



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



3.2 x 2.5 x 0.75mm

 RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

## ABM8W SERIES

### FEATURES

- Optimized for energy saving wearables and IoT applications
- Plated at exceptionally low plating capacitance, as low as 4pF, with optimized ESR
- 0.75 mm max height ideally suited for height constrained designs
- Seam sealed for longterm reliability

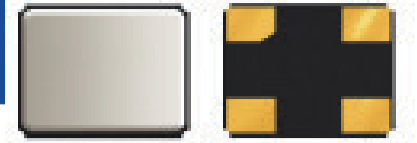
### APPLICATIONS

- Wearables
- Internet of Things (IoT)
- Bluetooth/Bluetooth Low Energy (BLE)
- Wireless modules
- Machine-to-machine (M2M) connectivity
- Ultra-low power MCU
- Near Field Communication (NFC)
- ISM Band

### STANDARD SPECIFICATIONS

| Parameters  | Minimum     | Typical | Maximum | Units | Notes                |
|---|-------------|---------|---------|-------|----------------------|
| Frequency Range   | 10.0000     |         | 54.0000 | MHz   |                      |
| Operation Mode  | Fundamental |         |         |       |                      |
| Operating Temperature Range   | -40         |         | +125    | °C    | See options          |
| Storage Temperature   | -55         |         | +125    | °C    |                      |
| Frequency Tolerance @ +25°C   | -10         |         | +10     | ppm   | See options          |
| Frequency Stability over the Operating Temperature ( ref. to +25°C) | -10         |         | +10     | ppm   | See options          |
| Equivalent series resistance (R1)<br>(over -40°C to +125°C)         |             | < 100   | 200     | Ω     | 10.0000 – 11.9999MHz |
|   |             | < 60    | 100     |       | 12.0000 – 15.9999MHz |
|   |             | < 40    | 70      |       | 16.0000 – 19.9999MHz |
|   |             | < 25    | 50      |       | 20.0000 – 29.9999MHz |
|   |             | < 20    | 40      |       | 30.0000 – 39.9999MHz |
|   |             | < 18    | 30      |       | 40.0000 – 54.0000MHz |
| Shunt capacitance (C0)  |             | < 1.2   | 2.0     | pF    |                      |
| Load capacitance (CL)   |             | 4.0     |         | pF    | See options          |
| Drive Level   |             | 10      | 100     | μW    |                      |
| Aging (1 year)  | -2          |         | +2      | ppm   | @ 25°C±3°C           |
| Insulation Resistance   | 500         |         |         | MΩ    | @ 100Vdc ± 15V       |

# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



3.2 x 2.5 x 0.75mm



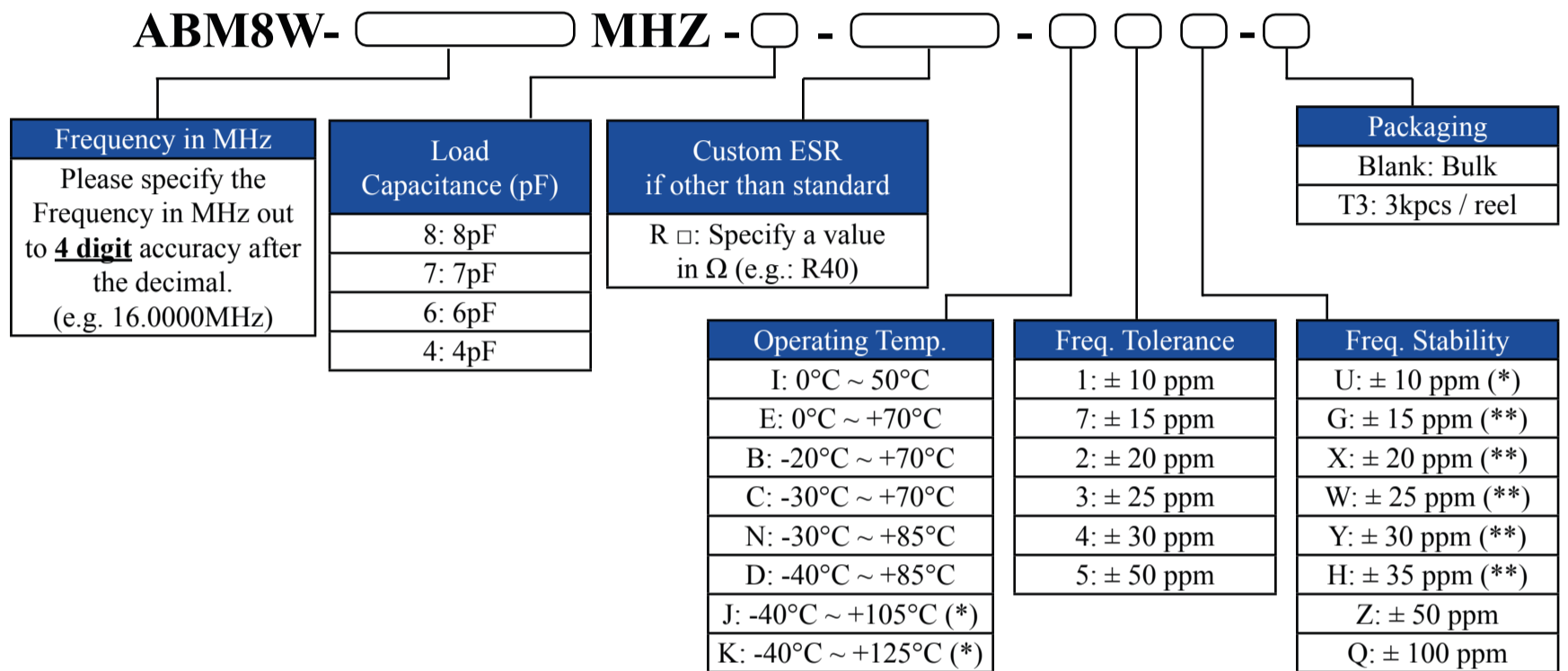
RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

## ABM8W SERIES

### OPTIONS AND PART IDENTIFICATION (NOTE 1)

**Note 1:** Contact Abracon for part number requests with carrier frequency callouts up to 5&6 digit accuracy after the decimal.



(\*) Only offered @ Freq. Stability options: Z & Q.

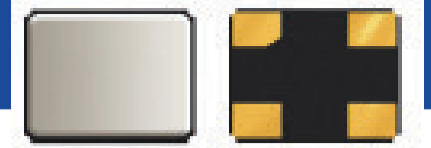
Contact ABRACON for tighter Frequency Stability.

(\*) Only offered @ Operating Temp. Range options: I, E, & B

(\*\*) Only offered @ Operating Temp. Range options: I, E, B, C, N, & D

Contact ABRACON for wider Operating Temp. Range.

# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



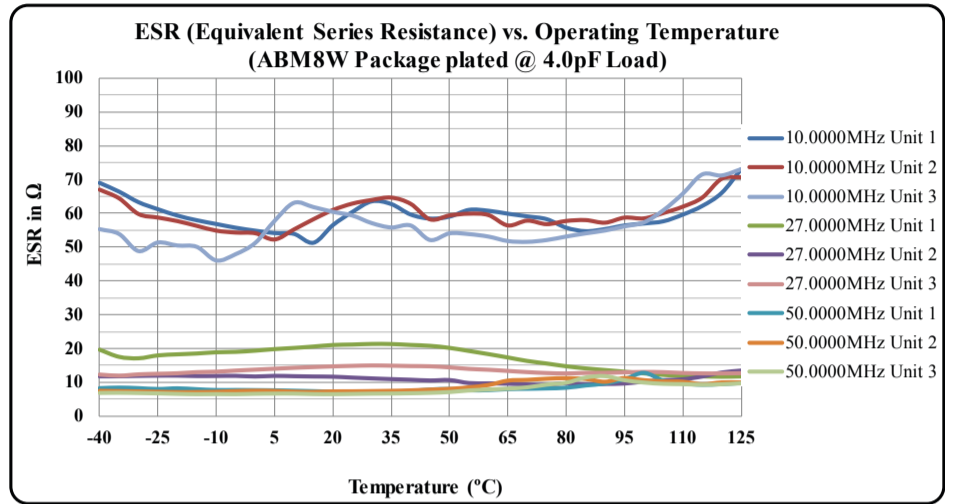
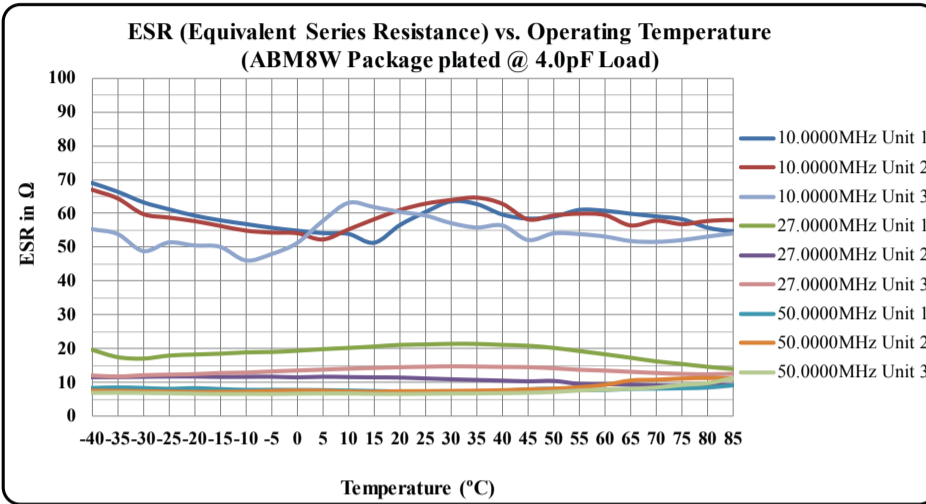
3.2 x 2.5 x 0.75mm

RoHS/RoHS II Compliant

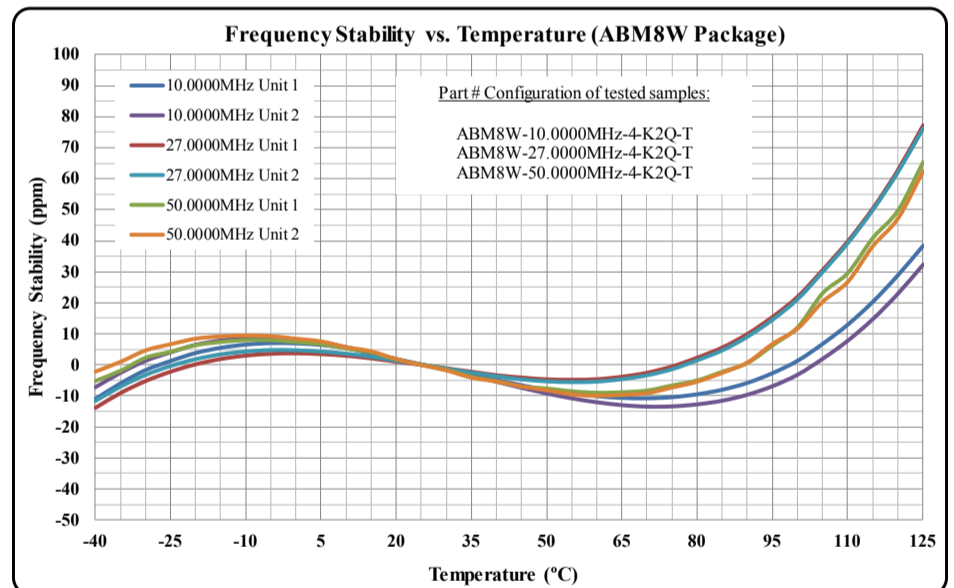
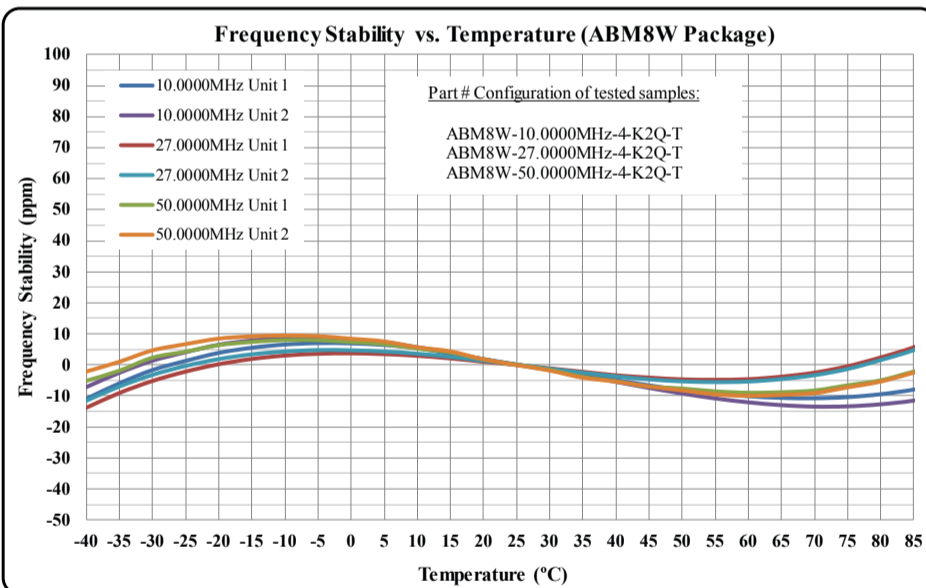
MSL = N/A: NOT APPLICABLE

## ABM8W SERIES

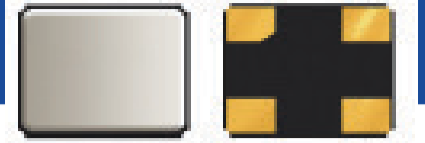
### TYPICAL ESR (EQUIVALENT SERIES RESISTANCE) Vs. TEMPERATURE CHARACTERISTICS



### TYPICAL FREQUENCY Vs. TEMPERATURE CHARACTERISTICS



# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



ABM8W SERIES

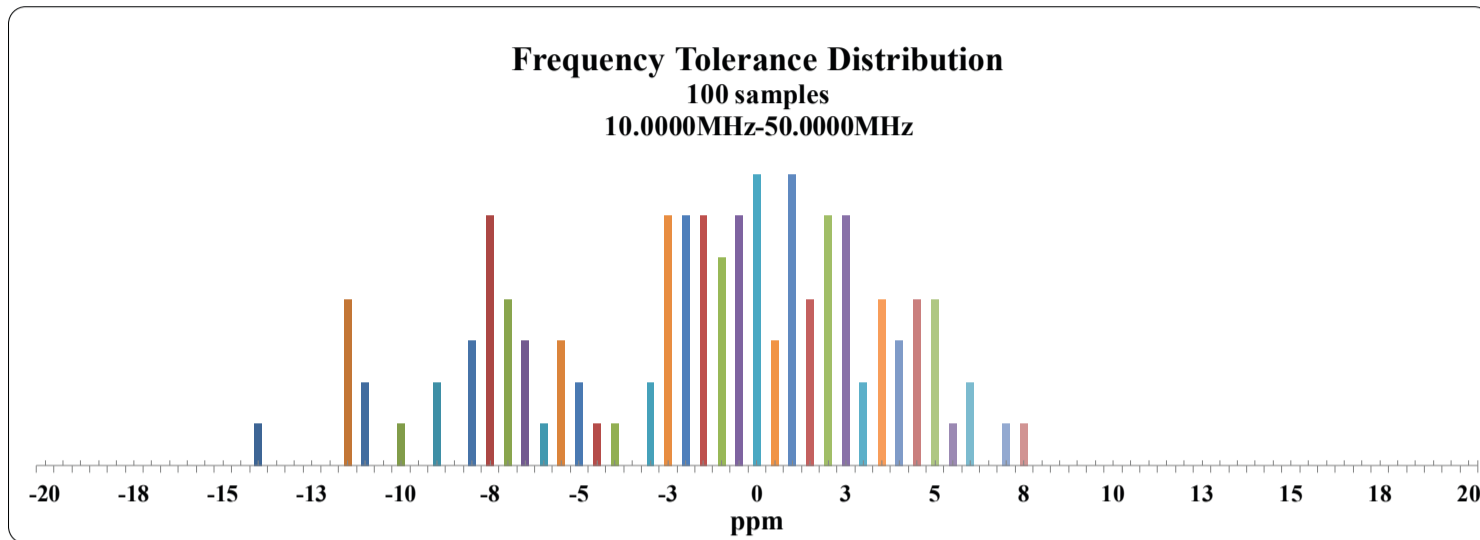
3.2 x 2.5 x 0.75mm



RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

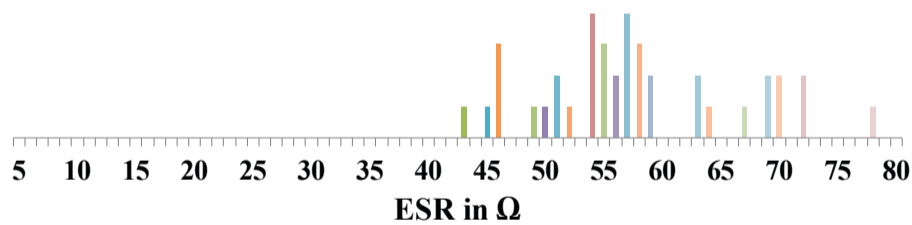
## TYPICAL FREQUENCY TOLERANCE DISTRIBUTION (AT 25°C ± 3°C)



## TYPICAL ESR DISTRIBUTION (AT 25°C ± 3°C)

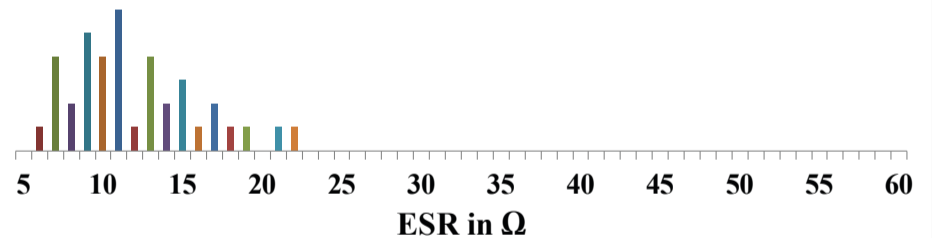
### ESR Distribution @ 10.0000MHz

100 samples  
MAX ESR = 77.7 Ω



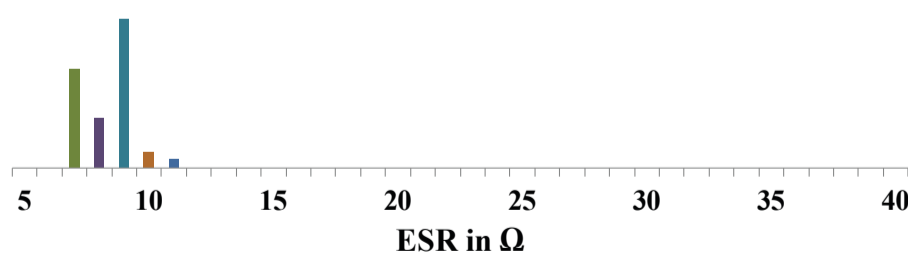
### ESR Distribution @ 27.0000MHz

100 samples  
MAX ESR = 21.6 Ω



### ESR Distribution @ 50.0000MHz

100 samples  
MAX ESR = 10.23 Ω



# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



ABM8W SERIES

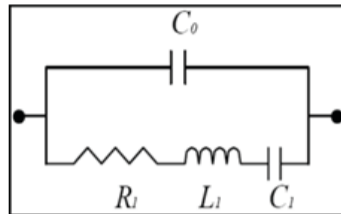
3.2 x 2.5 x 0.75mm



RoHS/RoHS II Compliant

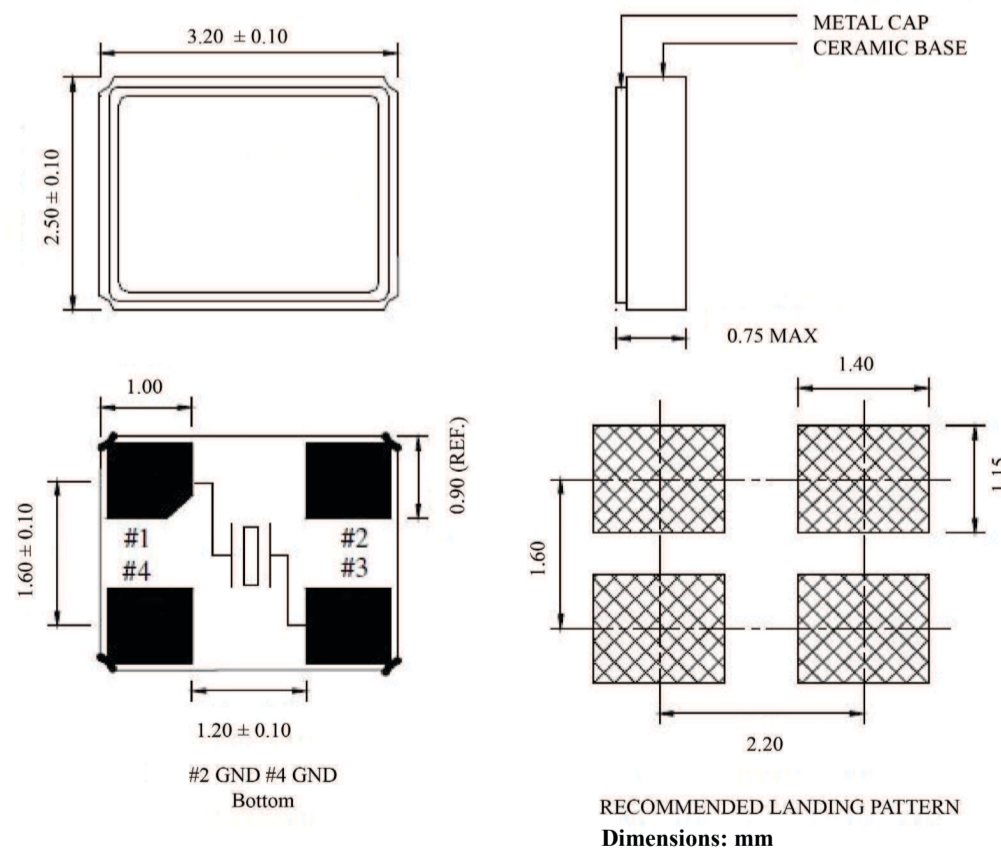
MSL = N/A: NOT APPLICABLE

## SPICE MODELS (BASED ON TYPICAL VALUES AT 25°C ± 3°C)



|                              |   |        |    |                              |   |        |    |
|------------------------------|---|--------|----|------------------------------|---|--------|----|
| <b>Frequency: 10.0000MHz</b> |   |        |    | <b>Frequency: 10.0000MHz</b> |   |        |    |
| <b>Plating Load: 4pF</b>     |   |        |    | <b>Plating Load: 6pF</b>     |   |        |    |
| C0                           | = | 0.88   | pF | C0                           | = | 0.86   | pF |
| R1                           | = | 53.82  | Ω  | R1                           | = | 60.62  | Ω  |
| L1                           | = | 162.02 | mH | L1                           | = | 164.96 | mH |
| C1                           | = | 1.56   | fF | C1                           | = | 1.54   | fF |
| <b>Frequency: 27.0000MHz</b> |   |        |    | <b>Frequency: 27.0000MHz</b> |   |        |    |
| <b>Plating Load: 4pF</b>     |   |        |    | <b>Plating Load: 6pF</b>     |   |        |    |
| C0                           | = | 1.16   | pF | C0                           | = | 1.16   | pF |
| R1                           | = | 11.83  | Ω  | R1                           | = | 11.06  | Ω  |
| L1                           | = | 9.16   | mH | L1                           | = | 9.10   | mH |
| C1                           | = | 3.80   | fF | C1                           | = | 3.82   | fF |
| <b>Frequency: 50.0000MHz</b> |   |        |    | <b>Frequency: 50.0000MHz</b> |   |        |    |
| <b>Plating Load: 4pF</b>     |   |        |    | <b>Plating Load: 6pF</b>     |   |        |    |
| C0                           | = | 1.16   | pF | C0                           | = | 1.15   | pF |
| R1                           | = | 7.61   | Ω  | R1                           | = | 8.06   | Ω  |
| L1                           | = | 2.45   | mH | L1                           | = | 2.49   | mH |
| C1                           | = | 4.14   | fF | C1                           | = | 4.07   | fF |

## MECHANICAL DIMENSIONS



### Note:

Due to material availability the Chamfer could be located on pin #1, 2 or 4. Be advised that the Chamfer location has no impact on the electrical performance of the device.

# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



ABM8W SERIES

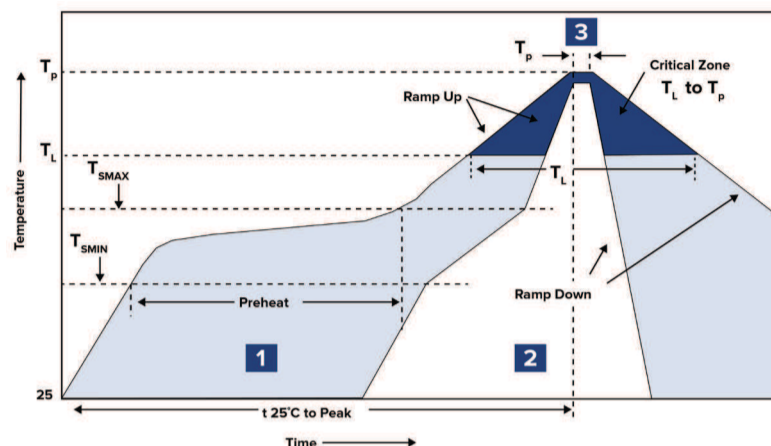
3.2 x 2.5 x 0.75mm



RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

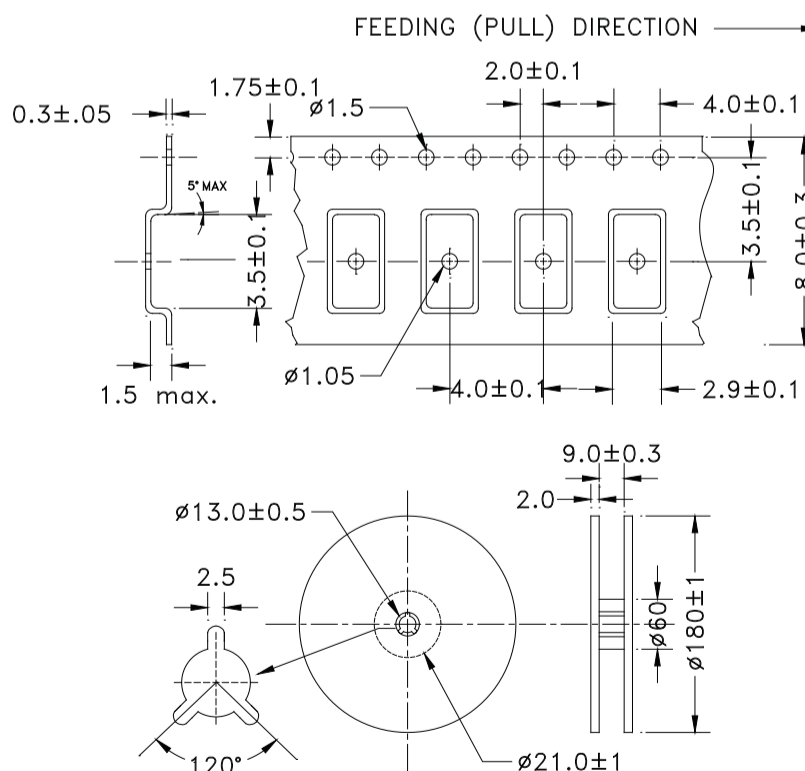
## REFLOW PROFILE



| Zone | Description | Temperature                               | Time          |
|------|-------------|---|---------------|
| 1    | Preheat     | $T_{SMIN} \sim T_{SMAX}$<br>150°C ~ 180°C | 60 ~ 120 sec. |
| 2    | Reflow      | $T_L$<br>217°C                            | 45 ~ 90 sec.  |
| 3    | Peak Heat   | $T_P$<br>260°C MAX                        | 10 sec.       |

## PACKAGING

T3: Tape and reel (3,000 pcs/reel)



DIMENSIONS: mm