



3.2 x 2.5 x 0.85 mm

ASEMCLP



FEATURES:

- Ultra Miniature Pure Silicon™ Clock Oscillator
- Pin Configurable LVPECL output
- Low Jitter (Period Jitter RMS 2.5ps 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
- HD/SD/SDI Video & Surveillance
- 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 | 212.5 | 106.25 | 156.25 |
| 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 (V _{dd}) | +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*V _{dd}) or Open: Oscillation "0" (VIL<0.25*V _{dd}) : Hi Z | | | V | 40kΩ pull-up resistor embedded |
| Aging | -5.0 | ----- | +5.0 | ppm | First year |
| Supply Current (I _{dd}) | ----- | 56.5 | 58 | mA | RL=50Ω, 156.25MHz |
| Output Logic Level | V _{OH} | V _{dd} -1.08 | ----- | V | RL=50Ω |
| | V _{OL} | ----- | V _{dd} -1.55 | | |
| Peak to Peak Output Swing | | 800 | | mV | Single Ended |
| Rise Time | T _r | ----- | 250 | ps | RL=50Ω |
| Fall Time | T _f | ----- | 250 | ps | 20%/80%*V _{DD} |
| Duty Cycle | | 48 | 52 | % | Differential |

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



ASEMCLP

3.2 x 2.5 x 0.85 mm

ASEMCLP



RoHS
Compliant

Key Electrical Specifications (continued)

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|--------------------------------------|---------|---------|---------|-------|------------------------------|
| Period Jitter RMS (J_{PER}) | ----- | 2.5 | ----- | ps | F0= 156.25MHz |
| 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)

ASEMCLP□-□-□-□

| Frequency Combination (See table below) |
|--|
| 1: Cfg. 1 |
| Custom configuration available. Please contact Abracon |

| 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 |

| Ordering Info | Freq (MHz) | Freq Select Bits [FS1, FS0] – Default is [11] | | | |
|---------------------------|------------|---|-------|--------|---------------|
| | | 00 | 01 | 10 | 11 |
| Frequency Configuration 1 | f_{OUT} | 125 | 212.5 | 106.25 | 156.25 |
| 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.

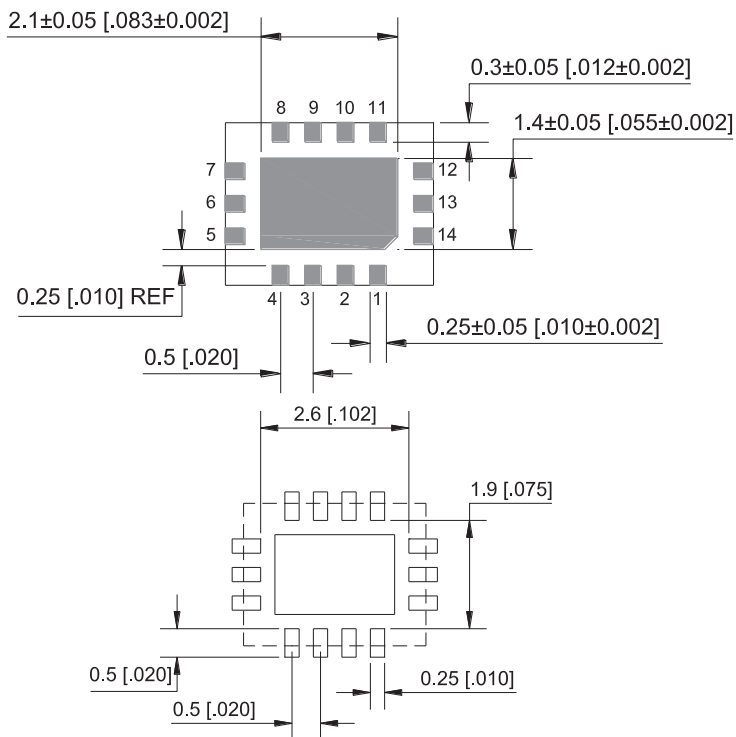
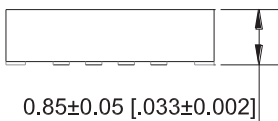
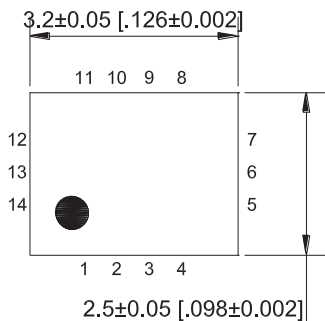


3.2 x 2.5 x 0.85 mm

ASEMCLP



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 LVPECL Output |
| 9 | Output- | O | Negative LVPECL 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)



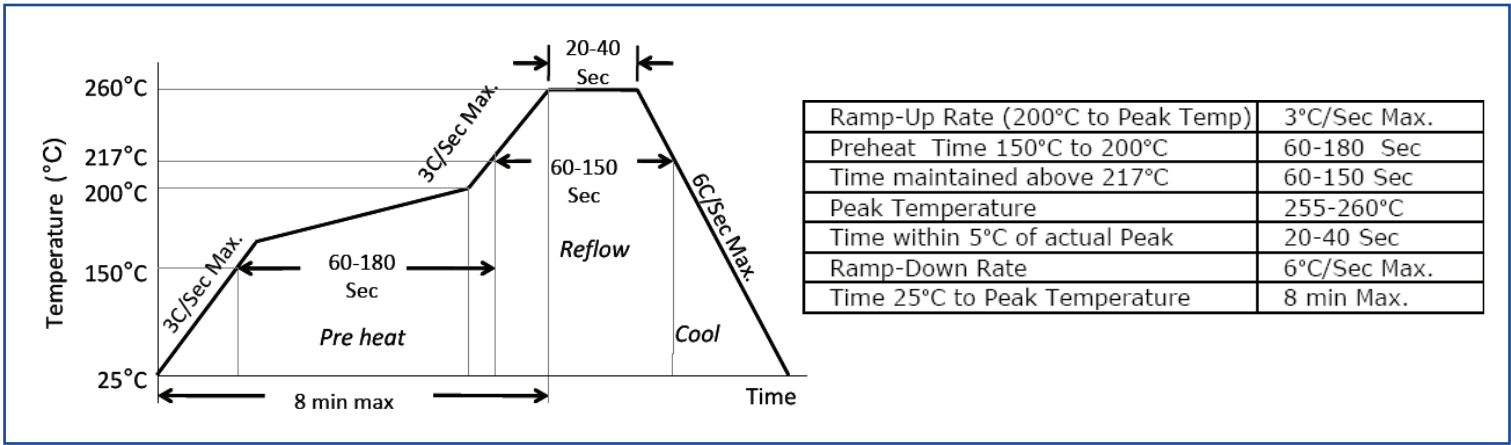
ASEMCLP

3.2 x 2.5 x 0.85 mm

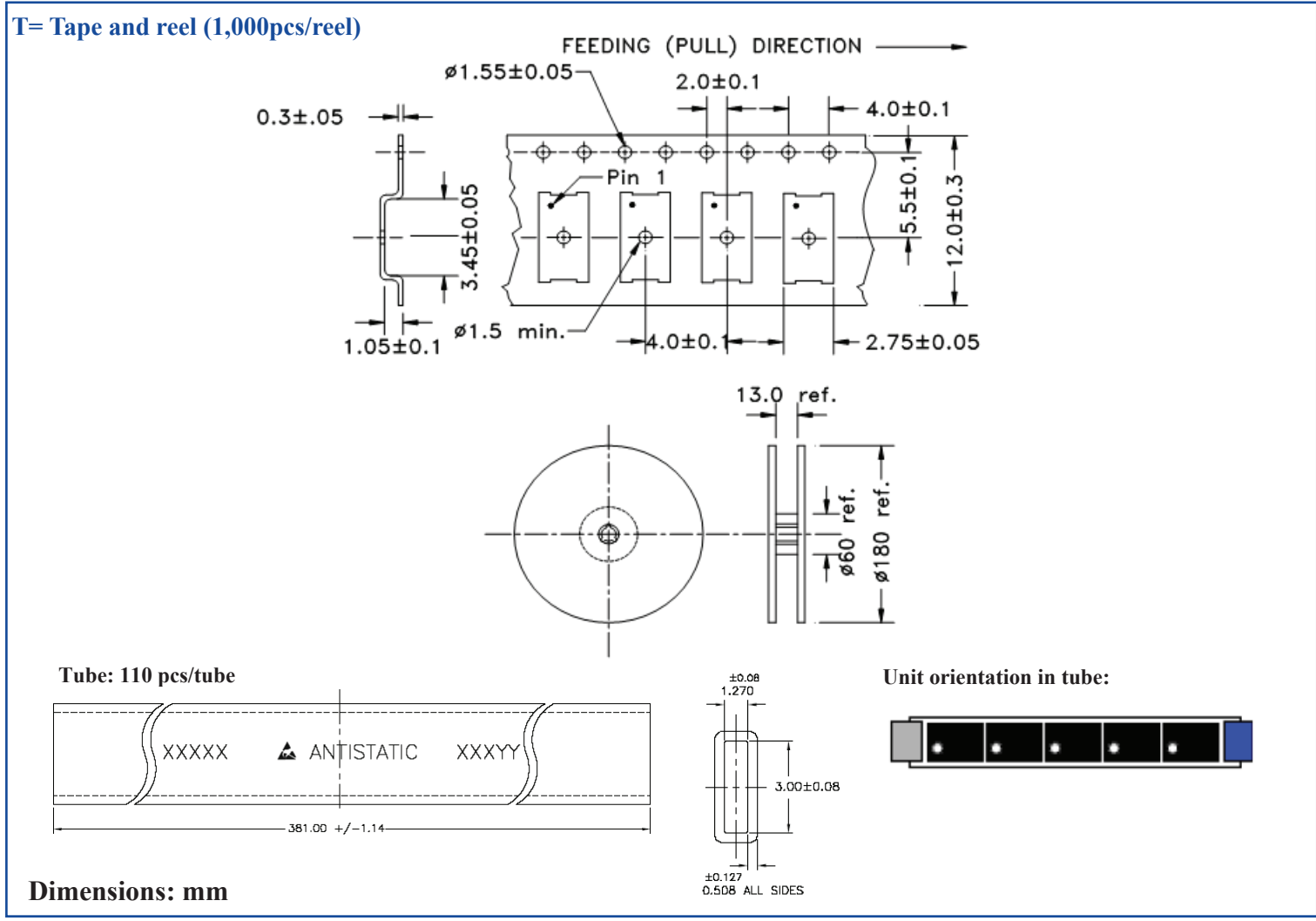


ASEMCLP

REFLOW PROFILE



REFLOW PROFILE



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.



Visit www.abracon.com for Terms & Conditions of Sale **Revised: 05.20.11**
 30332 Esperanza, Rancho Santa Margarita, California 92688
 tel 949-546-8000 | fax 949-546-8001 | www.abracon.com