

ASEMDHLV

 RoHS/RoHS II Compliant

Moisture Sensitivity Level – MSL 1

FEATURES:

- Ultra Miniature Pure Silicon™ Clock Oscillator
- Pin Configurable LVDS-LVPECL Dual output
- Low Jitter (Period Jitter RMS 3ps typical)
- Low Integrated Phase Jitter 2ps max
- Tight Stability +/-10ppm -40 to +85°C
- Excellent Shock & Vibration Immunity

APPLICATIONS:

- Consumer Electronics
- Storage Area Networks
- SATA, SAS, Fibre Channel
- Passive Optical Networks
- EPON, 10G-EPON, GPON, 10G-PON
- Ethernet
- 1G, 10GBASE-T/KR/LR/SR, and FCoE
- PCI Express

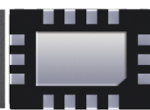
STANDARD SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Configurable frequency range	HCSL	2.3		460	MHz	Commercial, Industrial temp range
	LVDS	2.3		460		
Operating Temperature		-20		+70	°C	See options
Storage Temperature		-55		+150	°C	
Overall Frequency Stability*1		-50		+50	ppm	See options
Supply Voltage (Vdd)		+2.25		+3.6	V	
Startup Time				5	ms	@25°C
Enable Time				20	ns	
Disable Time				5	ns	
Disable Current			21	23	mA	
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 @25°C
Supply Current (I _{dd})			76		mA	RL=50Ω, F01=F02=156.25MHz

*1. Frequency stability includes frequency variations due to initial tolerance, temp. and power supply voltage

HCSL Output (Fout1)		Minimum	Typical	Maximum	Units	Notes
Output Logic Level	V _{OH}	0.725			V	RL=50 Ω
	V _{OL}			0.1		
Peak to Peak Output Swing			750		mV	Single-Ended
Rise Time	Tr	200		400	ps	RL=50 Ω, CL=2pF;
Fall Time	Tf	200		400	ps	20%/80%
Duty Cycle		48		52	%	Differential
Period Jitter RMS (J _{PER})			2.8		ps	F01=F02=156.25MHz
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

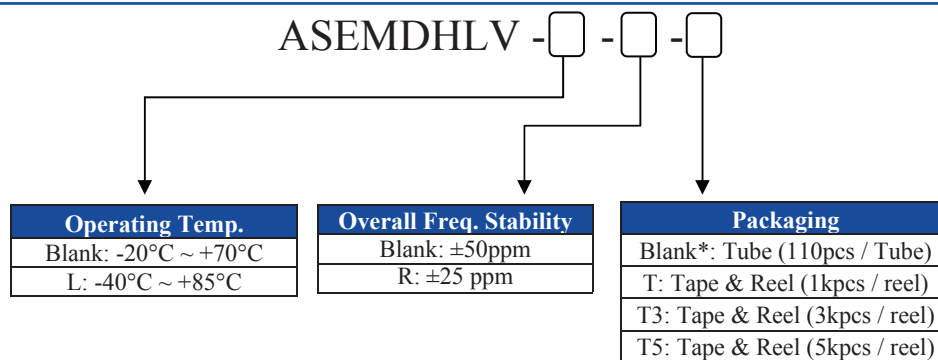
LVDS Output (Fout2)		Minimum	Typical	Maximum	Units	Notes
Output Offset Voltage		1.125		1.4	V	RL=100 Ω Differential
Delta Offset Voltage				50	mV	
Peak to Peak Output Swing			350		mV	Single-Ended
Rise Time	Tr		200	350	ps	RL=100 Ω, CL=2pF 20%/80%
Fall Time	Tf		200	350		
Duty Cycle		48		52	%	Differential
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



➤ 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		400		
CDM		1,500		

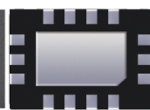
➤ OPTIONS AND PART IDENTIFICATION: (left blank if standard)



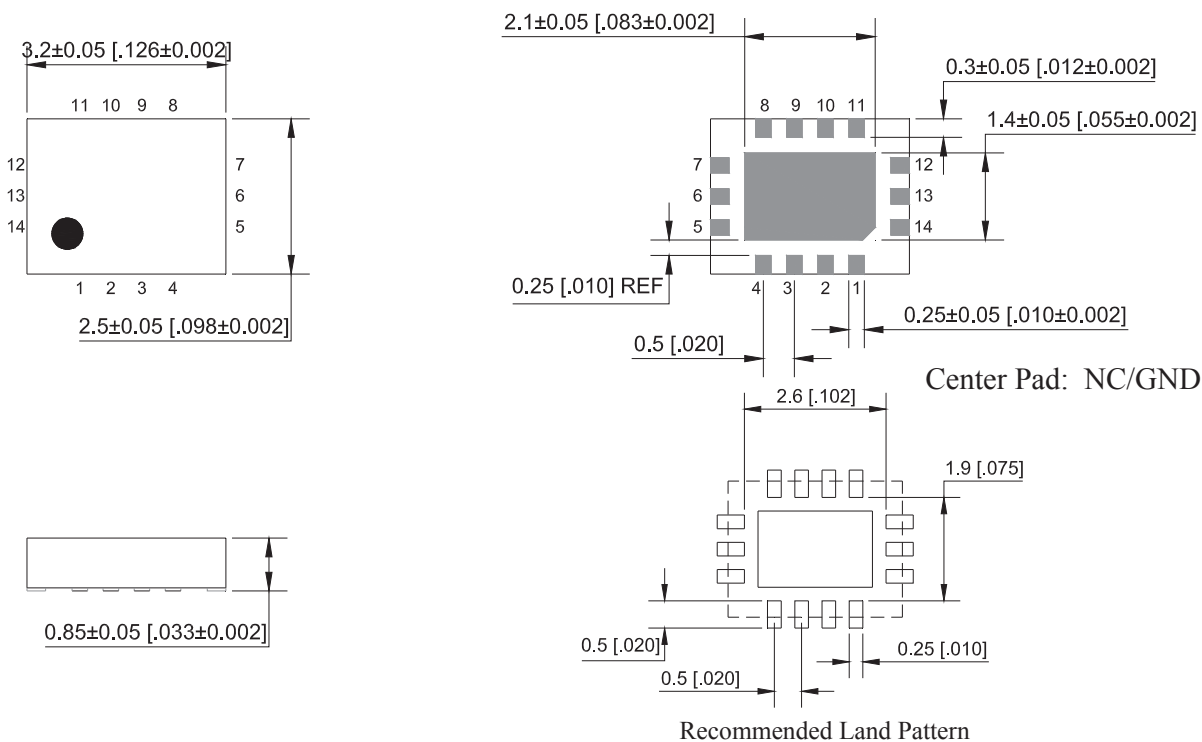
* Due to the immediate availability of stock and the qty of the order, the parts may be delivered as BULK: Cut Tape, Loose parts in Antistatic Bag or in Tube(s). The MOQ per the series will still apply for Tube packaging.

Frequency Combination	Freq (MHz)	Freq Select Bits [FS2, FS1, FS0] – Default is [111]							
		000	001	010	011	100	101	110	111
Standard Configuration	f_{OUT1} (HCSL)	Please contact Abracon for details for the frequency configurations							
	f_{OUT2} (LVDS)								
Custom Configuration	f_{OUT1}	Contact Abracon for customized configurations							
	f_{OUT2}								

Default condition: Frequency select bits [FS2, FS1, FS0] are all left floated. FS2, FS1, FS0 are pulled high [111]
Frequency combination and default frequency is customized upon request. Please contact Abracon for the frequency combinations.

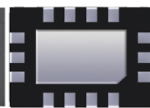


OUTLINE DIMENSIONS:

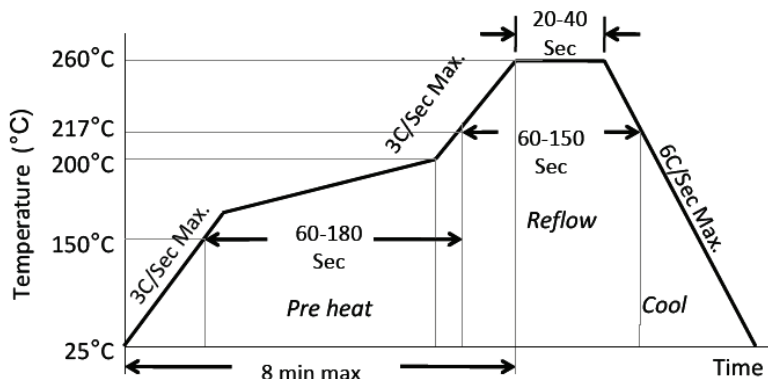


Pin No.	Pin Name	Pin Type	Description
1	Enable	I	Enables outputs when high and disables (tri-state) them when low
2	NC	NA	Leave unconnected or grounded
3	NC	NA	Leave unconnected or grounded
4	GND	Power	Ground
5	FS0	I	Least significant bit for frequency selection
6	FS1	I	Middle bit for frequency selection
7	FS2	I	Most significant bit for frequency selection
8	Output1+	O	Positive HCSL Output 1
9	Output1-	O	Negative HCSL Output 1
10	Output 2-	O	Negative LVDS Output 2
11	Output 2+	O	Positive LVDS Output 2
12	VDD2	Power	Power Supply 2 for LVDS Output
13	VDD	Power	Power Supply
14	NC	NA	Leave unconnected or grounded

Dimensions: mm (inches)



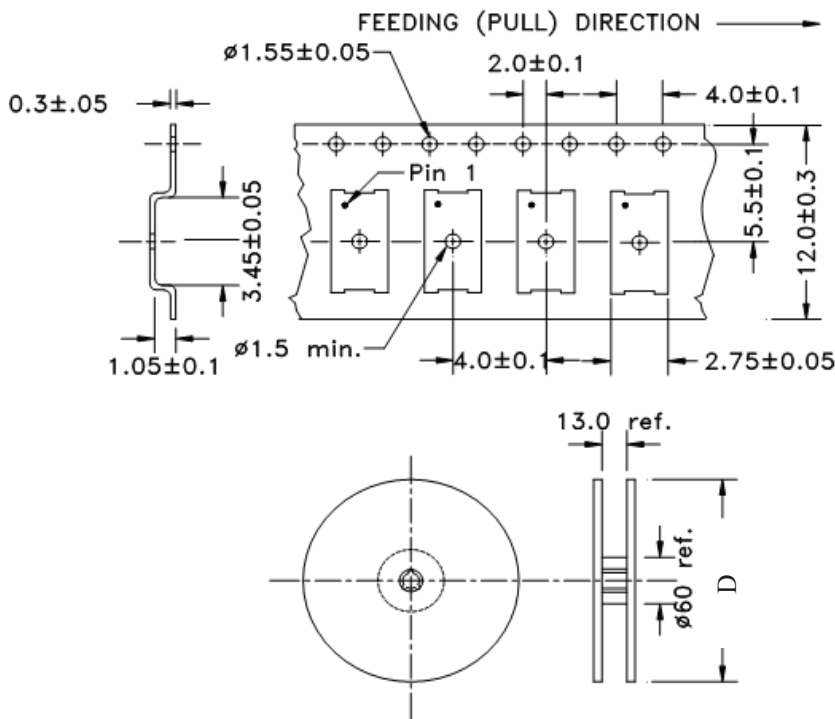
REFLOW PROFILE



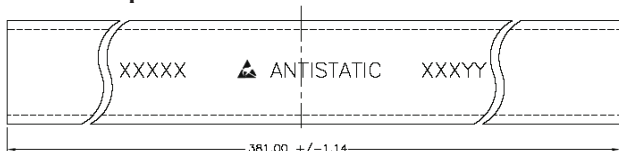
Ramp-Up Rate (200°C to Peak Temp)	3°C/Sec Max.
Preheat Time 150°C to 200°C	60-180 Sec
Time maintained above 217°C	60-150 Sec
Peak Temperature	255-260°C
Time within 5°C of actual Peak	20-40 Sec
Ramp-Down Rate	6°C/Sec Max.
Time 25°C to Peak Temperature	8 min Max.

TAPE & REEL:

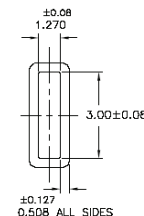
T= 1,000pcs/reel (D=180mm)
T3= 3,000pcs/reel (D=180mm)
T5= 5,000pcs/reel (D=330mm)



Tube: 110 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.