

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP



Life Size 
3.2 x 2.5 x 0.85 mm

ASEMP

Moisture Sensitivity Level – MSL 1



RoHS
Compliant

Low Jitter
High Performance
3G MEMS Technology!

FEATURES:

- Ultra Miniature Pure Silicon™ Clock Oscillator
- High Performance MEMS Technology by Discera
- 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
- Available in 50kG Shock Resistance Configuration upon request
- 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)
- HD/SD/SDI Video & Surveillance
- PCI Express
- Display port

STANDARD SPECIFICATIONS:

Common Key Electrical Specifications – CMOS, LVPECL, LVDS, and HCSL

| Parameters | | Minimum | Typical | Maximum | Units | Notes |
|--------------------------------------|--------|--|---------|---------|-------|-----------------------------------|
| Frequency Range | CMOS | 10.000 | ----- | 170.000 | MHz | Commercial, Industrial Temp range |
| | CMOS | 10.000 | ----- | 100.000 | | Automotive -55 ~ +125°C |
| | LVPECL | 10.000 | ----- | 460.000 | | Commercial, Industrial Temp range |
| | LVDS | 10.000 | ----- | 460.000 | | Commercial, Industrial Temp range |
| | HCSL | 10.000 | ----- | 460.000 | | 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 | | ----- | ----- | 10 | ms | |
| Enable Time | | ----- | ----- | 0.005 | | STD (Tri-state) |
| | | ----- | ----- | 5.0 | ms | PD option (Power Down) |
| Disable Time | | ----- | ----- | 100 | ns | |
| Stand-by Current | | ----- | 20 | 26 | | STD (Tri-state) |
| Disable Current | | ----- | ----- | 0.1 | mA | 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 | 33kΩ pull-up resistor embedded |
| Aging | | -5.0 | ----- | +5.0 | ppm | First year |

Key Electrical Specifications – CMOS

| Parameters | | Minimum | Typical | Maximum | Units | Notes |
|--|-----------------|---------------------|---------|---------------------|-------|------------------------|
| Supply Current (I _{dd}) | | ----- | 31 | 35 | mA | CL=15p, 125MHz |
| Output Logic Level | V _{OH} | 0.9*V _{dd} | ----- | ----- | V | I=±6mA |
| | V _{OL} | ----- | ----- | 0.1*V _{dd} | V | |
| Rise Time | Tr | ----- | 1.1 | 2.0 | ns | CL=15pF |
| Fall Time | Tf | ----- | 1.3 | 2.0 | ns | 20%/80%*VDD |
| Duty Cycle | | 45 | ----- | 55 | % | |
| Integrated Phase Jitter (J _{PH}) | | ----- | 0.30 | 3 | ps | 200kHz ~ 20MHz, 125MHz |
| | | ----- | 0.38 | 3 | | 100kHz ~ 20MHz, 125MHz |
| | | ----- | 1.70 | 3 | | 12kHz ~ 20MHz, 125MHz |
| Period Jitter RMS (J _{PER}) | | ----- | 3.0 | ----- | ps | CL=2pF, 125MHz |
| | | ----- | 6 | ----- | | CL=15pF, 125MHz |

ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 09.13.11**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP



Life Size 
3.2 x 2.5 x 0.85 mm

ASEMP



Key Electrical Specifications – LVPECL

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|--|----------|---------------|---------------|-------|-------------------------------|
| Supply Current (I_{dd}) | ----- | 51 | 60 | mA | RL=50Ω, 156.25MHz |
| Output Logic Level | V_{OH} | $V_{dd}-1.08$ | ----- | V | RL=50Ω, 156.25MHz |
| | V_{OL} | ----- | $V_{dd}-1.55$ | V | |
| Peak to Peak Output Swing (V_{pp}) | | 830 | | mV | Single ended |
| Rise Time | T_r | ----- | 250 | ps | RL=50Ω, CL=2pF 20%/80%*VDD |
| Fall Time | T_f | ----- | 250 | | |
| Duty Cycle | | 48 | 52 | % | Differential |
| Integrated Phase Jitter (J_{PH}) | | ----- | 0.25 | ps | 200kHz ~ 20MHz, 156.25MHz |
| | | ----- | 0.38 | | 100kHz ~ 20MHz, 156.25MHz |
| | | ----- | 1.70 | | 12kHz ~ 20MHz, 156.25MHz |
| Period Jitter RMS (J_{PER}) | ----- | 3.3 | ----- | ps | RL=50Ω, 156.25MHz |

Key Electrical Specifications – LVDS

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|--|----------|---------------|---------------|-------|-------------------------------|
| Supply Current (I_{dd}) | ----- | 29 | 40 | mA | RL=50Ω, 156.25MHz |
| Output Offset Voltage (V_{OS}) | 1.125 | ----- | 1.4 | V | RL=100Ω differential |
| Delta Offset Voltage (ΔV_{OS}) | | | | | |
| Output Logic Level | V_{OH} | $V_{dd}-1.08$ | ----- | V | RL=50Ω, 156.25MHz |
| | V_{OL} | ----- | $V_{dd}-1.55$ | V | |
| Peak to Peak Output Swing (V_{pp}) | | 350 | | mV | Single ended |
| Rise Time | T_r | ----- | 300 | ps | RL=50Ω, CL=2pF 20%/80%*VDD |
| Fall Time | T_f | ----- | 300 | | |
| Duty Cycle | | 45 | 55 | % | Differential |
| Integrated Phase Jitter (J_{PH}) | | ----- | 0.28 | ps | 200kHz ~ 20MHz, 156.25MHz |
| | | ----- | 0.40 | | 100kHz ~ 20MHz, 156.25MHz |
| | | ----- | 1.70 | | 12kHz ~ 20MHz, 156.25MHz |
| Period Jitter RMS (J_{PER}) | ----- | 3.3 | ----- | ps | RL=50Ω, 156.25MHz |

Key Electrical Specifications – HCSL

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|--|----------|---------|---------|-------|-------------------------------|
| Supply Current (I_{dd}) | ----- | 40 | 60 | mA | RL=50Ω, 156.25MHz |
| Output Logic Level | V_{OH} | 0.725 | ----- | V | RL=50Ω, 156.25MHz |
| | V_{OL} | ----- | 0.1 | V | |
| Peak to Peak Output Swing (V_{pp}) | | 675 | | mV | Single ended |
| Rise Time | T_r | ----- | 250 | ps | RL=50Ω, CL=2pF 20%/80%*VDD |
| Fall Time | T_f | ----- | 250 | | |
| Duty Cycle | | 45 | 55 | % | Differential |
| Integrated Phase Jitter (J_{PH}) | | ----- | 0.25 | ps | 200kHz ~ 20MHz, 156.25MHz |
| | | ----- | 0.37 | | 100kHz ~ 20MHz, 156.25MHz |
| | | ----- | 1.70 | | 12kHz ~ 20MHz, 156.25MHz |
| Period Jitter RMS (J_{PER}) | ----- | 2.8 | ----- | ps | RL=50Ω, 156.25MHz |

ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 09.13.11**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP



Life Size 3.2 x 2.5 x 0.85 mm

ASEMP



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)

Programmed Orders (Quantity > 1,000pcs)

ASEMP - MHz - - -

| Output Type | Frequency in MHz | Operating Temp. | Overall Freq. Stability | Tri-state (Pin 1) | Packaging |
|-------------|--|----------------------|-------------------------|-------------------|-----------------------------------|
| C: CMOS | e.g. 156.2500 MHz (Maximum 4 digits after decimal) | Blank: -20°C ~ +70°C | Blank: ±50ppm | Blank: Tri-state | Blank: Tube (110pcs / Tube) |
| LP: LVPECL | | L: -40°C ~ +85°C | Y: ±10ppm* | PD: Power Down | T: Tape & Reel (1kpcs / reel) |
| LV: LVDS | | X**: -40°C ~ +105°C | R: ±25 ppm | | T3: Tape & Reel (3kpcs / reel) |
| HC: HCSL | | Z**: -55°C ~ +125°C | | | T5: Tape & Reel (5kpcs / reel) |

* Temp option L, or -20°C ~ +70°C, only

** CMOS output only

Un-Programmed Orders

Blank un-programmed oscillators and our low cost portable programmer are available for quick turn engineering requirements.

Please call ABRACON or visit MEMSpeed Pro II site <http://www.abracon.com/memspeedpro/MEMSpeedProFlyerII.pdf>

for more information.

ASEMP - BLANK - - -

| Output Type | Operating Temp. | Overall Freq. Stability | Tri-state (Pin 1) | Packaging |
|-------------|----------------------|-------------------------|-------------------|--------------------------------|
| C: CMOS | Blank: -20°C ~ +70°C | Blank: ±50ppm | Blank: Tri-state | Blank: Tube (110pcs / Tube) |
| LP: LVPECL | L: -40°C ~ +85°C | Y: ±10ppm* | PD: Power Down | T: Tape & Reel (1kpcs / reel) |
| LV: LVDS | X**: -40°C ~ +105°C | R: ±25 ppm | | T3: Tape & Reel (3kpcs / reel) |
| HC: HCSL | Z**: -55°C ~ +125°C | | | T5: Tape & Reel (5kpcs / reel) |

* Temp option L, or -20°C ~ +70°C, only

** CMOS output only

ABRACON IS
ISO9001:2008
CERTIFIED



Visit www.abracon.com for Terms & Conditions of Sale **Revised: 09.13.11**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP



Life Size 
3.2 x 2.5 x 0.85 mm

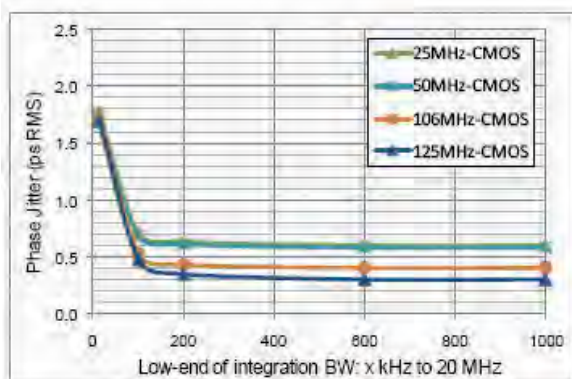
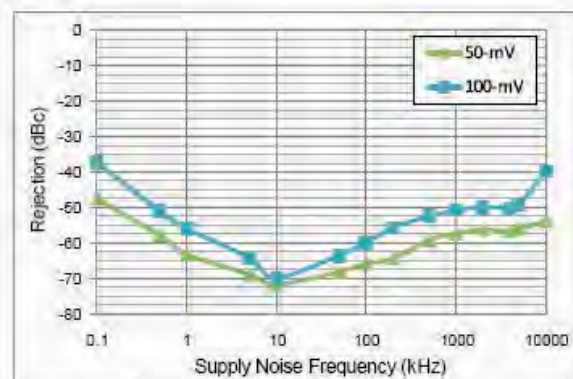
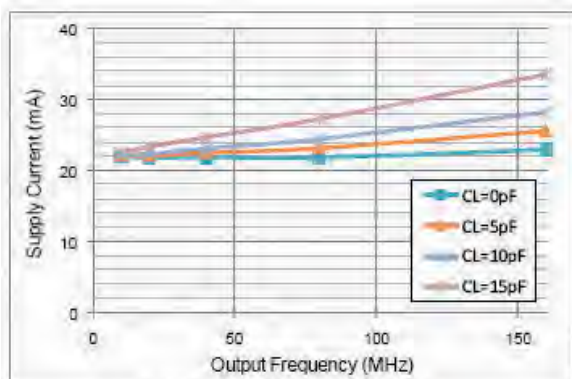
ASEMP

 **RoHS**
Compliant

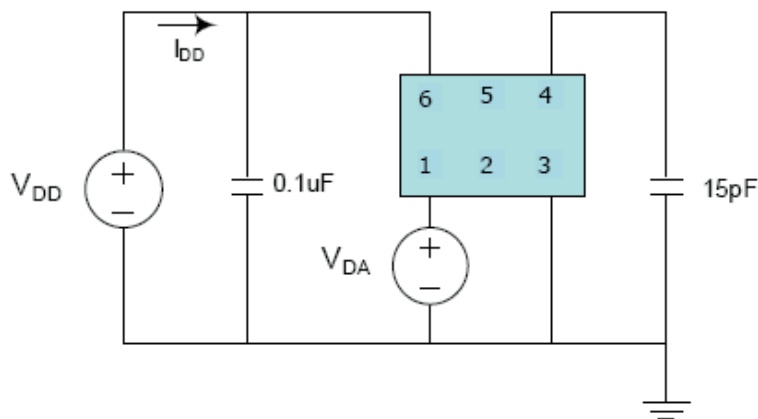
NOMINAL PERFORMANCE PARAMETERS

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

CMOS OUTPUT



Test Circuit



PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP



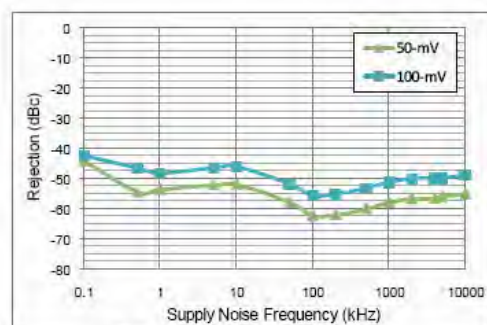
Life Size
3.2 x 2.5 x 0.85 mm

ASEMP

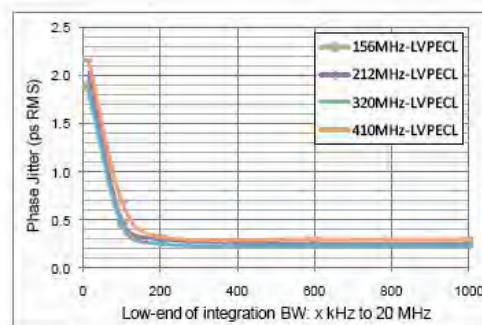


RoHS
Compliant

LVPECL OUTPUT

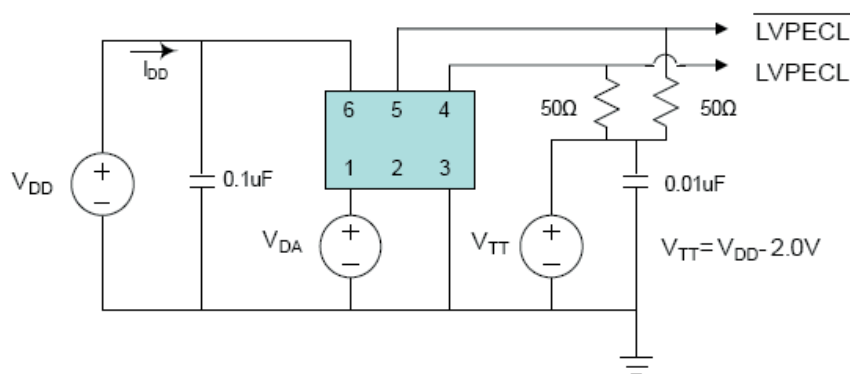


Power supply rejection ratio

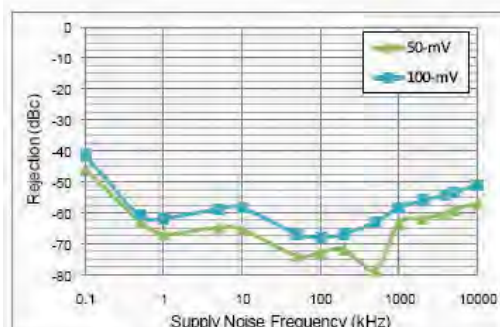


Phase jitter (integrated phase noise)

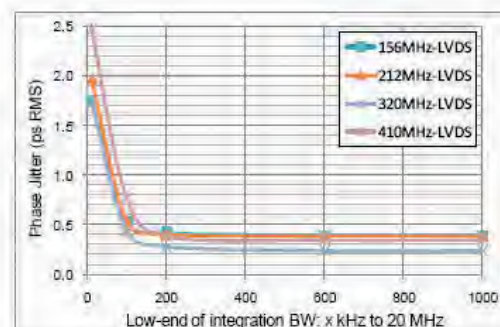
Test Circuit



LVDS OUTPUT

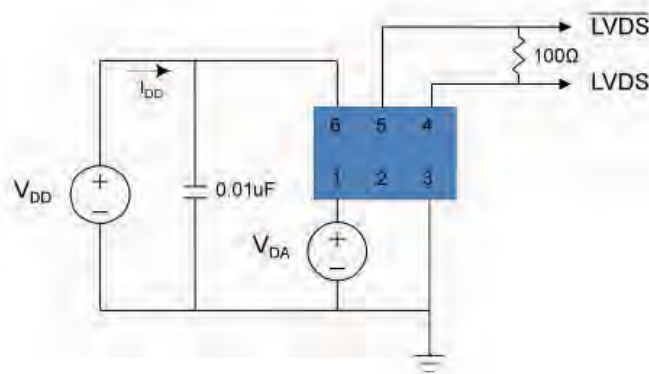


Power supply rejection ratio



Phase jitter (integrated phase noise)

Test Circuit



ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 09.13.11**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP



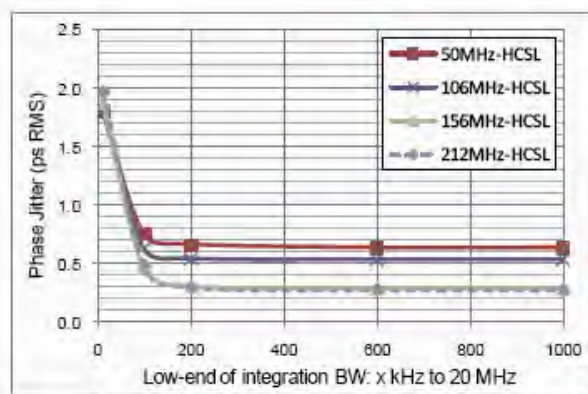
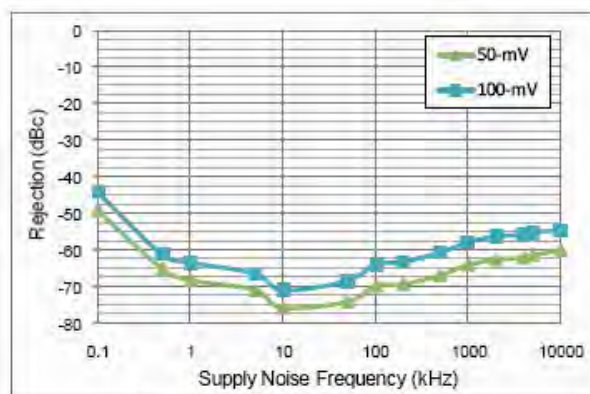
Life Size 
3.2 x 2.5 x 0.85 mm

ASEMP

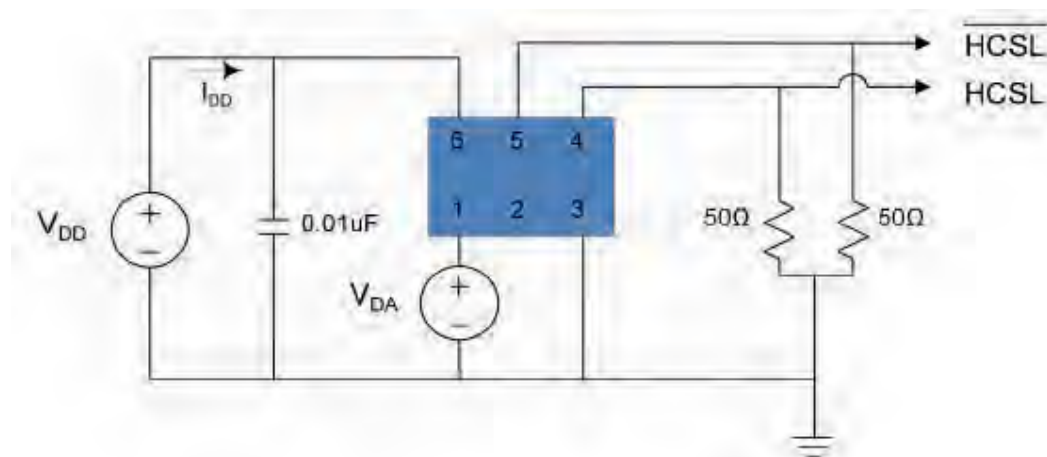


RoHS
Compliant

HCSL OUTPUT



Test Circuit



ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 09.13.11**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

PERFORMANCE PLASTIC PACKAGE ULTRA MINIATURE PURE SILICON™ CLOCK OSCILLATOR

ASEMP

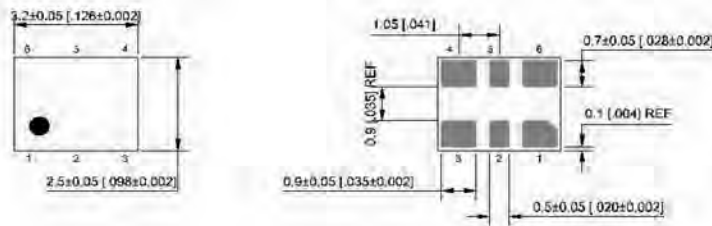


Life Size
 3.2 x 2.5 x 0.85 mm

ASEMP

RoHS
Compliant

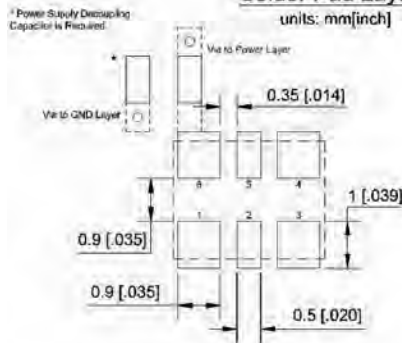
OUTLINE DIMENSIONS:



| No. | Pin terminal |
|-----|--------------|
| 1 | Enable |
| 2 | nc |
| 3 | GND |
| 4 | Output |
| 5 | Output |
| 6 | VDD |

Recommended Solder Pad Layout

units: mm[inch]

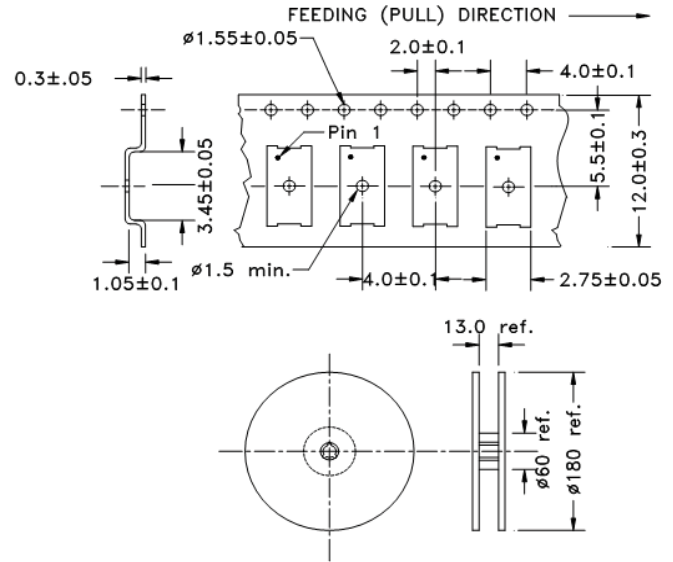


Note: Recommend using an approximately 0.01µF bypass capacitor between PIN 6 and 3.

Dimensions: mm (inches)

TAPE AND REEL:

T= Tape and reel (1,000pcs/reel)



Tube: 110 pcs/tube

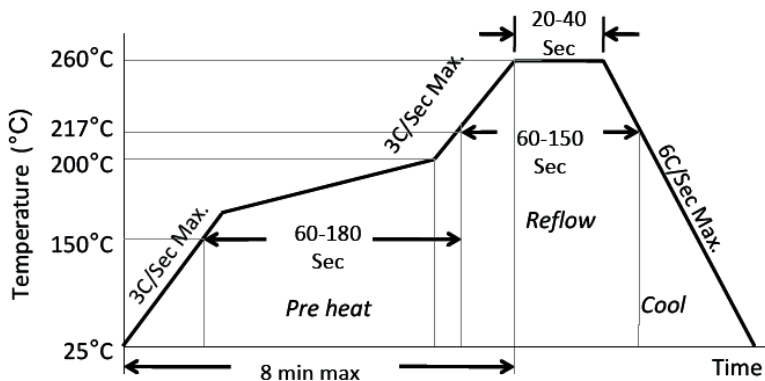


Unit orientation in tube:



Dimensions: 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. |

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.

ABRACON IS
ISO9001:2008
CERTIFIED



ABRACON
CORPORATION

Visit www.abracon.com for Terms & Conditions of Sale **Revised: 09.13.11**
30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9