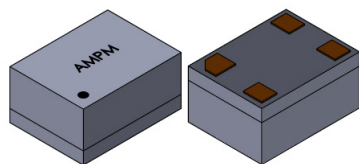


# POWER OPTIMIZED MEMS OSCILLATORS



## AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

### FEATURES

- Compact footprint as small as 1.6x1.2mm
- Low 0.84mm profile
- Low power consumption
- 1MHz to 80MHz output frequency range
- Short lead time for new frequencies
- Wide -40°C to +85°C operating temperature range
- Output enable or ultra-low power standby: 12μA (typ)
- Low operating current: 1.3mA IDD (typ)

### APPLICATIONS

- Wearables
- Internet of Things (IoT)
- Industrial IoT
- Audio and video
- Drones and robotics

### ELECTRICAL SPECIFICATIONS

Electrical characteristics unless otherwise indicated,  $V_{DD} = 1.8V - 5\%$  to  $3.3V + 10\%$ , temperature range -40°C to 85 °C

| Parameters                                 |          | Min.           | Typ. | Max.           | Units | Note                                            |
|--------------------------------------------|----------|----------------|------|----------------|-------|-------------------------------------------------|
| Frequency Range                            |          | 1.0000         |      | 80.0000        | MHz   |                                                 |
| Power Supply Voltage ( $V_{DD}$ )          |          | 1.71           |      | 3.63           | V     |                                                 |
| Current Consumption ( $I_{DD}$ )           |          |                | 1.3  |                | mA    | $f_{out} = 24MHz, V_{DD} = 1.8V,$<br>No Load    |
| Standby Current Consumption ( $I_{STBY}$ ) |          |                | 12   | 30             | μA    | $V_{DD} = 1.8/2.5V$                             |
|                                            |          |                | 80   | 160            |       | $V_{DD} = 3.3V$                                 |
| Operating Temperature Range                |          | -40            |      | +85            | °C    | See Options                                     |
| Storage Temperature                        |          | -55            |      | +150           | °C    |                                                 |
| All Inclusive Frequency Stability          |          | -25            |      | +25            | ppm   | Options "D" or "F"                              |
|                                            |          | -50            |      | +50            |       | Options "E" or "G"                              |
| Aging                                      |          | -5             |      | +5             | ppm   | 1 <sup>st</sup> year @25°C                      |
|                                            |          | -1             |      | +1             |       | Per year after first year                       |
| Duty Cycle                                 |          | 45             |      | 55             | %     | 1 MHz to 39 MHz                                 |
|                                            |          | 40             |      | 60             |       | 61 MHz to 80 MHz<br>40 MHz to 60 MHz            |
| Output Logic Levels                        | $V_{OH}$ | $0.8 * V_{DD}$ |      |                | V     | Logic High I = 1 mA                             |
|                                            | $V_{OL}$ |                |      | $0.2 * V_{DD}$ |       | Logic Low I = -1 mA                             |
| Input Logic Levels                         | $V_{IH}$ | $0.7 * V_{DD}$ |      |                | V     | Logic High                                      |
|                                            | $V_{IL}$ |                |      | $0.3 * V_{DD}$ |       | Logic Low                                       |
| Enable Pull-Up Resistor                    |          |                | 300  |                | kΩ    |                                                 |
| Power Supply Ramp ( $t_{PU}$ )             |          | 0.1            |      | 100            | ms    | Time to 90% targeted $V_{DD}$                   |
| Start-up Time ( $t_{SU}$ )                 |          |                |      | 1.3            | ms    | From 90% $V_{DD}$ to valid clock output, @ 25°C |

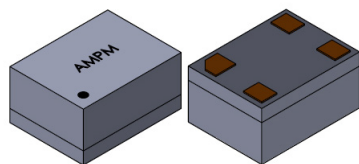


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

ELECTRICAL SPECIFICATIONS

| Parameters                        |                                        | min | Typ. | Max.       | Units   | Note                               |
|-----------------------------------|----------------------------------------|-----|------|------------|---------|------------------------------------|
| Output Enable Time ( $t_{EN}$ )   |                                        |     |      | 1          | $\mu$ s |                                    |
| Output Disable Time ( $t_{DA}$ )  |                                        |     |      | 200+period | ns      |                                    |
| Rise( $T_r$ )/Fall ( $T_f$ ) Time | Low Drive<br>20% $\leftrightarrow$ 80% |     | 2.5  | 3.5        | ns      | CL = 5 pF   $V_{DD}$ = 1.8V        |
|                                   |                                        |     | 1.5  | 2.2        |         | CL = 5 pF<br>$V_{DD}$ = 2.5V/3.3V  |
|                                   | Std Drive<br>20% $\leftrightarrow$ 80% |     | 1.2  | 2.0        |         | CL = 10 pF   $V_{DD}$ = 1.8V       |
|                                   |                                        |     | 0.6  | 1.2        |         | CL = 10 pF<br>$V_{DD}$ = 2.5V/3.3V |
| RMS Period Jitter                 | Low Drive<br>$f_{out}$ = 27 MHz        |     | 32   | 40         | ps      | $V_{DD}$ = 1.8V                    |
|                                   |                                        |     | 25   | 32         |         | $V_{DD}$ = 2.5/3.3V                |
|                                   | Std Drive<br>$f_{out}$ = 27 MHz        |     | 23   | 30         |         | $V_{DD}$ = 1.8V                    |
|                                   |                                        |     | 20   | 28         |         | $V_{DD}$ = 2.5/3.3V                |
| Cycle-to-Cycle Jitter (Peak)      | Low Drive<br>$f_{out}$ = 27 MHz        |     | 180  | 240        | ps      | $V_{DD}$ = 1.8V                    |
|                                   |                                        |     | 120  | 170        |         | $V_{DD}$ = 2.5/3.3V                |
|                                   | Std Drive<br>$f_{out}$ = 27 MHz        |     | 115  | 190        |         | $V_{DD}$ = 1.8V                    |
|                                   |                                        |     | 90   | 150        |         | $V_{DD}$ = 2.5/3.3V                |

ABSOLUTE MAXIMUM RATINGS

| Parameters                        | min                         | Typ. | Max.           | Units        | Note                |
|-----------------------------------|-----------------------------|------|----------------|--------------|---------------------|
| Supply Voltage                    | -0.3                        |      | +4.0           | V            |                     |
| Input Voltage                     | -0.3                        |      | $V_{DD}$ + 0.3 | V            |                     |
| Maximum Junction Temperature      |                             |      | +150           | $^{\circ}$ C |                     |
| Ambient Operating Temperature     | -40                         |      | +85            | $^{\circ}$ C | Industrial          |
| Ambient Operating Temperature     | -20                         |      | +70            | $^{\circ}$ C | Extended Commercial |
| Storage Ambient Temperature Range | -55                         |      | +150           | $^{\circ}$ C |                     |
| Soldering Temperature             |                             | +260 |                | $^{\circ}$ C | 40 Sec Maximum      |
| ESD Protection                    | 4 kV HBM, 400V MM, 2 kV CDM |      |                |              |                     |

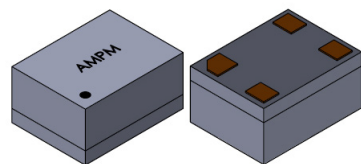


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



## AMPM-SERIES



ESD Sensitive

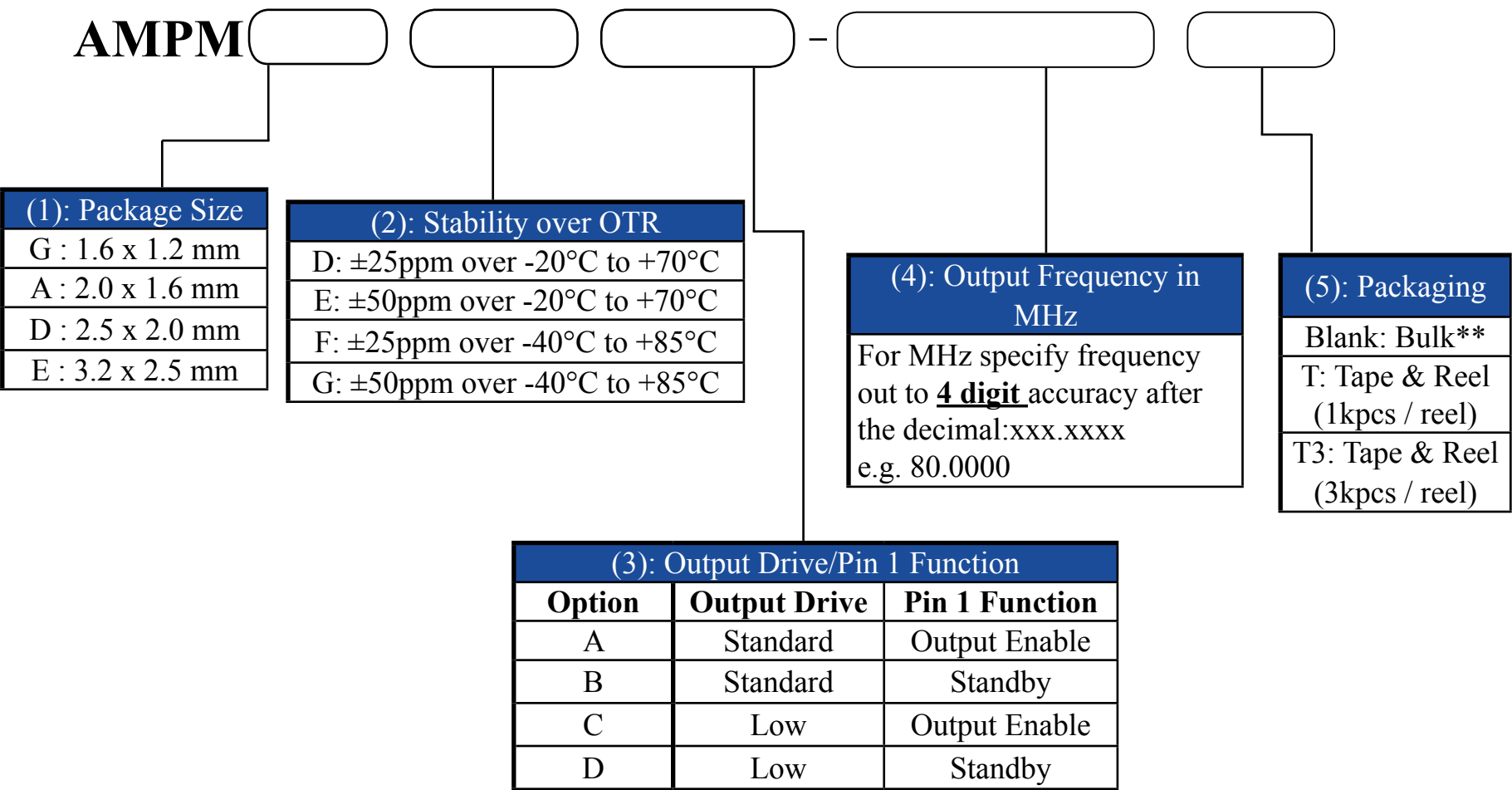


RoHS/RoHS II Compliant

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

MSL = MSL 1

### OPTIONS AND PART IDENTIFICATION



Part Number Example:  
**AMPMGGD - 16.0000T**

\*\*MOQ per package:  
1.6x1.2mm: 100pcs/bag  
2.0x1.6mm: 100pcs/bag  
2.5x2.0mm: 140 pcs/tube  
3.2x2.5mm: 110 pcs/tube

For Quick turn-around programmable sample orders less than MOQ represented above:  
Due to the immediate availability of stock and the qty of the order, the parts may be delivered as Cut Tape, Loose parts in Antistatic Bag or in Tube(s).

For orders equal to or greater than MOQ and less than 1000pcs:  
Due to packaging, the order must be a multiple of MOQ per package size above

For orders equal to or greater than 1000pcs:  
Bulk is not an option. Please refer to tape and reel packaging.

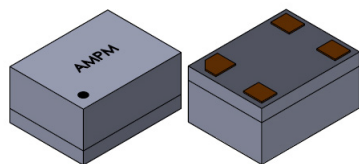


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



## AMPM-SERIES



ESD Sensitive



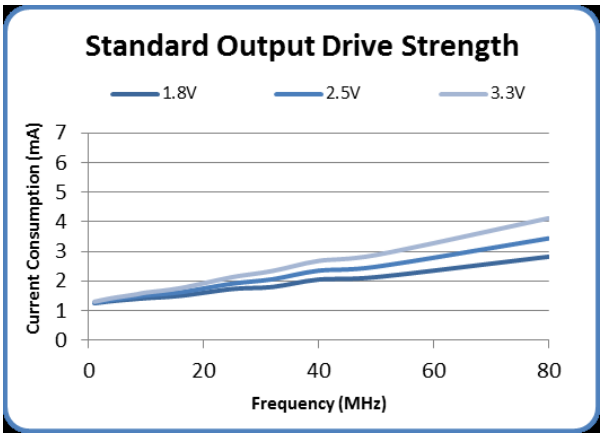
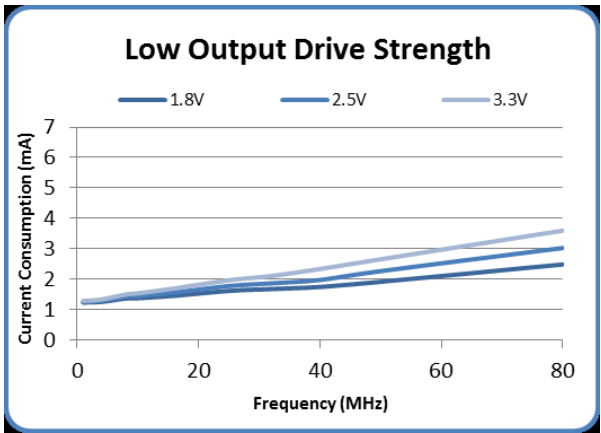
RoHS/RoHS II Compliant

MSL = MSL 1

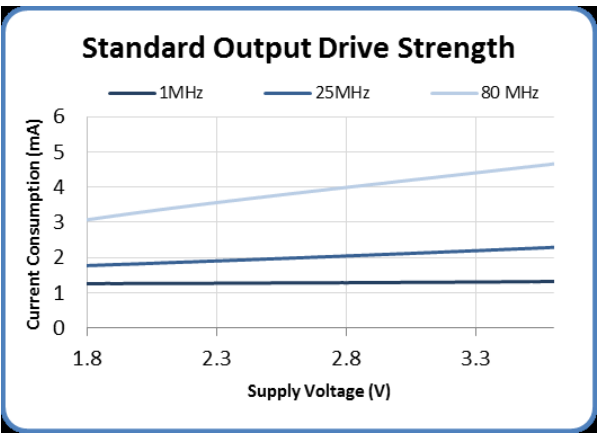
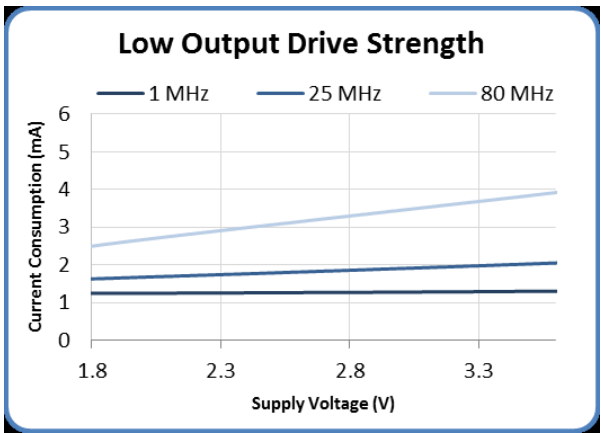
1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

### TYPICAL PERFORMANCE DATA @ 25°C ± 3°C

#### Current Consumption vs Frequency



#### Current Consumption vs Supply Voltage



### PINFUNCTIONS

| Pin Number | Pin Name        | Description                                                                                                                                                                     |
|------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | OE              | Output Enable <sup>Note 1&amp;3</sup> : High or Open = Specified Frequency Output<br>Low = Output is high impedance                                                             |
|            | STBY            | Standby <sup>Note 1&amp;3</sup> : High or Open = Specified Frequency Output<br>Low = Output is high impedance, Device is in low power mode, Supply current is I <sub>STBY</sub> |
| 2          | GND             | Power Supply Ground                                                                                                                                                             |
| 3          | Output          | Oscillator clock output                                                                                                                                                         |
| 4          | V <sub>DD</sub> | Power supply <sup>Note 2</sup>                                                                                                                                                  |

#### Notes :

1. If pin 1 is high or floating, there will be frequency output. If pin 1 is low, output will be disengaged.
2. Bypass with 0.1  $\mu$ F capacitor placed as close to VDD pin as possible.
3. 300 K $\Omega$  internal pull-up resistor present on pin 1.

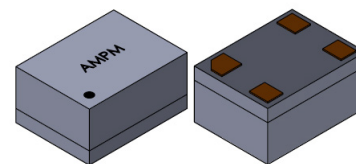


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



## AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

MSL = MSL 1

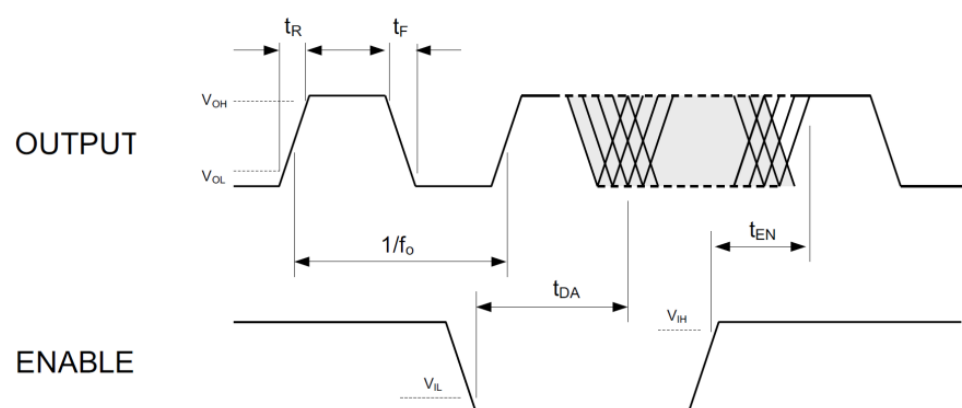
1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

## OUTPUT BUFFER OPTIONS

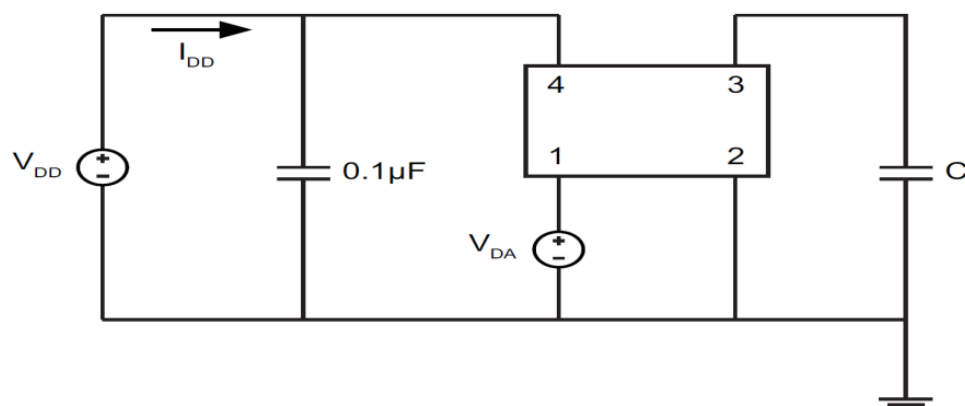
The AMPM Series is available in multiple output driver configurations. The low-power driver minimizes current consumption and EMI while delivering greater than 1 mA output current at 20% to 80% of the supply voltage. The standard-drive delivers greater than 3 mA output current at 20% to 80% of the supply voltage.

## DIAGRAMS

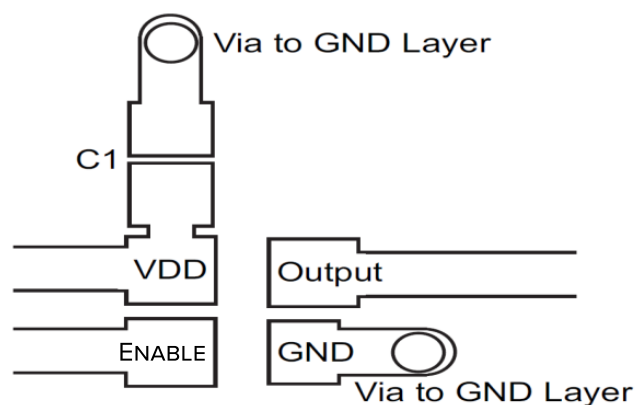
### Output Waveform



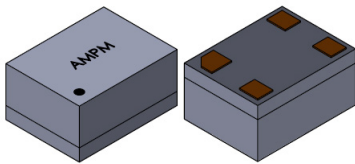
### Test Circuit



### Recommended Board Layout



# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



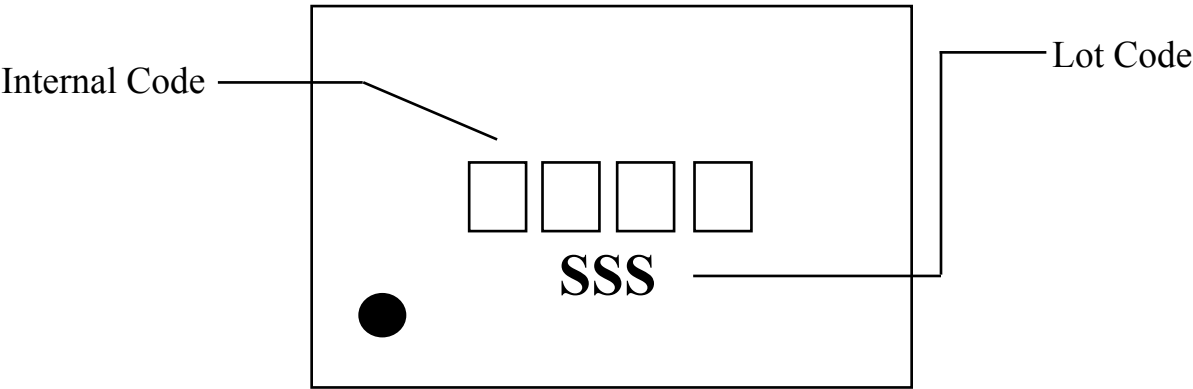
RoHS/RoHS II Compliant

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

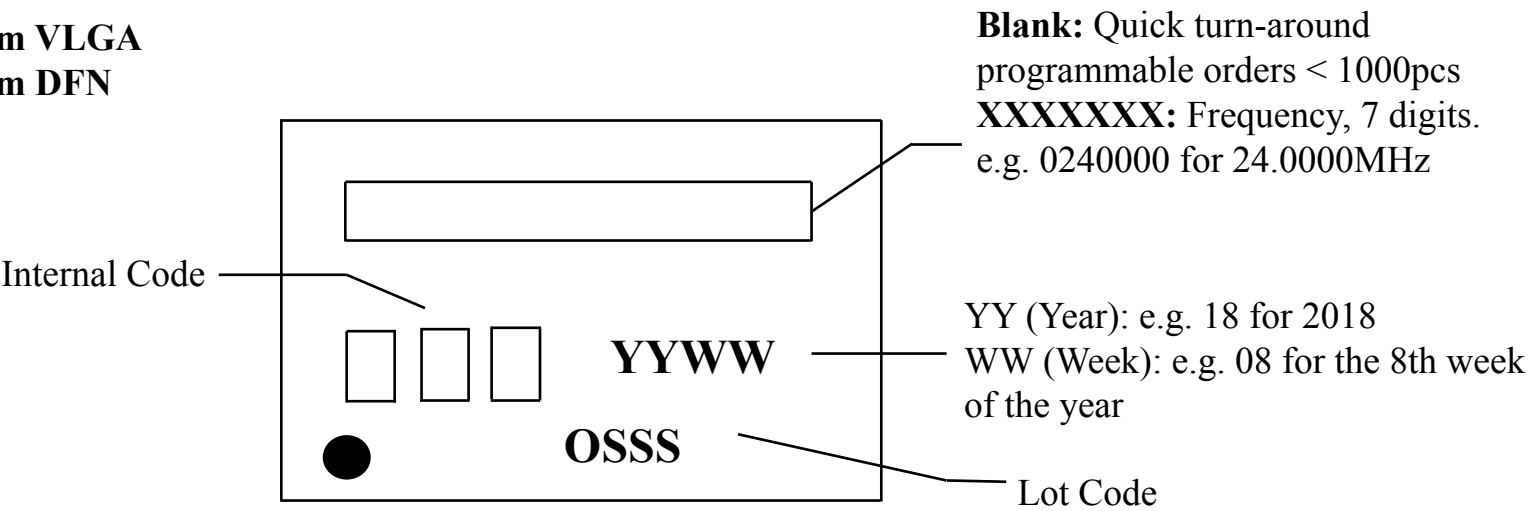
MSL = MSL 1

## MARKING

1.6 mm x 1.2 mm VFLGA  
2.0 mm x 1.6 mm VFLGA



2.5 mm x 2.0 mm VLGA  
3.2 mm x 2.5 mm DFN



**Blank:** Quick turn-around programmable orders < 1000pcs  
**XXXXXXX:** Frequency, 7 digits.  
e.g. 0240000 for 24.0000MHz

YY (Year): e.g. 18 for 2018  
WW (Week): e.g. 08 for the 8th week of the year

Marking Method: Laser Marking

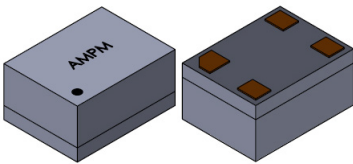


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

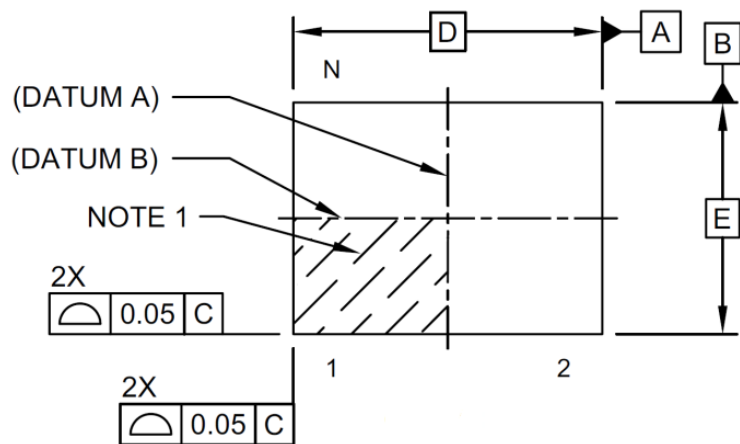
1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

MSL = MSL 1

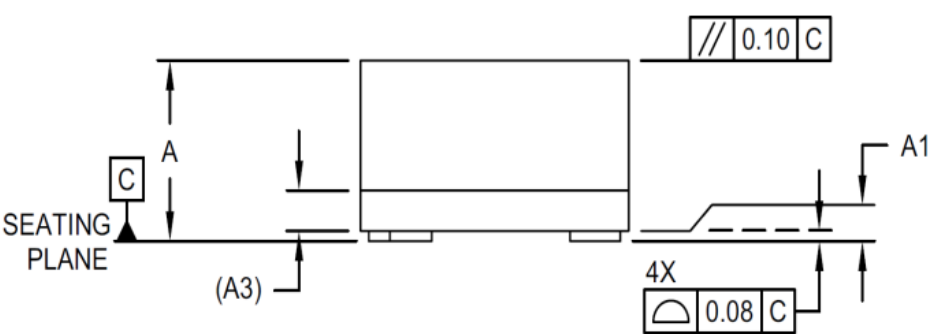
MECHANICAL DIMENSIONS

1.6 x 1.2 mm VFLGA Package Outline

Top View

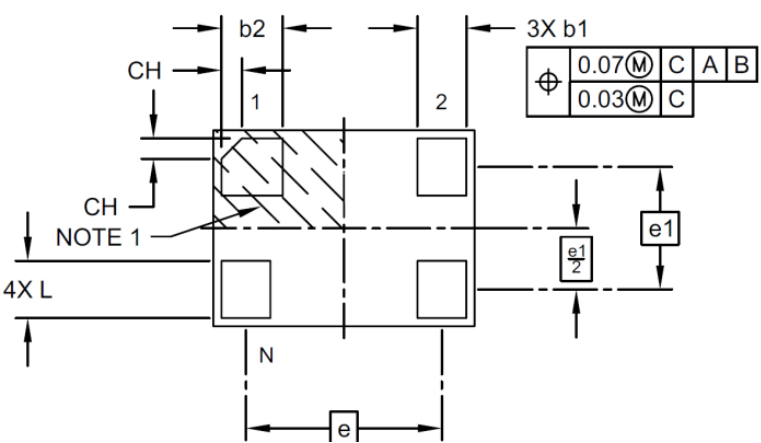


Side View



| Description                          | Marker | Dimensions (mm) |
|--------------------------------------|--------|-----------------|
| Number of Terminals                  | N      | 4               |
| Terminal Pitch                       | e      | 1.20 BSC        |
| Terminal Pitch                       | e1     | 0.75 BSC        |
| Overall Height                       | A      | 0.84 ± 0.05     |
| Standoff*                            | A1     | .02             |
| Substrate Thickness (with Terminals) | A3     | 0.20REF         |
| Overall Length                       | D      | 1.60BSC         |
| Overall Width                        | E      | 1.20BSC         |
| Terminal Width                       | b1     | 0.30 ± 0.05     |
| Terminal Width                       | b2     | 0.375 ± 0.05    |
| Terminal Length                      | L      | 0.35 ± 0.05     |
| Terminal 1 Index Chamfer             | CH     | 0.125           |

Bottom View



\*Standoff max .05 mm and min 0.00 mm

Dimensioning and tolerance per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances  
REF: Reference Dimension, usually without tolerance, for information purposes only

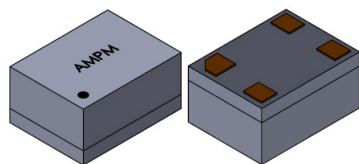


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



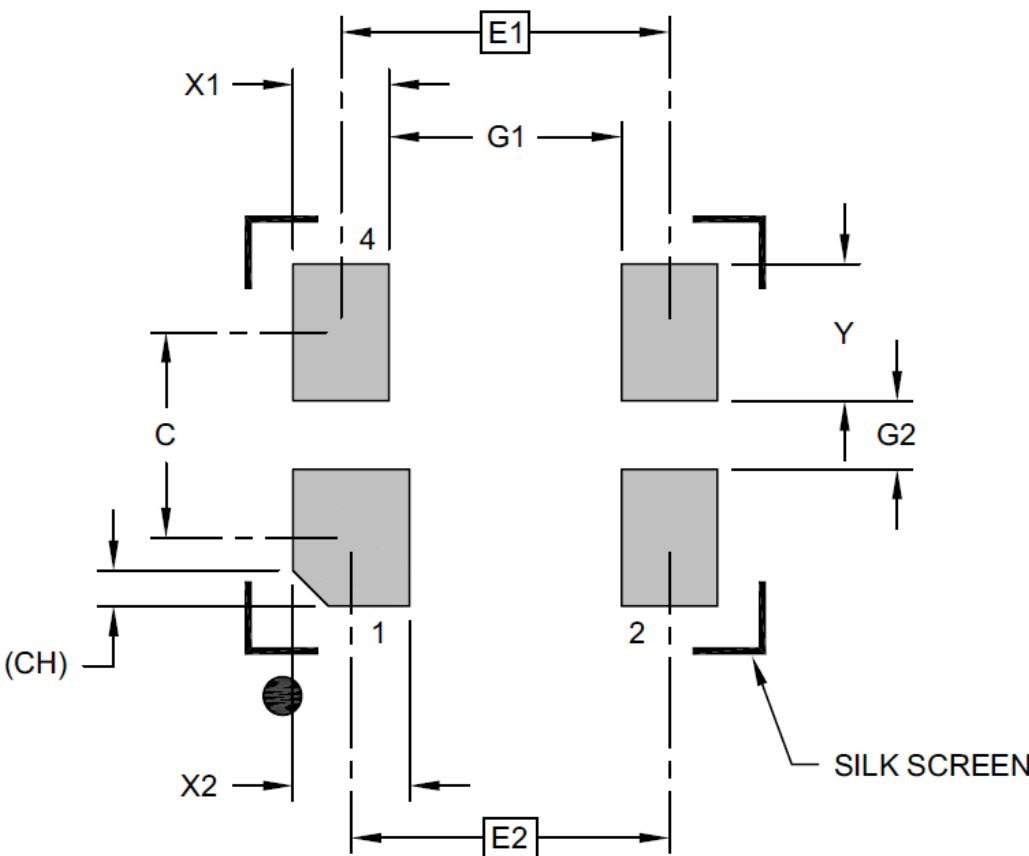
RoHS/RoHS II Compliant

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

MSL = MSL 1

## MECHANICAL DIMENSIONS

### Recommended Landing Pattern



| Description             | Marker | Max            | Typ  | Max  | Unit |
|-------------------------|--------|----------------|------|------|------|
| Contact Pitch           | E1     | 1.20 BSC       |      |      | mm   |
| Contact Pitch           | E2     | 1.16 BSC       |      |      |      |
| Contact Spacing         | C      |                | 0.75 |      |      |
| Contact Width           | X1     |                |      | 0.35 |      |
| Contact Width           | X2     |                |      | 0.43 |      |
| Contact Pad Length      | Y      |                |      | 0.50 |      |
| Space Between Contacts  | G1     | 0.85           |      |      |      |
| Space Between Contacts  | G2     | 0.25           |      |      |      |
| Contact 1 Index Chamfer | CH     | 0.13 x 45° REF |      |      |      |

Dimensioning and tolerance per ASME Y14.5M

BSC: Basic Dimension. Theoretically exact value shown without tolerances

REF: Reference Dimension, usually without tolerance, for information purposes only

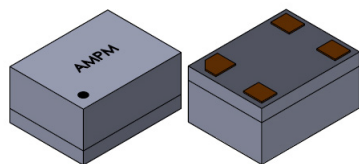


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

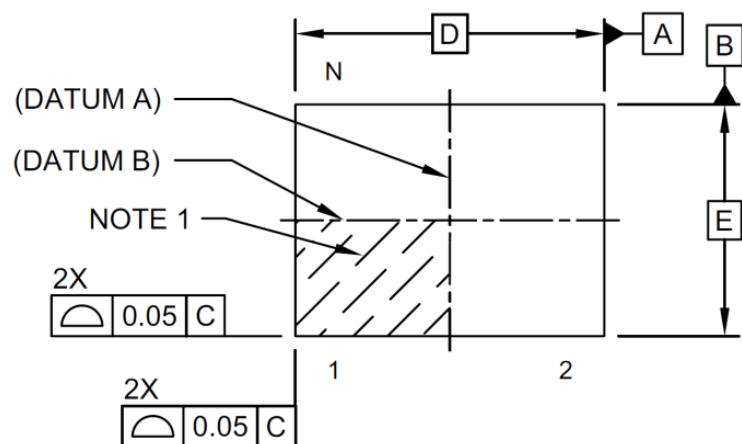
1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

MSL = MSL 1

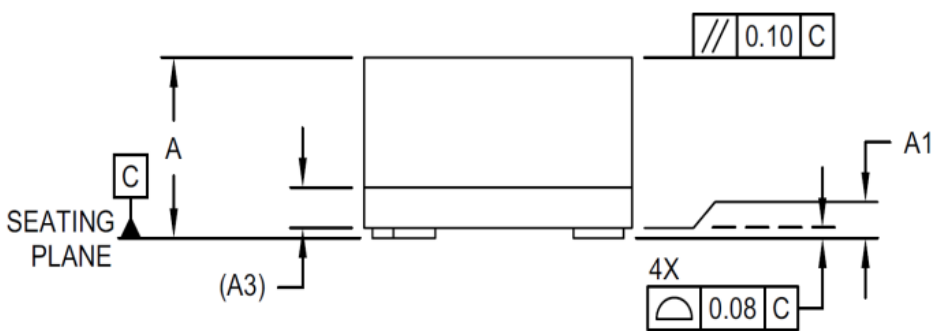
## MECHANICAL DIMENSIONS

### 2.0 x 1.6 mm VFLGA Package Outline

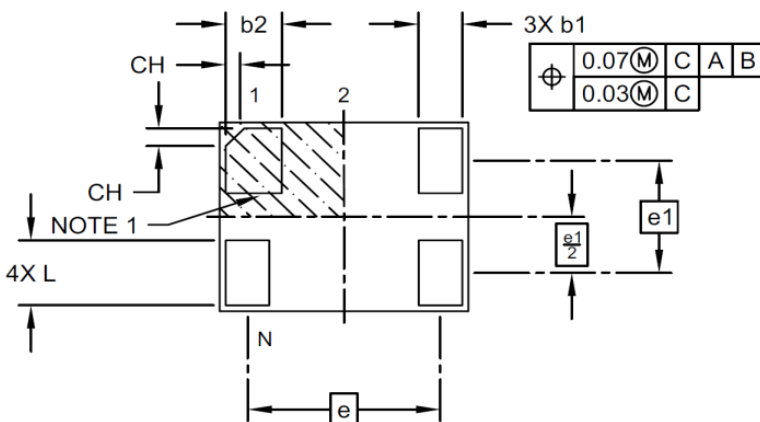
#### Top View



#### Side View



#### Bottom View

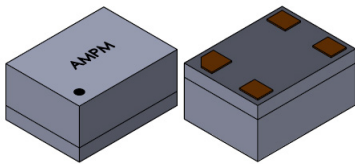


| Description                          | Marker | Dimensions (mm) |
|--------------------------------------|--------|-----------------|
| Number of Terminals                  | N      | 4               |
| Terminal Pitch                       | e      | 1.55 BSC        |
| Terminal Pitch                       | e1     | 0.95 BSC        |
| Overall Height                       | A      | 0.84 ± 0.05     |
| Standoff*                            | A1     | .02             |
| Substrate Thickness (with Terminals) | A3     | 0.20 REF        |
| Overall Length                       | D      | 2.00 BSC        |
| Overall Width                        | E      | 1.60 BSC        |
| Terminal Width                       | b1     | 0.35 ± 0.05     |
| Terminal Width                       | b2     | 0.45 ± 0.05     |
| Terminal Length                      | L      | 0.55 ± 0.05     |
| Terminal 1 Index Chamfer             | CH     | 0.15            |

\*Standoff max .05 mm and min 0.00 mm

Dimensioning and tolerance per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances  
REF: Reference Dimension, usually without tolerance, for information purposes only

POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive

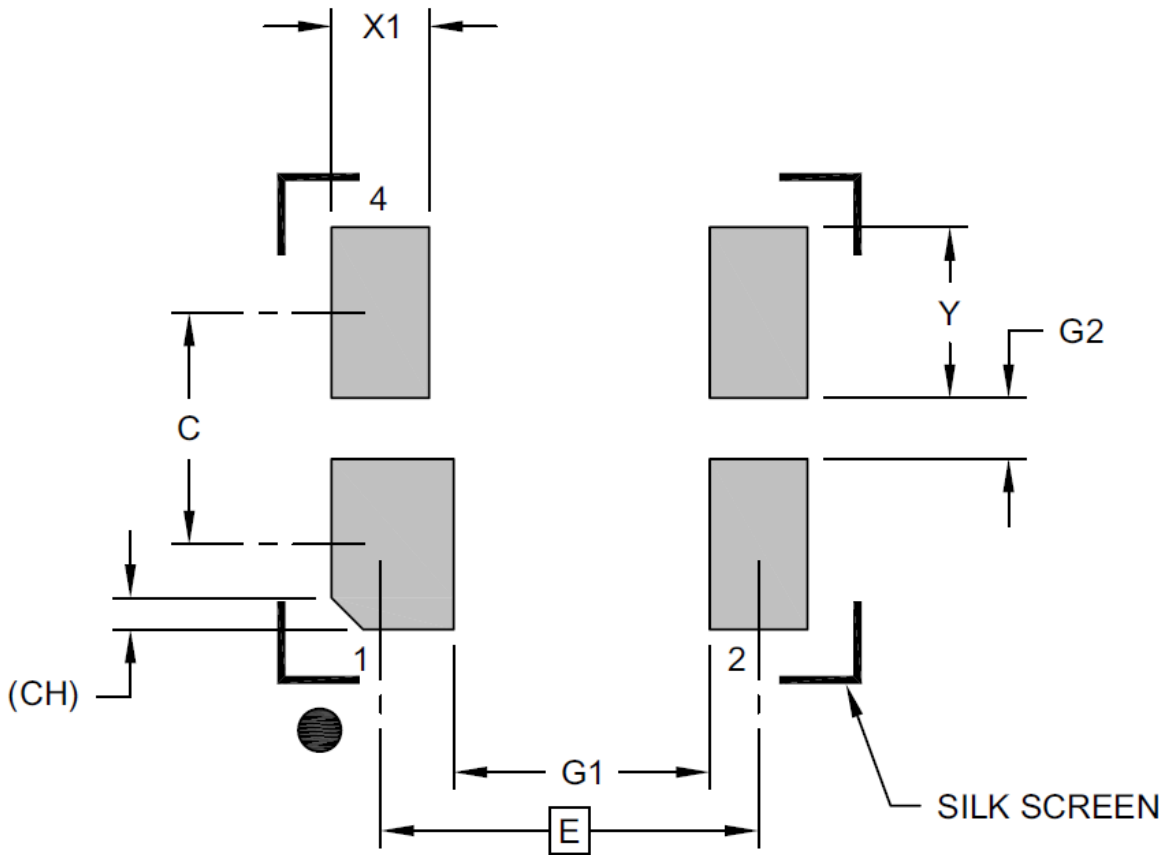


RoHS/RoHS II Compliant

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm  
MSL = MSL 1

MECHANICAL DIMENSIONS

Recommended Landing Pattern



| Description             | Marker | Max            | Typ  | Max  | Unit |
|-------------------------|--------|----------------|------|------|------|
| Contact Pitch           | E2     | 1.55 BSC       |      |      | mm   |
| Contact Spacing         | C      |                | 0.95 |      |      |
| Contact Width           | X1     |                |      | 0.50 |      |
| Contact Width           | X2     |                |      | 0.40 |      |
| Contact Pad Length      | Y      |                |      | 0.70 |      |
| Space Between Contacts  | G1     | 1.05           |      |      |      |
| Space Between Contacts  | G2     | 0.25           |      |      |      |
| Contact 1 Index Chamfer | CH     | 0.13 x 45° REF |      |      |      |

Dimensioning and tolerance per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances  
REF: Reference Dimension, usually without tolerance, for information purposes only

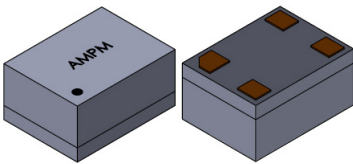


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

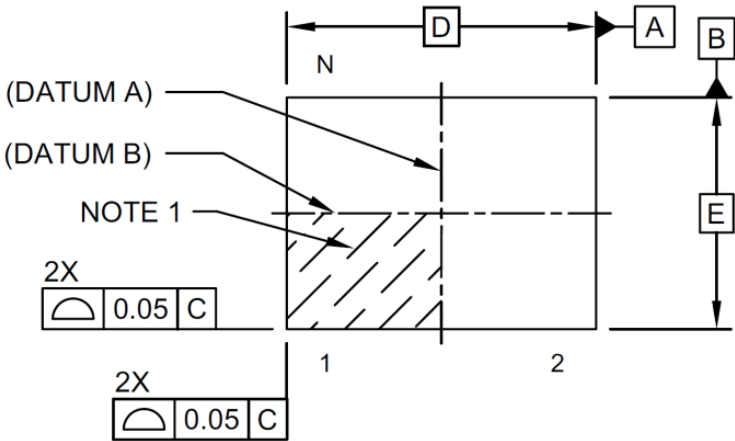
MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

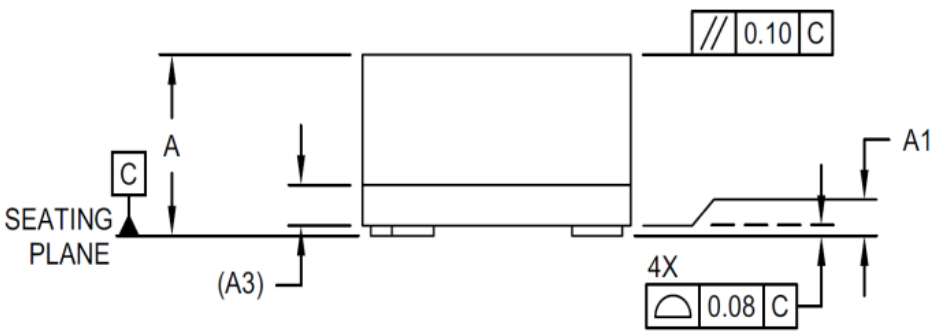
MECHANICAL DIMENSIONS

2.5 x 2.0 mm VLGA Package Outline

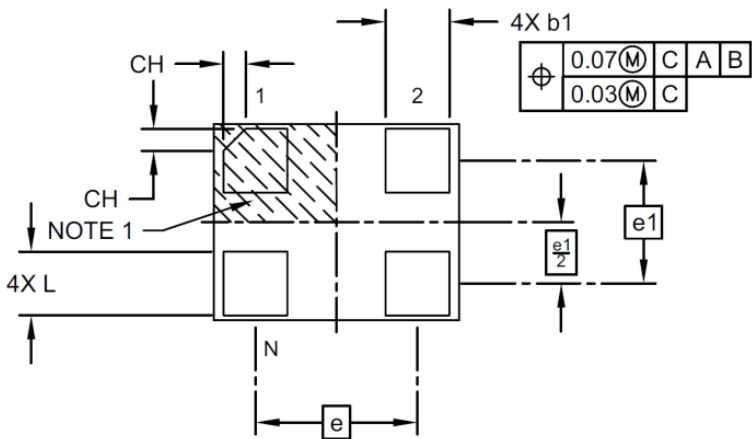
Top View



Side View



Bottom View



| Description                          | Marker | Dimensions (mm) |
|--------------------------------------|--------|-----------------|
| Number of Terminals                  | N      | 4               |
| Terminal Pitch                       | e      | 1.65 BSC        |
| Terminal Pitch                       | e1     | 1.25 BSC        |
| Overall Height                       | A      | 0.84 ± 0.05     |
| Standoff*                            | A1     | .02             |
| Substrate Thickness (with Terminals) | A3     | 0.20REF         |
| Overall Length                       | D      | 2.50BSC         |
| Overall Width                        | E      | 2.00BSC         |
| Terminal Width                       | b1     | 0.65± 0.05      |
| Terminal Length                      | L      | 0.65 ± 0.05     |
| Terminal 1 Index Chamfer             | CH     | 0.225           |

\*Standoff max .05 mm and min 0.00 mm

Dimensioning and tolerance per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances  
REF: Reference Dimension, usually without tolerance, for information purposes only

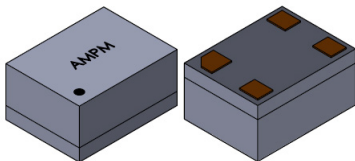


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive

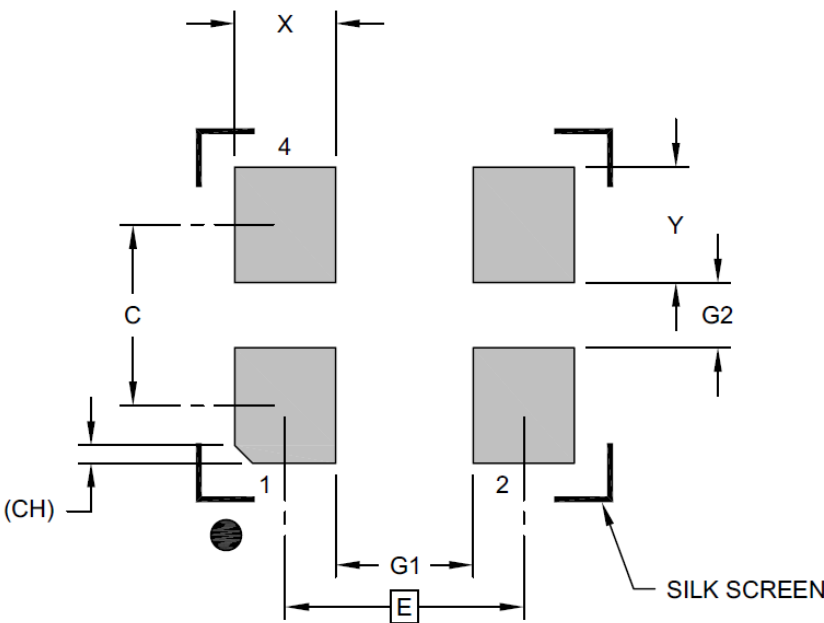


RoHS/RoHS II Compliant  
MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

## MECHANICAL DIMENSIONS

### Recommended Landing Pattern



| Description             | Marker | Max            | Typ  | Max  | Unit |
|-------------------------|--------|----------------|------|------|------|
| Contact Pitch           | E      | 1.65 BSC       |      |      | mm   |
| Contact Spacing         | C      |                | 1.25 |      |      |
| Contact Width           | X1     |                |      | 0.70 |      |
| Contact Width           | X2     |                |      | 0.80 |      |
| Contact Pad Length      | Y      |                |      | 0.50 |      |
| Space Between Contacts  | G1     | 0.95           |      |      |      |
| Space Between Contacts  | G2     | 0.45           |      |      |      |
| Contact 1 Index Chamfer | CH     | 0.13 x 45° REF |      |      |      |

Dimensioning and tolerance per ASME Y14.5M

BSC: Basic Dimension. Theoretically exact value shown without tolerances

REF: Reference Dimension, usually without tolerance, for information purposes only

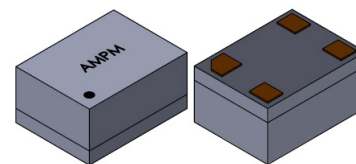


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

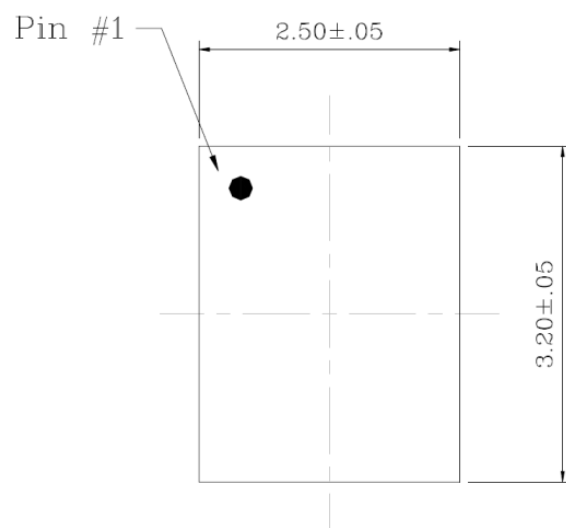
MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

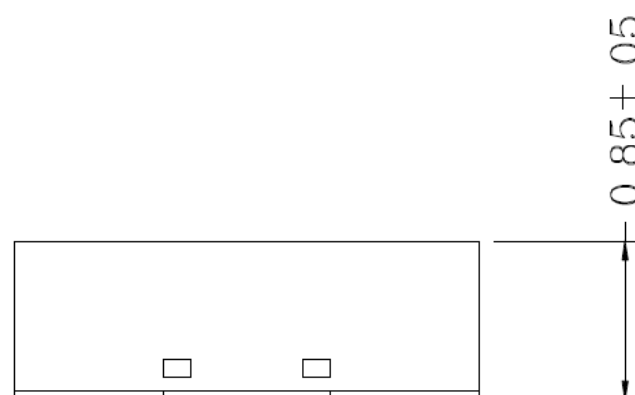
## MECHANICAL DIMENSIONS

### 3.2 x 2.5 mm DFN Package Outline

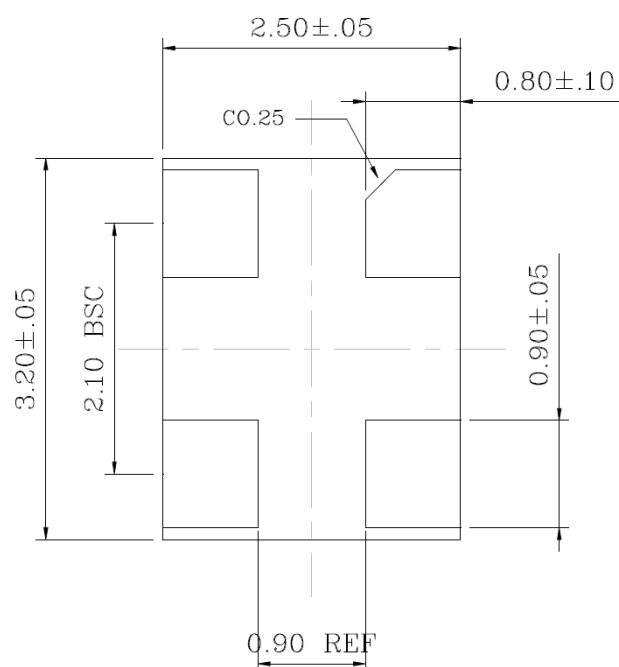
#### Top View



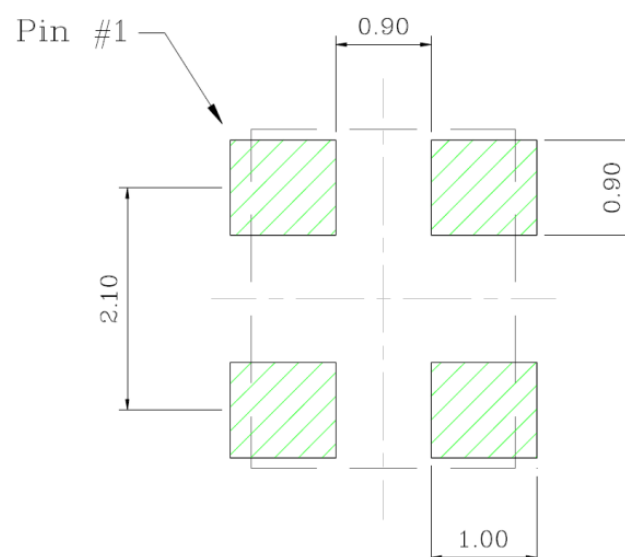
#### Side View



#### Bottom View

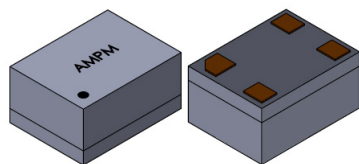


#### Recommended Landing Pattern



Dimensions : mm

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive

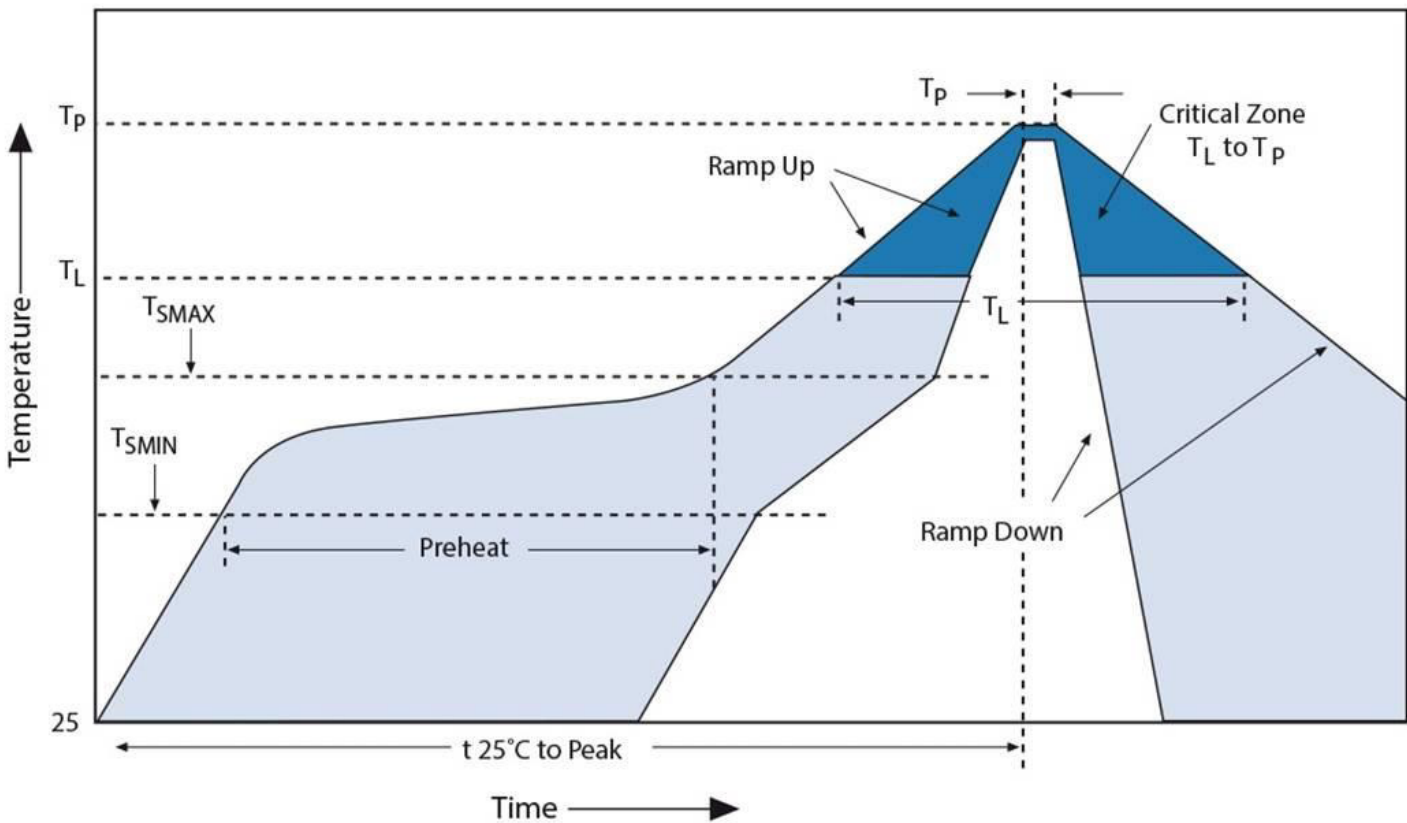


RoHS/RoHS II Compliant

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

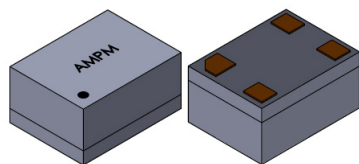
MSL = MSL 1

## REFLOW PROFILE



| Zone | Description    | Temperature                               | Time            |
|------|----------------|-------------------------------------------|-----------------|
| 1    | Preheat / Soak | $T_{SMIN} \sim T_{SMAX}$<br>150°C ~ 200°C | 60 ~ 180 sec.   |
| 2    | Reflow         | $T_L$<br>217°C                            | 60 ~ 150 sec.   |
| 3    | Peak heat      | $T_P$<br>255°C - 260°C                    | 20-40 sec. MAX. |

POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



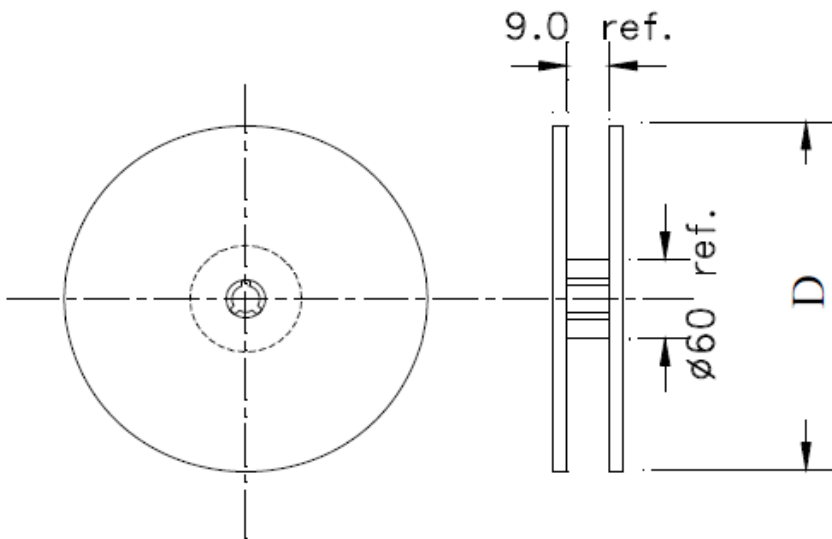
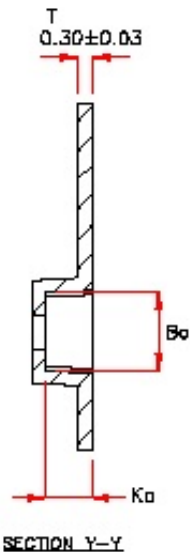
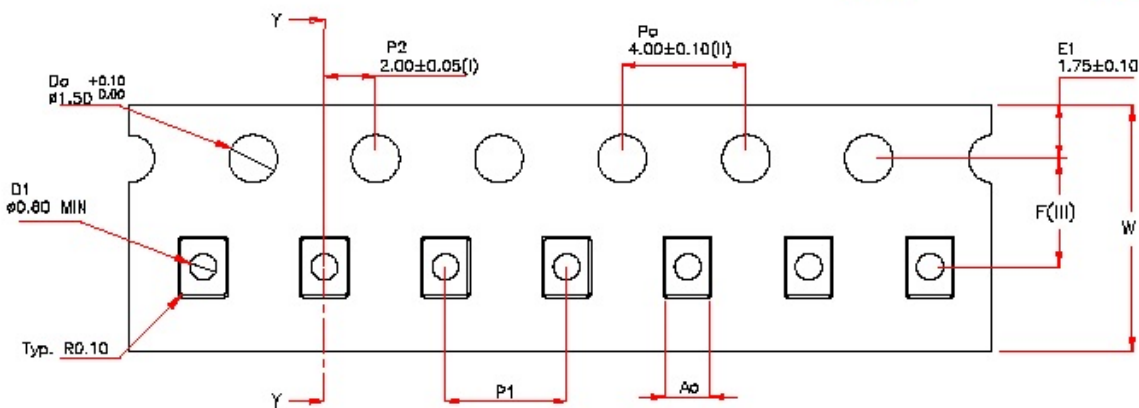
RoHS/RoHS II Compliant  
MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

PACKAGING

Bulk MOQ= 100pcs/Bag\*  
T= 1,000pcs/reel (D=180mm)  
T3= 3,000pcs/reel (D=180mm)

Affected Package Size:  
1.6 mm x 1.2 mm VFLGA



|                |                  |
|----------------|------------------|
| A <sub>0</sub> | 1.40 ± 0.05      |
| B <sub>0</sub> | 1.80 ± 0.05      |
| K <sub>0</sub> | 1.05 ± 0.05      |
| F              | 3.50 ± 0.05      |
| P <sub>1</sub> | 4.00 ± 0.10      |
| W              | 8.00 +0.30/-0.10 |

Dimensions : mm

\* For Quick turn-around programmable sample orders less than MOQ represented above:  
Due to the immediate availability of stock and the qty of the order, the parts may be delivered as Cut Tape,  
Loose parts in Antistatic Bag or in Tube(s).

For orders equal to or greater than MOQ and less than 1000pcs:  
Due to packaging, the order must be a multiple of MOQ per package size above

For orders equal to or greater than 1000 pcs:  
Bulk is not an option. Please refer to tape and reel packaging.

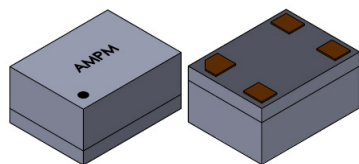


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
www.abracon.com

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

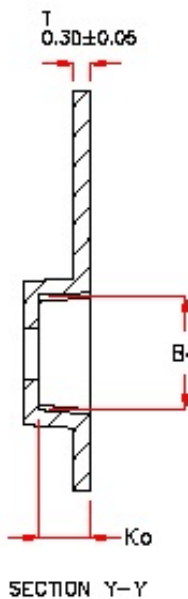
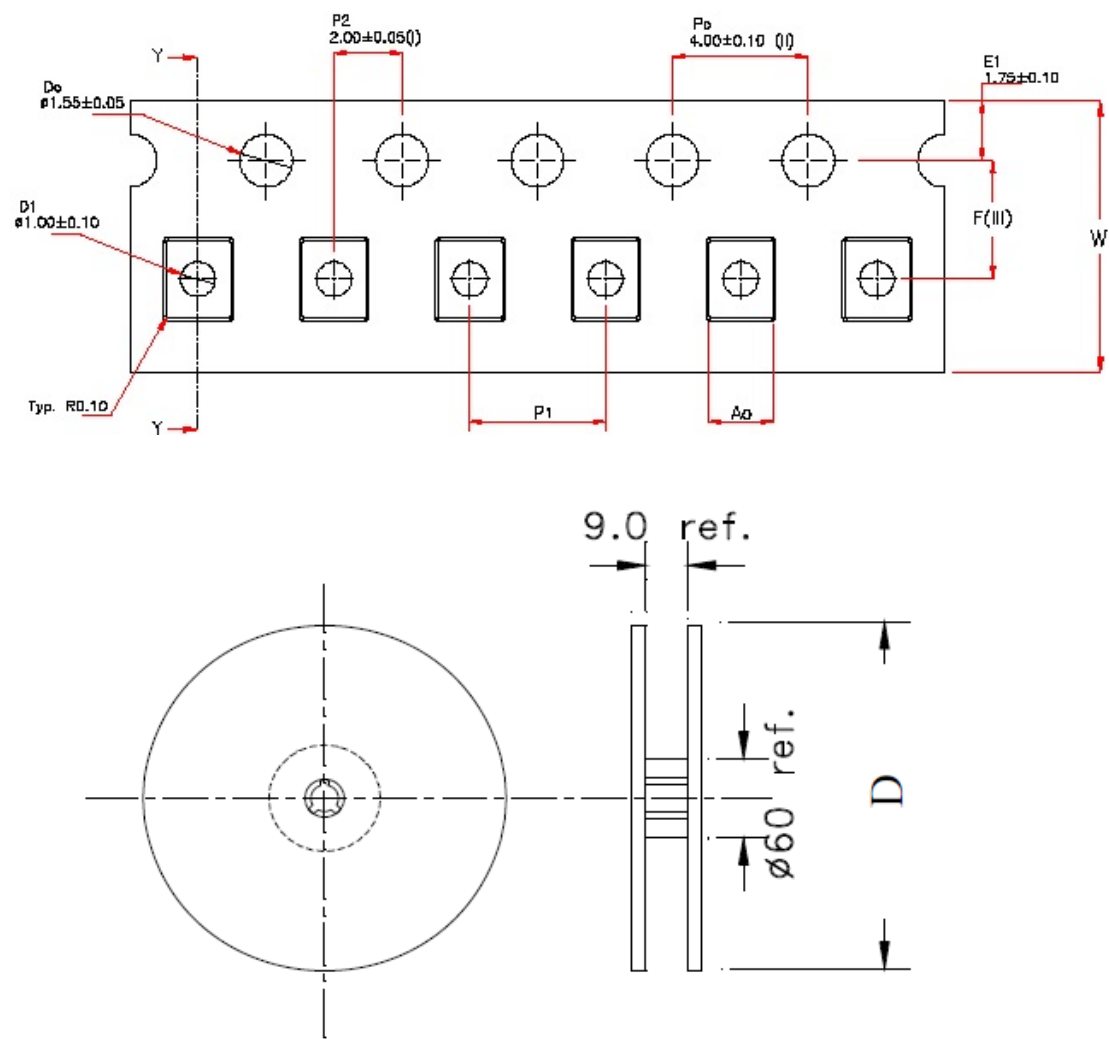
MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

## PACKAGING

Bulk MOQ= 100pcs/Bag\*  
T= 1,000pcs/reel (D=180mm)  
T3= 3,000pcs/reel (D=180mm)

Affected Package Sizes:  
2.0 mm x 1.6 mm VFLGA



|       |                    |
|-------|--------------------|
| $A_0$ | $1.90 \pm 0.05$    |
| $B_0$ | $2.30 \pm 0.05$    |
| $K_0$ | $1.05 \pm 0.05$    |
| $F$   | $3.50 \pm 0.05$    |
| $P_1$ | $4.00 \pm 0.10$    |
| $W$   | $8.00 +0.30/-0.10$ |

### Dimensions : mm

\* For Quick turn-around programmable sample orders less than MOQ represented above:  
Due to the immediate availability of stock and the qty of the order, the parts may be delivered as Cut Tape,  
Loose parts in Antistatic Bag or in Tube(s).

For orders equal to or greater than MOQ and less than 1000pcs:  
Due to packaging, the order must be a multiple of MOQ per package size above

For orders equal to or greater than 1000 pcs:  
Bulk is not an option. Please refer to tape and reel packaging.

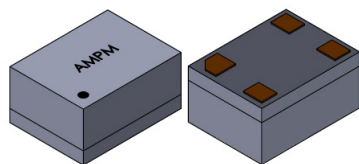


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

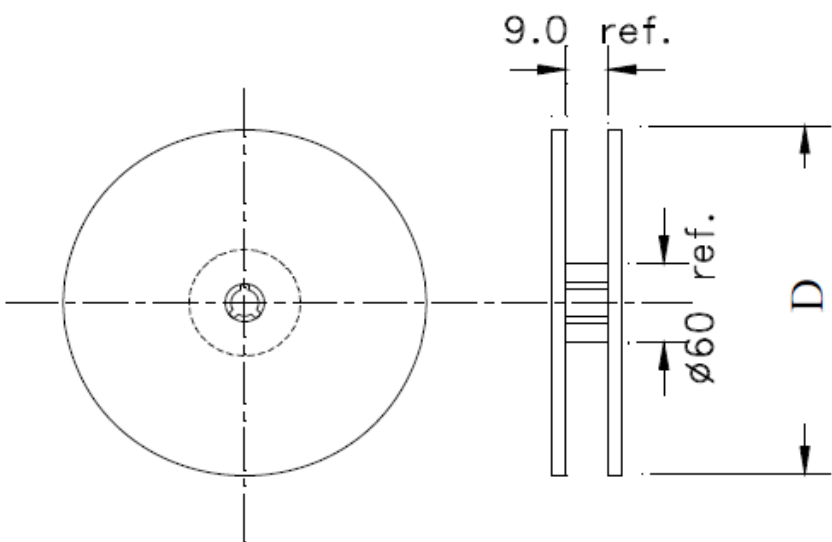
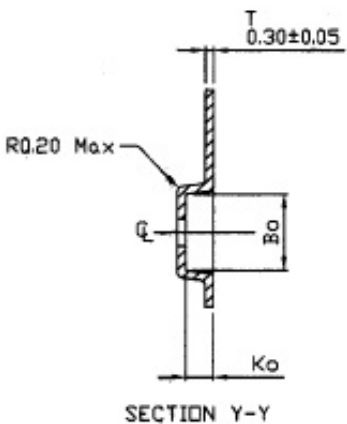
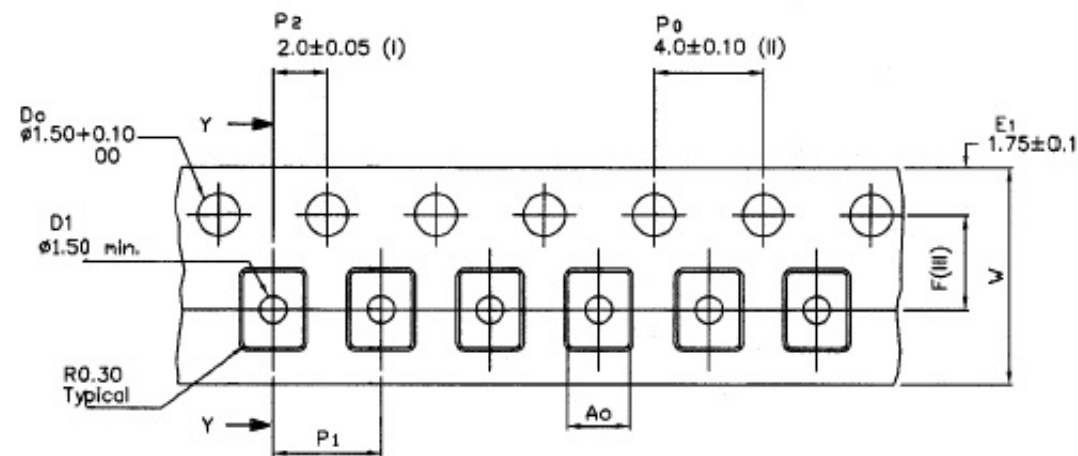
1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

MSL = MSL 1

## PACKAGING

Bulk MOQ= 140pcs/Tube\*  
T= 1,000pcs/reel (D=180mm)  
T3= 3,000pcs/reel (D=180mm)

Affected Package Sizes:  
2.5 mm x 2.0 mm VLGA



|                |                  |
|----------------|------------------|
| A <sub>0</sub> | 2.25± 0.05       |
| B <sub>0</sub> | 2.80± 0.05       |
| K <sub>0</sub> | 1.10 ± 0.05      |
| F              | 3.50 ± 0.05      |
| P <sub>1</sub> | 4.00 ± 0.10      |
| W              | 8.00 +0.30/-0.10 |

### Dimensions : mm

\* For Quick turn-around programmable sample orders less than MOQ represented above:  
Due to the immediate availability of stock and the qty of the order, the parts may be delivered as Cut Tape,  
Loose parts in Antistatic Bag or in Tube(s).

For orders equal to or greater than MOQ and less than 1000pcs:  
Due to packaging, the order must be a multiple of MOQ per package size above

For orders equal to or greater than 1000 pcs:  
Bulk is not an option. Please refer to tape and reel packaging.

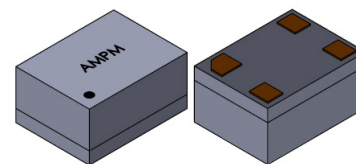


5101 Hidden Creek Ln Spicewood TX 78669  
Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED

# POWER OPTIMIZED MEMS OSCILLATORS



AMPM-SERIES



ESD Sensitive



RoHS/RoHS II Compliant

MSL = MSL 1

1.6 x 1.2 x 0.84 mm  
2.0 x 1.6 x 0.84 mm  
2.5 x 2.0 x 0.84 mm  
3.2 x 2.5 x 0.85 mm

## PACKAGING

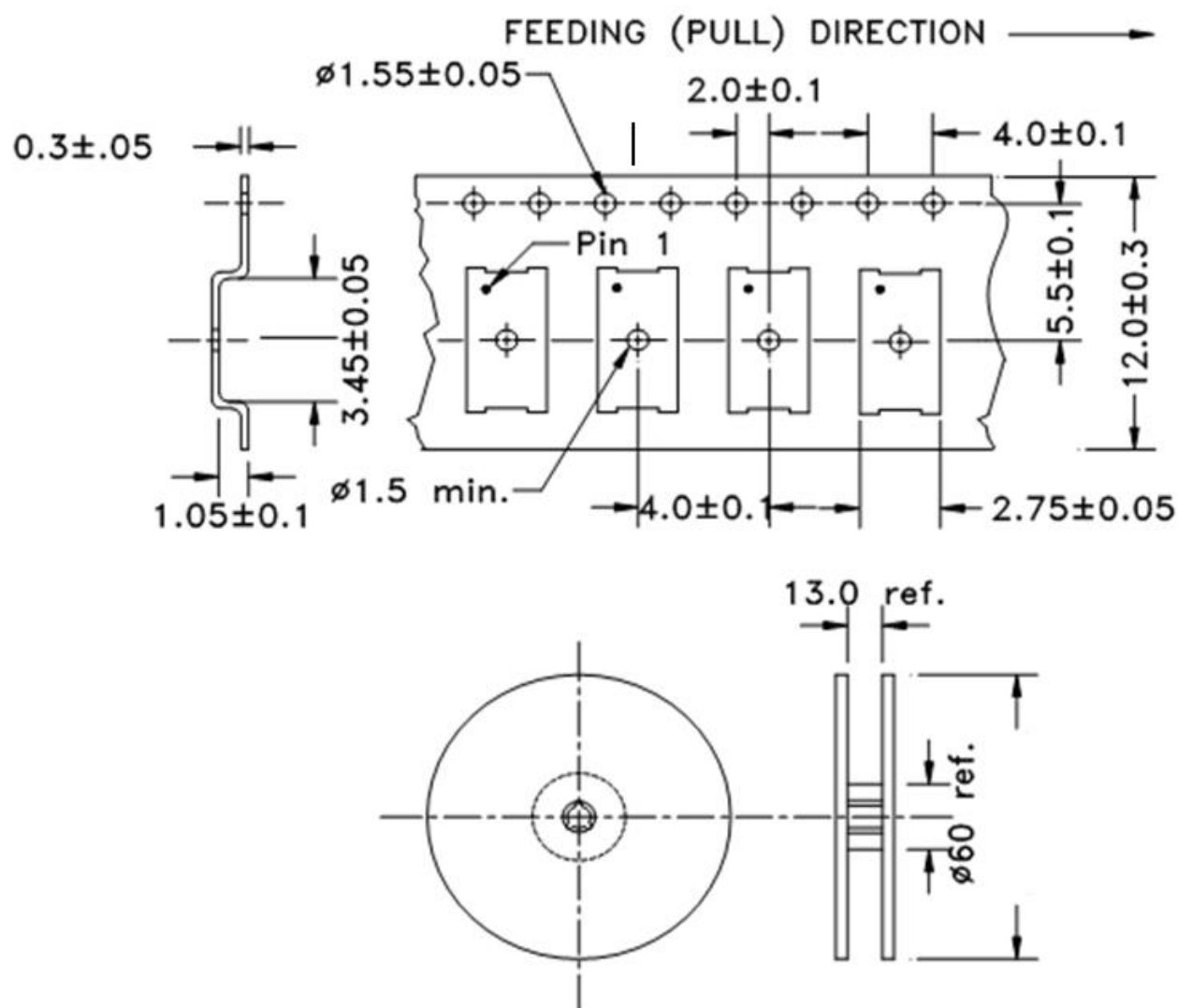
Bulk MOQ= 110pcs/Tube\*

T= 1,000pcs/reel (D=180mm)

T3= 3,000pcs/reel (D=180mm)

Affected Package Sizes:

3.2 mm x 2.5 mm DFN



## Dimensions : mm

\* For Quick turn-around programmable sample orders less than MOQ represented above:

Due to the immediate availability of stock and the qty of the order, the parts may be delivered as Cut Tape, Loose parts in Antistatic Bag or in Tube(s).

For orders equal to or greater than MOQ and less than 1000pcs:

Due to packaging, the order must be a multiple of MOQ per package size above

For orders equal to or greater than 1000pcs:

Bulk is not an option. Please refer to tape and reel packaging.



5101 Hidden Creek Ln Spicewood TX 78669

Phone: 512-371-6159 | Fax: 512-351-8858

For terms and conditions of sales, please visit:

[www.abracon.com](http://www.abracon.com)

REVISED: 08.02.2018

ABRACON IS  
ISO9001-2015  
CERTIFIED