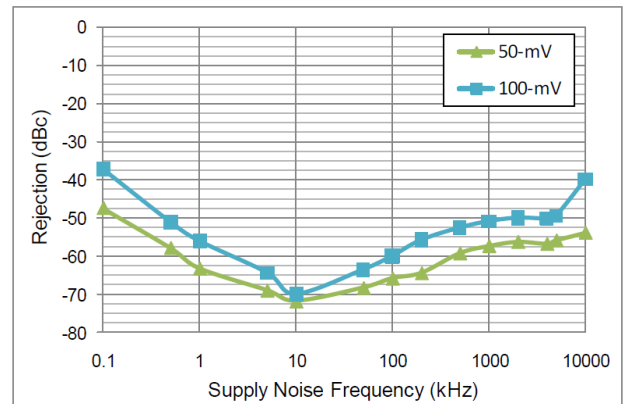
MSL Level = 1

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

CMOS output

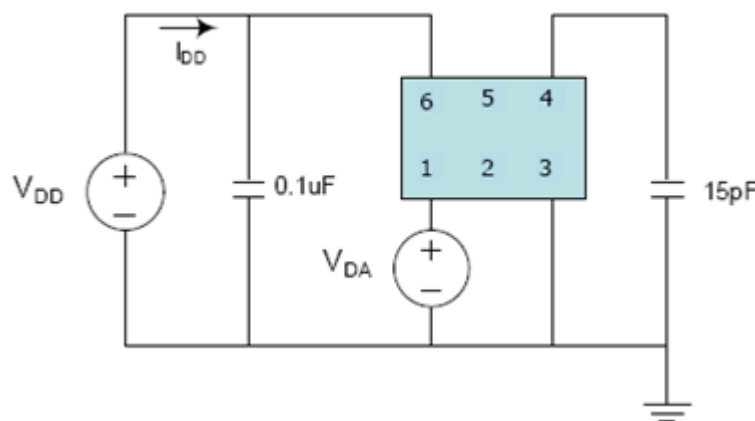


Phase jitter (integrated phase noise)



Power supply rejection ratio

Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive

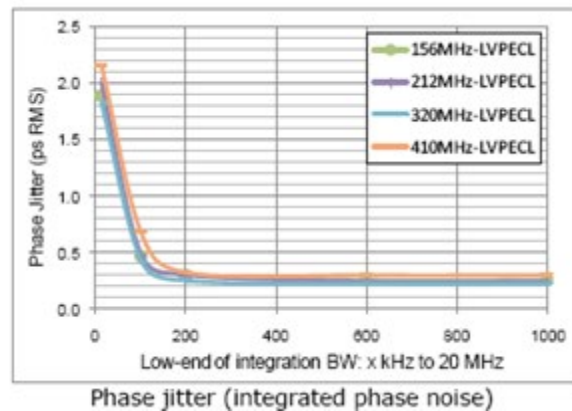
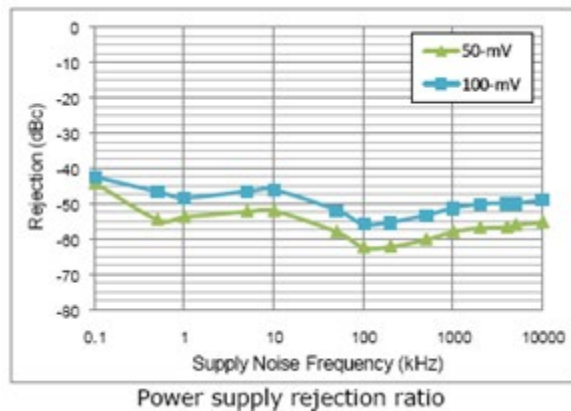


5.0 x 3.2 x 0.85 mm

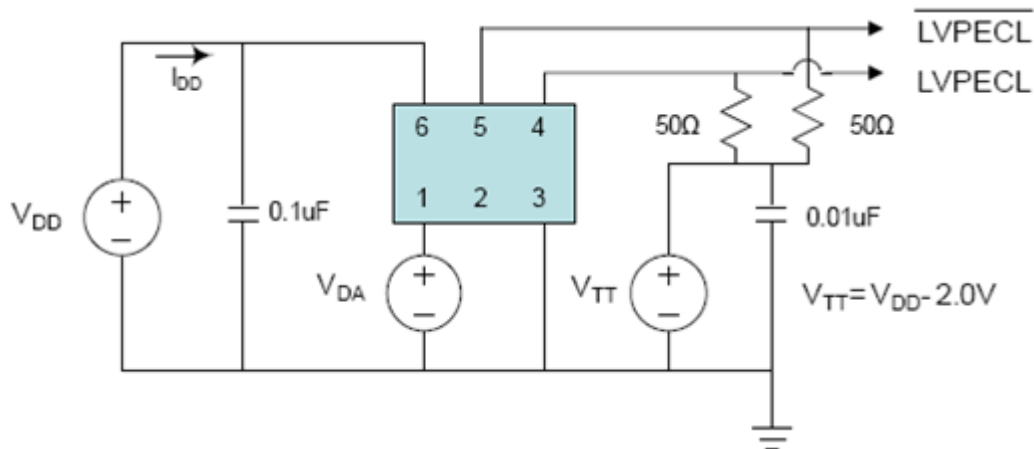
RoHS/RoHS II Compliant

MSL Level = 1

LVPECL output



Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive

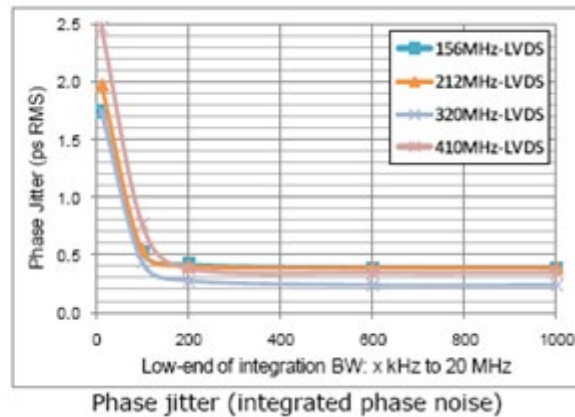
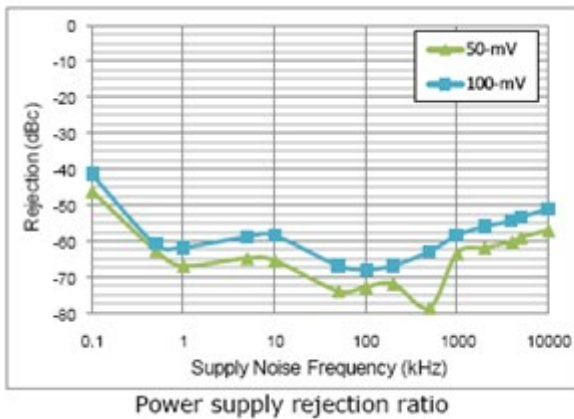


5.0 x 3.2 x 0.85 mm

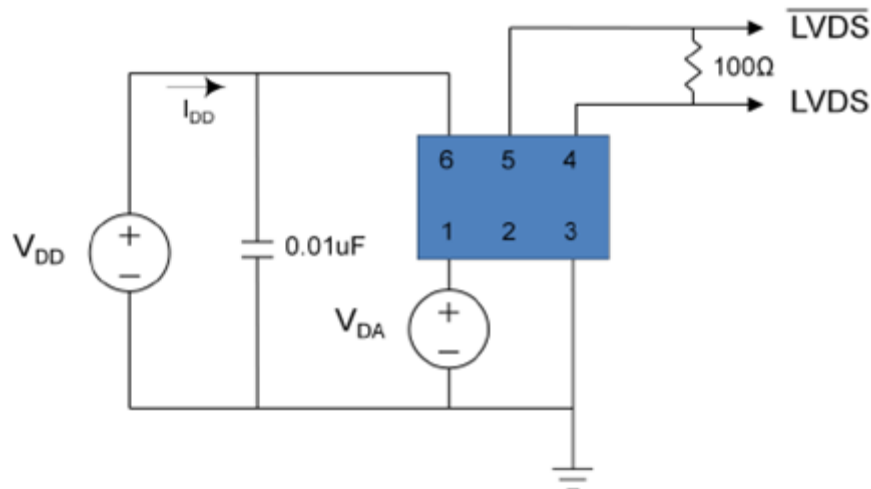
RoHS/RoHS II Compliant

MSL Level = 1

LVDS output



Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive

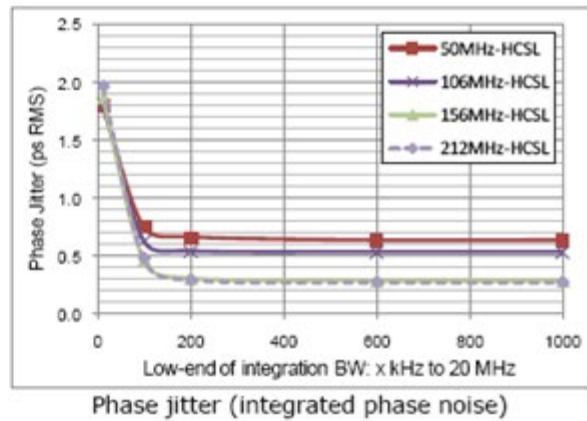
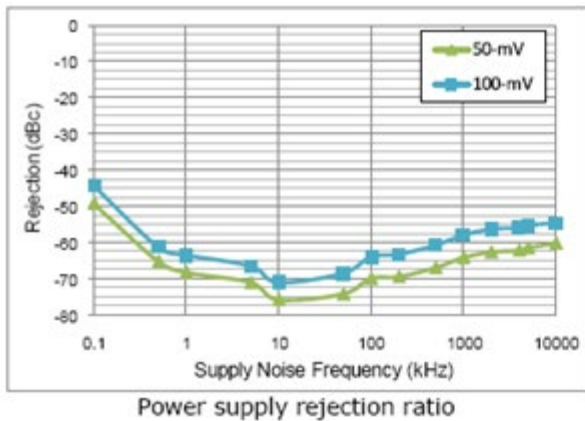


5.0 x 3.2 x 0.85 mm

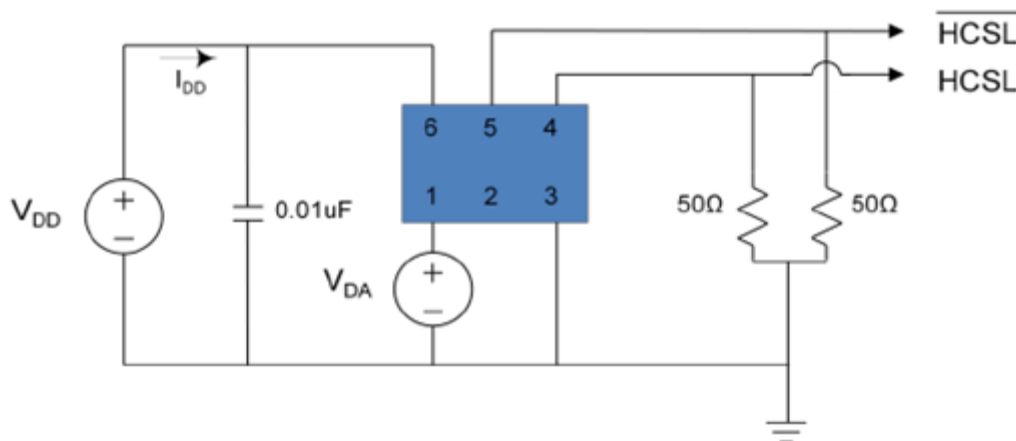
RoHS/RoHS II Compliant

MSL Level = 1

HCSL output



Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATORS

ASFLMP

Request Samples



Check Inventory



ESD Sensitive

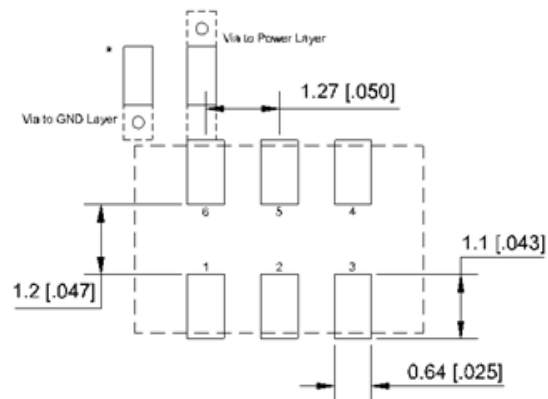
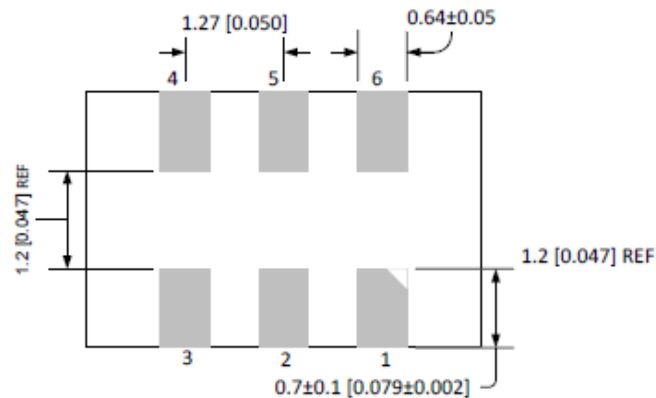
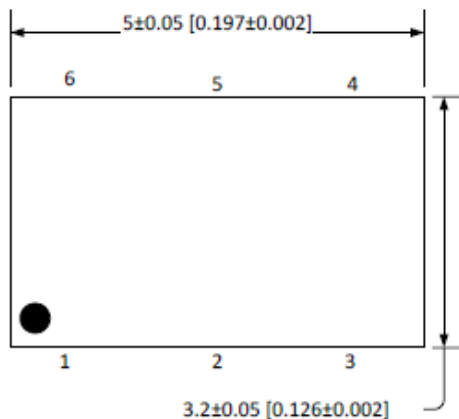


5.0 x 3.2 x 0.85 mm

RoHS/RoHS II Compliant

MSL Level = 1

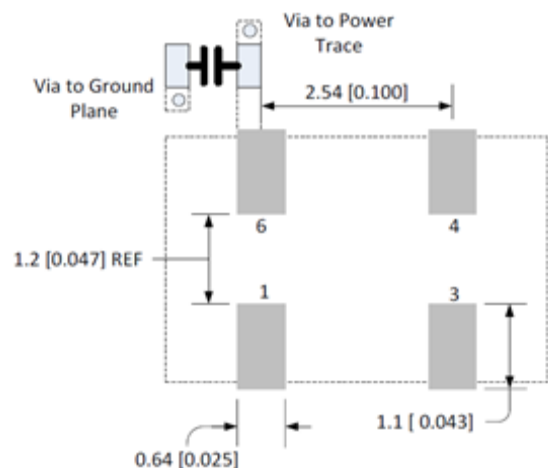
Mechanical Dimensions



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

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



recommended Land Pattern for CMOS

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]

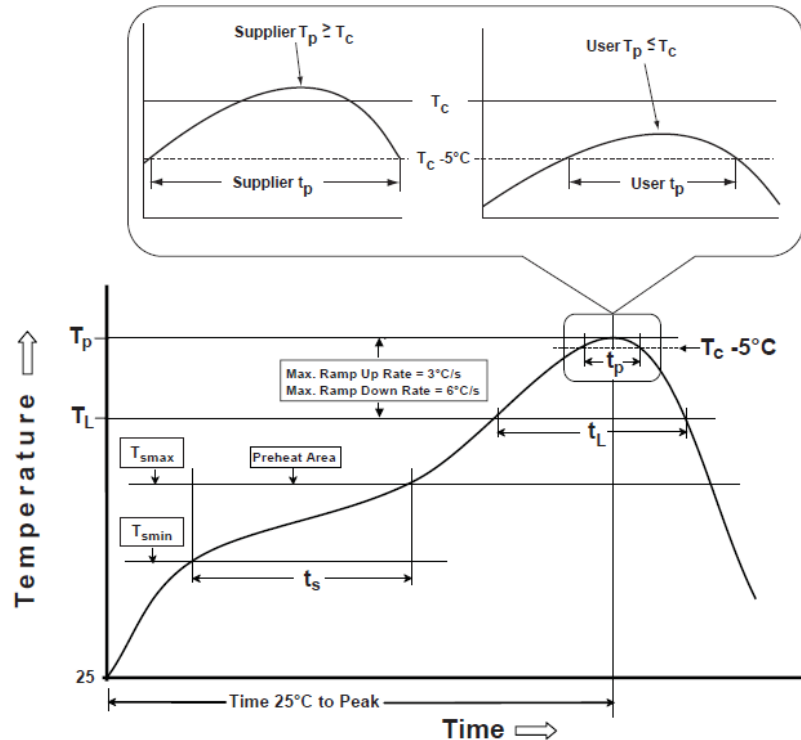


Table 1

SnPb Eutectic Process Classification Temperatures (T_c)

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

Table 2

Pb-Free Process Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >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_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60 - 150 sec.	60 - 150 sec.
Peak package body temperature (T_p)*	see Table 1	see Table 2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20 sec.	30 sec.
Ramp-down rate (T_p to T_{smax})	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_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) 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

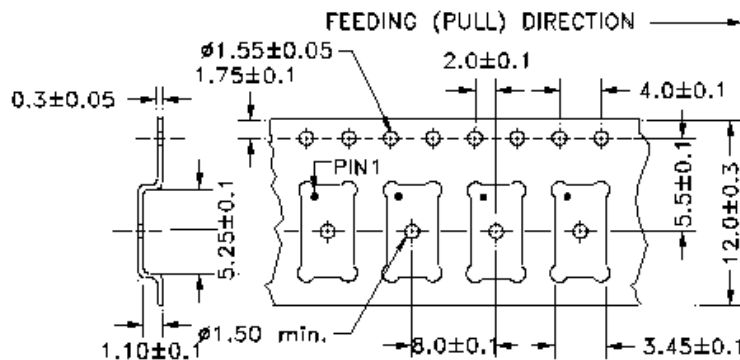
RoHS/RoHS II Compliant

MSL Level = 1

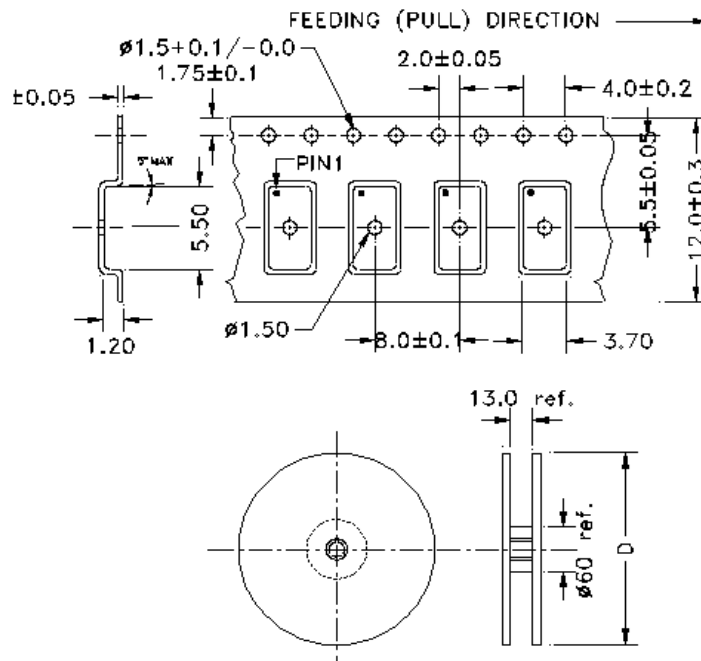
Packaging

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

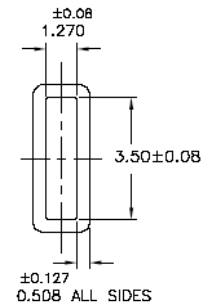
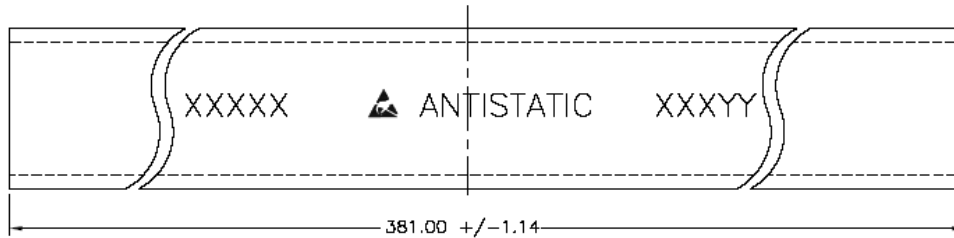


5.0 x 3.2 x 0.85 mm

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

REVISED: 09-21-23

ABRACON IS
ISO9001-2015
CERTIFIED

Mouser Electronics

Authorized Distributor

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

ABRACON:

[ASFLMPC- ADAPTER-KIT](#) [ASFLMPC- ADAPTER-KIT](#) [ASFLMPLP- ADAPTER-KIT](#) [ASFLMPLV- ADAPTER-KIT](#)
[ASFLMPC-10.000MHZ-LY-T3](#) [ASFLMPC-10.000MHZ-T3](#) [ASFLMPC-100.000MHZ-LY-T3](#) [ASFLMPC-100.000MHZ-T3](#)
[ASFLMPC-106.250MHZ-LR-T](#) [ASFLMPC-106.250MHZ-LY-T3](#) [ASFLMPC-106.250MHZ-T3](#) [ASFLMPC-106.250MHZ-](#)
[Z-T](#) [ASFLMPC-11.0592MHZ-LR-T](#) [ASFLMPC-11.0592MHZ-LY-T3](#) [ASFLMPC-11.0592MHZ-T3](#) [ASFLMPC-](#)
[11.0592MHZ-Z-T](#) [ASFLMPC-12.000MHZ-LY-T3](#) [ASFLMPC-12.000MHZ-T3](#) [ASFLMPC-12.000MHZ-Z-T](#) [ASFLMPC-](#)
[12.288MHZ-LY-T3](#) [ASFLMPC-12.288MHZ-T3](#) [ASFLMPC-12.352MHZ-LR-T](#) [ASFLMPC-12.352MHZ-LY-T3](#) [ASFLMPC-](#)
[12.352MHZ-T3](#) [ASFLMPC-12.352MHZ-Z-T](#) [ASFLMPC-12.500MHZ-LR-T](#) [ASFLMPC-12.500MHZ-T3](#) [ASFLMPC-](#)
[12.500MHZ-Z-T](#) [ASFLMPC-120.000MHZ-LR-T](#) [ASFLMPC-120.000MHZ-T3](#) [ASFLMPC-120.000MHZ-Z-T](#) [ASFLMPC-](#)
[125.000MHZ-T3](#) [ASFLMPC-125.000MHZ-Z-T](#) [ASFLMPC-13.000MHZ-T3](#) [ASFLMPC-133.333MHZ-LR-T](#) [ASFLMPC-](#)
[133.333MHZ-LY-T3](#) [ASFLMPC-133.333MHZ-T3](#) [ASFLMPC-133.333MHZ-Z-T](#) [ASFLMPC-14.31818MHZ-LR-T](#)
[ASFLMPC-14.31818MHZ-LY-T3](#) [ASFLMPC-14.31818MHZ-T3](#) [ASFLMPC-14.31818MHZ-Z-T](#) [ASFLMPC-14.7456MHZ-](#)
[LR-T](#) [ASFLMPC-14.7456MHZ-LY-T3](#) [ASFLMPC-14.7456MHZ-T3](#) [ASFLMPC-15.000MHZ-LR-T](#) [ASFLMPC-](#)
[15.000MHZ-T3](#) [ASFLMPC-15.000MHZ-Z-T](#) [ASFLMPC-150.000MHZ-LY-T3](#) [ASFLMPC-150.000MHZ-T3](#) [ASFLMPC-](#)
[150.000MHZ-Z-T](#) [ASFLMPC-16.000MHZ-LR-T](#) [ASFLMPC-16.000MHZ-LY-T3](#) [ASFLMPC-16.000MHZ-T3](#) [ASFLMPC-](#)
[16.384MHZ-LY-T3](#) [ASFLMPC-16.384MHZ-T3](#) [ASFLMPC-16.384MHZ-Z-T](#) [ASFLMPC-18.432MHZ-LR-T](#) [ASFLMPC-](#)
[18.432MHZ-LY-T3](#) [ASFLMPC-18.432MHZ-T3](#) [ASFLMPC-18.432MHZ-Z-T](#) [ASFLMPC-19.440MHZ-LR-T](#) [ASFLMPC-](#)
[19.440MHZ-T3](#) [ASFLMPC-19.440MHZ-Z-T](#) [ASFLMPC-20.000MHZ-LY-T3](#) [ASFLMPC-20.000MHZ-T3](#) [ASFLMPC-](#)
[24.000MHZ-LR-T](#) [ASFLMPC-24.000MHZ-LY-T3](#) [ASFLMPC-24.000MHZ-T3](#) [ASFLMPC-24.576MHZ-LY-T3](#) [ASFLMPC-](#)
[24.576MHZ-T3](#) [ASFLMPC-25.000MHZ-LY-T3](#) [ASFLMPC-25.000MHZ-T3](#) [ASFLMPC-26.000MHZ-LR-T](#) [ASFLMPC-](#)
[26.000MHZ-T3](#) [ASFLMPC-27.000MHZ-LR-T](#) [ASFLMPC-27.000MHZ-LY-T3](#) [ASFLMPC-27.000MHZ-T3](#) [ASFLMPC-](#)
[29.4912MHZ-LR-T](#) [ASFLMPC-29.4912MHZ-LY-T3](#) [ASFLMPC-29.4912MHZ-T3](#) [ASFLMPC-29.4912MHZ-Z-T](#)
[ASFLMPC-30.000MHZ-LR-T](#) [ASFLMPC-30.000MHZ-LY-T3](#) [ASFLMPC-30.000MHZ-T3](#) [ASFLMPC-32.000MHZ-LR-T](#)
[ASFLMPC-32.000MHZ-LY-T3](#) [ASFLMPC-32.000MHZ-T3](#) [ASFLMPC-32.000MHZ-Z-T](#) [ASFLMPC-32.768MHZ-LR-T](#)
[ASFLMPC-32.768MHZ-T3](#) [ASFLMPC-32.768MHZ-Z-T](#) [ASFLMPC-33.000MHZ-LR-T](#) [ASFLMPC-33.000MHZ-LY-T3](#)
[ASFLMPC-33.000MHZ-T3](#) [ASFLMPC-33.000MHZ-Z-T](#) [ASFLMPC-33.333MHZ-LR-T](#) [ASFLMPC-33.333MHZ-LY-T3](#)
[ASFLMPC-33.333MHZ-T3](#) [ASFLMPC-33.333MHZ-Z-T](#)