LOW JITTER PIN CONFIGURABLE HCSL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK OSCILLATORS

ASEMCHC

Moisture Sensitivity Level – MSL 1

RoHS Compliant



3.2 x 2.5 x 0.85 mm

FEATURES:

- Ultra Miniature Pure Silicon™ Clock Oscillator
- Pin Configurable HCSL output
- Low Jitter (Period Jitter RMS 2.8ps typical)
- Low Integrated Phase Jitter 2ps max
- Tight Stability +/-10ppm -40 to +85C
- 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 CMOS Output 3G MEMS

STANDARD SPECIFICATIONS:

Pre-programmed Output Frequency Configuration

Ordering Info	Freq (MHz)	Freq Select Bits [FS1, FS0] – **Default is [11]**			
		00	01	10	**11**
Frequency Configuration 1	f_{OUT}	125	156.25	200	**100**
Custom Configuration	f_{OUT}	Contact Abracon for customized configurations			

Frequency select bits [FS1, FS0] are weakly tied high so if left **floated**, the default setting will be [11] 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	T=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
Supply Current (I_{dd})		-----	40	42	mA	RL=50Ω, 156.25MHz
Output Logic Level	V_{OH}	0.725	-----	-----	V	RL=50Ω
	V_{OL}	-----	-----	0.10		
Peak to Peak Output Swing			750		mV	Single Ended
Rise Time	Tr	200	-----	400	ps	RL=50Ω, CL=2pF 20%/80%*VDD
Fall Time	Tf	200	-----	400	ps	
Duty Cycle		48	-----	52	%	Differential

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

30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000| fax 949-546-8001| www.abracon.com

Key Electrical Specifications (continued)

Parameters	Minimum	Typical	Maximum	Units	Notes
Period Jitter RMS (J_{PER})	-----	2.8	-----	ps	F0= 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

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)

ASEMCHC -□ -□ -□

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

Overall Freq. Stability
Blank: ±50ppm
R: ±25 ppm
Y: ±10ppm

Packaging
Blank: 110pcs / Tube
T: 1,000pcs / reel
T3: 3,000pcs / reel
T5: 5,000pcs / reel

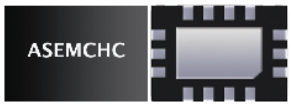
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		00	01	10	**11**
Frequency Configuration 1	f_{OUT}	125	156.25	200	**100**
Custom Configuration	f_{OUT}	Contact Abracon for customized configurations			

Default condition: Frequency select bits [FS1, FS0] are all left floated. FS1, FS0 are pulled high [11]
Frequency combination and default frequency is customized upon request. Please contact Abracon for the frequency combinations.

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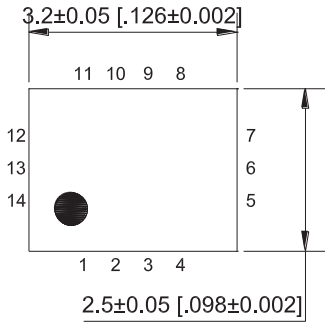
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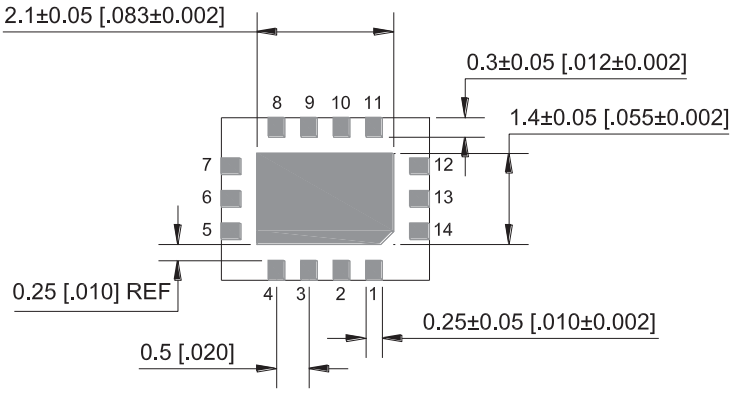
RoHS Compliant

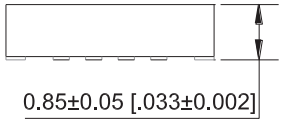


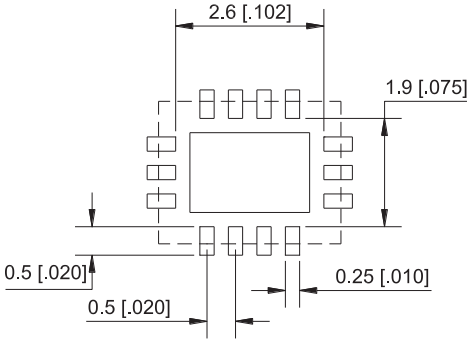
3.2 x 2.5 x 0.85 mm

MECHANICAL DIMENSIONS









Recommended Land Pattern

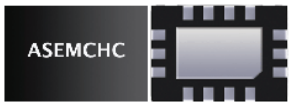
Pin No.	Pin Name	Pin Type	Description
1	Enable	I	Enables outputs when high and disables when low
2	NC	NA	Leave unconnected or grounded
3	NC	NA	Leave unconnected or grounded
4	GND	Power	Ground
5	FS0	I	Least significant bit for frequency selection
6	FS1	I	Most significant bit for frequency selection
7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

Dimensions: mm (inches)

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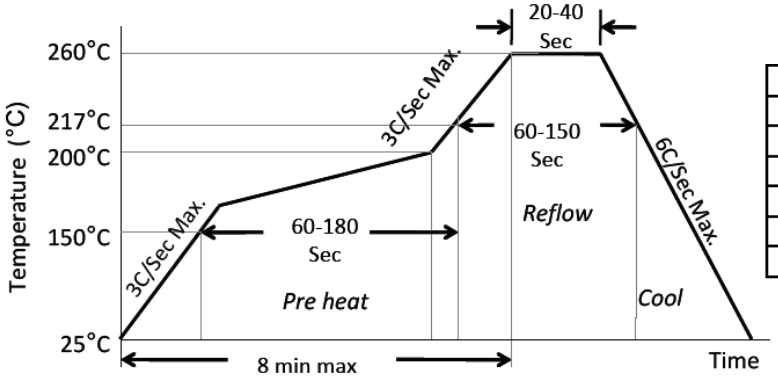
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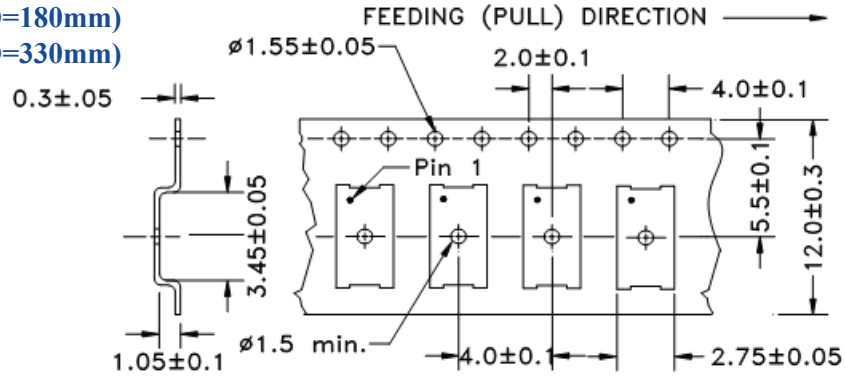
REFLOW PROFILE

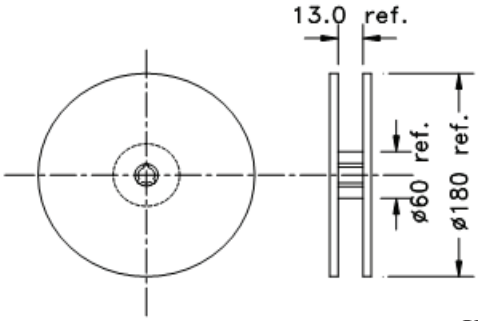


Ramp-Up Rate (200°C to Peak Temp)	3°C/Sec Max.
Preheat Time 150°C to 200°C	60-180 Sec
Time maintained above 217°C	60-150 Sec
Peak Temperature	255-260°C
Time within 5°C of actual Peak	20-40 Sec
Ramp-Down Rate	6°C/Sec Max.
Time 25°C to Peak Temperature	8 min Max.

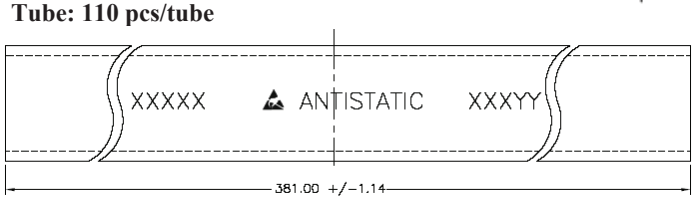
TAPE & REEL:

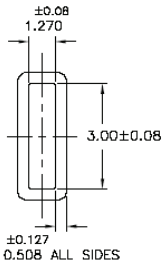
T= 1,000pcs/reel (D=180mm)
T3= 3,000pcs/reel (D=180mm)
T5= 5,000pcs/reel (D=330mm)





Tube: 110 pcs/tube





Unit orientation in tube:



Dimensions: mm

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