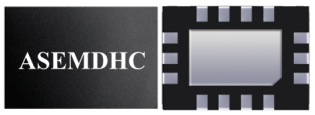
LOW JITTER PIN CONFIGURABLE DUAL HCSL OUTPUT ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR



Life Size
3.2 x 2.5 x 0.85 mm

ASEMDHC

RoHS/RoHS II compliant

Moisture Sensitivity Level – MSL 1

FEATURES:

- Ultra Miniature Pure Silicon
- Pin Configurable Dual HCSL output
- Low Jitter (Period Jitter RMS 3ps typical)
- Low Integrated Phase Jitter 2ps max
- 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

Low Jitter
Pin Configurable
Dual HCSL Output
3G MEMS

STANDARD SPECIFICATIONS:

Pre-programmed Output Frequency Configuration

Ordering Info	Freq (MHz)	Freq Select Bits [FS2, FS1, FS0] – **Default is [111]**							
		000	001	010	011	100	101	110	**111**
Frequency Configuration 1	f_{OUT1}	106.25	100	125	100	156.25	156.25	125	**156.25**
	f_{OUT2}	25	100	50	50	25	125	25	**156.25**
Custom Configuration	f_{OUT1}	Contact Abracon for customized configurations							

Frequency select bits [FS2, FS1, FS0] are weakly tied high so if left floated, the default setting will be [111] and the device will output the associated frequency highlighted in Bold. If other frequency combinations are required, please contact Abracon for customized configuration. Please see the configurable frequency range in the section 2.0

Key Electrical Specifications

Parameters		Minimum	Typical	Maximum	Units	Notes
Configurable frequency range		10	-----	460	MHz	Commercial, Industrial temp range
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	
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
Supply Current (I_{dd})		-----	60	-----	mA	RL=50Ω, F01=F02=156.25MHz
Output Offset Voltage	V_{OH}	0.725	-----	-----	V	RL=50 Ω
	V_{OL}	-----	-----	0.10		
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% to 80%
Duty Cycle		48	-----	52	%	Differential

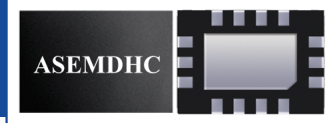
*1. Frequency stability includes frequency variations due to initial tolerance, temp. and power supply voltage

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ASEMDHC

RoHS/RoHS II compliant



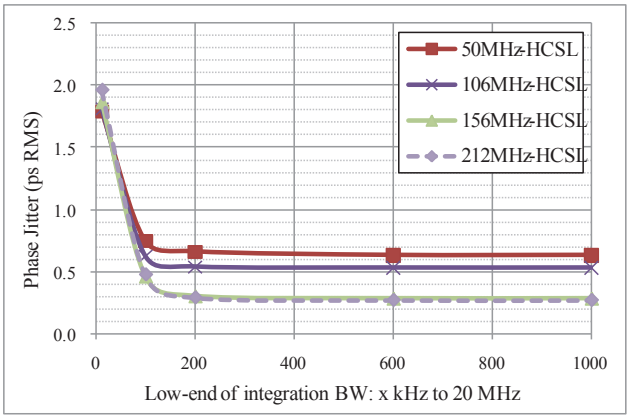
Life Size

3.2 x 2.5 x 0.85 mm

Key Electrical Specifications (continued)

Parameters	Minimum	Typical	Maximum	Units	Notes
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

PHASE JITTER



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)

ASEMDHC - ☐ - ☐ - ☐

Operating Temp.
Blank: -20°C ~ +70°C
L: -40°C ~ +85°C

Overall Freq. Stability
Blank: ±50ppm
R: ±25 ppm

Packaging
Blank: Tube (110pcs / Tube)
T: Tape & Reel (1kpcs / reel)
T3: Tape & Reel (3kpcs / reel)
T5: Tape & Reel (5kpcs / reel)

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}	106.25	100	125	100	156.25	156.25	125	**156.25**
	f_{OUT2}	25	100	50	50	25	125	25	**156.25**
Custom Configuration	f_{OUT1}	Contact Abracon for customized configurations							
	f_{OUT2}								

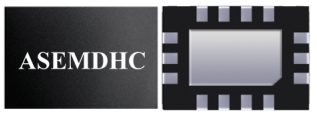
Default condition: Frequency select bits [FS2, FS1, FS0] are all left floated. FS2, FS1, FS0 are pulled high [111]
Frequency combination and default frequency is customized upon request. Please contact Abracon for the frequency combinations.

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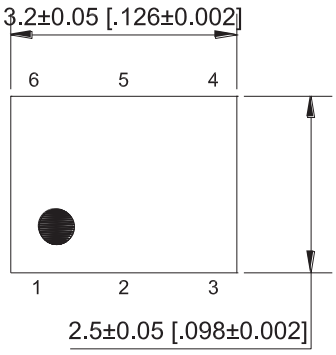
RoHS/RoHS II compliant

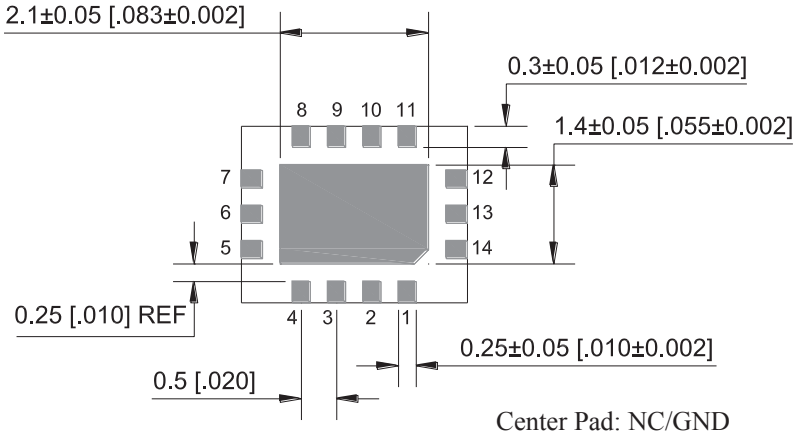


Life Size

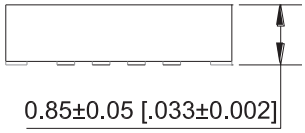
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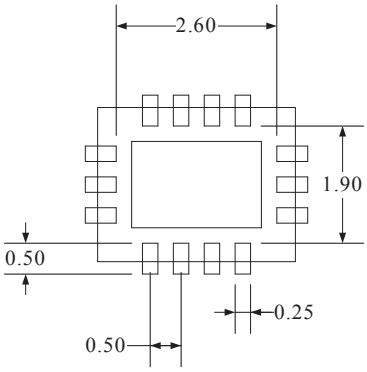
MECHANICAL DIMENSIONS





Center Pad: NC/GND





Recommended Land Pattern

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 HCSL Output 2
11	Output 2+	O	Positive HCSL Output 2
12	VDD2	Power	Power Supply 2 for HCSL Output 2
13	VDD	Power	Power Supply
14	NC	NA	Leave unconnected or grounded

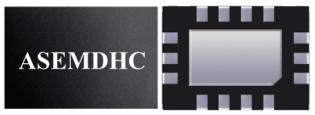
Dimensions: mm (inches)

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ASEMDHC

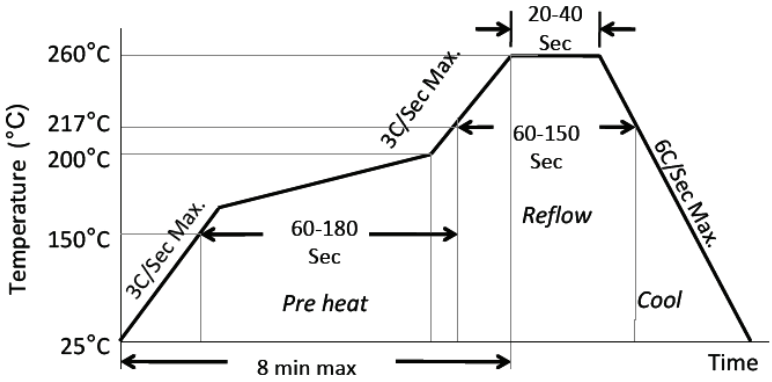
RoHS/RoHS II compliant



Life Size

3.2 x 2.5 x 0.85 mm

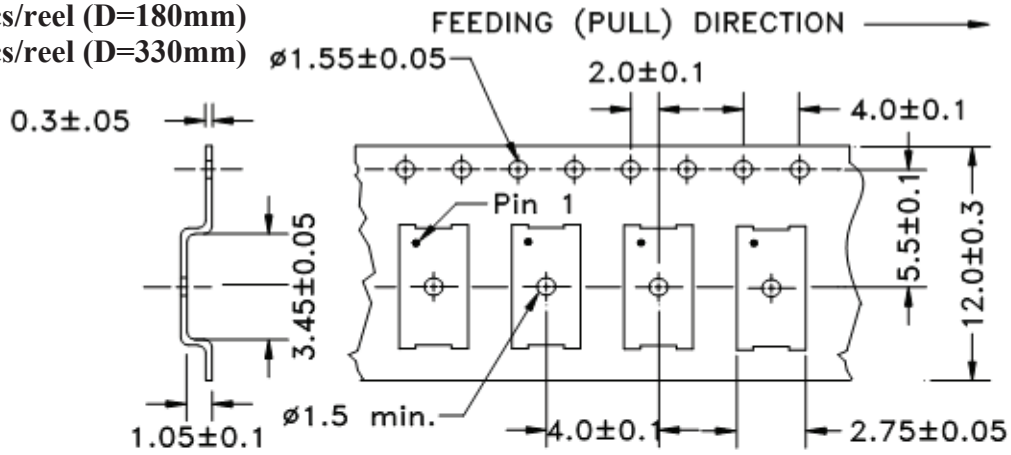
REFLOW PROFILE

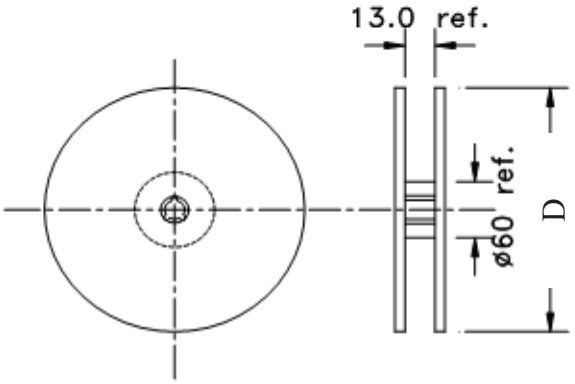


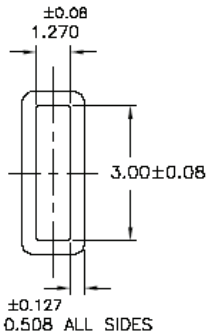
Ramp-Up Rate (200°C to Peak Temp)	3°C/Sec Max.
Preheat Time 150°C to 200°C	60-180 Sec
Time maintained above 217°C	60-150 Sec
Peak Temperature	255-260°C
Time within 5°C of actual Peak	20-40 Sec
Ramp-Down Rate	6°C/Sec Max.
Time 25°C to Peak Temperature	8 min Max.

TAPE & REEL

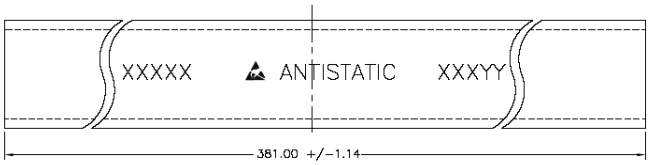
T= 1,000pcs/reel (D=180mm)
T3= 3,000pcs/reel (D=180mm)
T5= 5,000pcs/reel (D=330mm)







Tube: 110 pcs/tube



Unit orientation in tube:



Dimensions: mm

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AMPMGFB-25.0000T ASCO-50.000MHz-E-K-T3 ABM8AIG-24.000MHZ-12-2Z-T3 ACHL-25.000MHZ-EK
ASPIAIG-F1040-R36M-T ATX-11-F-27.000MHZ-F05-T ABM8-27.000MHZ-B2-T ASDMB-8.000MHZ-LC-T
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