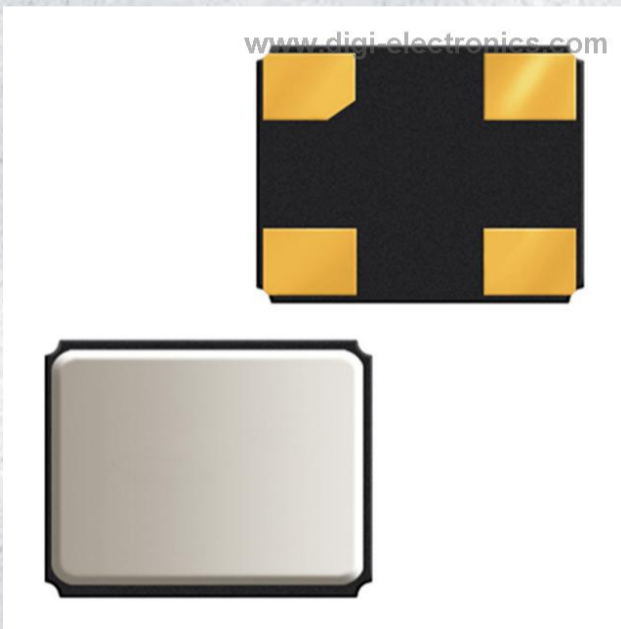


# ABM11W-48.0000MHZ-8-K1Z-T3 Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	ABM11W-48.0000MHZ-8-K1Z-T3-DG
Manufacturer	<a href="#">Abracon LLC</a>
Manufacturer Product Number	ABM11W-48.0000MHZ-8-K1Z-T3
Description	CRYSTAL 48.0000MHZ 8PF SMD
Detailed Description	48 MHz $\pm$ 10ppm Crystal 8pF 40 Ohms 4-SMD, No Lead

This model ABM11W-48.0000MHZ-8-K1Z-T3 is available at DiGi Electronics.

DiGi Electronics offers a global database of semiconductor and electronic component datasheets.

We welcome your inquiries regarding pricing, lead time, or other product-related questions.

 [Request a Quote](#)

 [Datasheet Search](#)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

Manufacturer Product Number:

ABM11W-48.0000MHZ-8-K1Z-T3

Series:

ABM11W

Type:

MHz Crystal

Frequency Stability:

±50ppm

Load Capacitance:

8pF

Operating Mode:

Fundamental

Ratings:

-

Package / Case:

4-SMD, No Lead

Height - Seated (Max):

0.020" (0.50mm)

Manufacturer:

Abracon LLC

Product Status:

Active

Frequency:

48 MHz

Frequency Tolerance:

±10ppm

ESR (Equivalent Series Resistance):

40 Ohms

Operating Temperature:

-40°C ~ 125°C

Mounting Type:

Surface Mount

Size / Dimension:

0.079" L x 0.063" W (2.00mm x 1.60mm)

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.60.0060

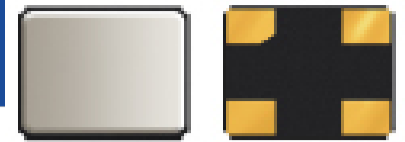
Moisture Sensitivity Level (MSL):

Not Applicable

ECCN:

EAR99

## IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



2.0 x 1.6 x 0.5mm



RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

## ABM11W SERIES

## FEATURES

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

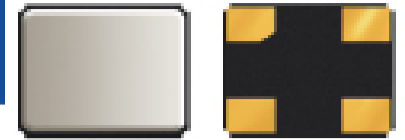
## APPLICATIONS

- 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	16.0000		50.0000	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" (over Operating Temperature Range) (CL=4pF)		< 150	200	Ω	16.0000 – 17.9999MHz
		< 80	120		18.0000 – 20.9999MHz
		< 60	100		21.0000 – 29.9999MHz
		< 50	80		30.0000 – 37.9999MHz
		< 30	60		38.0000 – 50.0000MHz
Equivalent series resistance "R1" (over Operating Temperature Range) (CL=6pF, 7pF, 8pF)		< 120	150	Ω	16.0000 – 17.9999MHz
		< 80	120		18.0000 – 20.9999MHz
		< 60	100		21.0000 – 23.9999MHz
		< 30	50		24.0000 – 29.9999MHz
		< 30	50		30.0000 – 37.9999MHz
		< 30	40		38.0000 – 50.0000MHz
Shunt capacitance (C0)		< 1.0	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



2.0 x 1.6 x 0.5mm



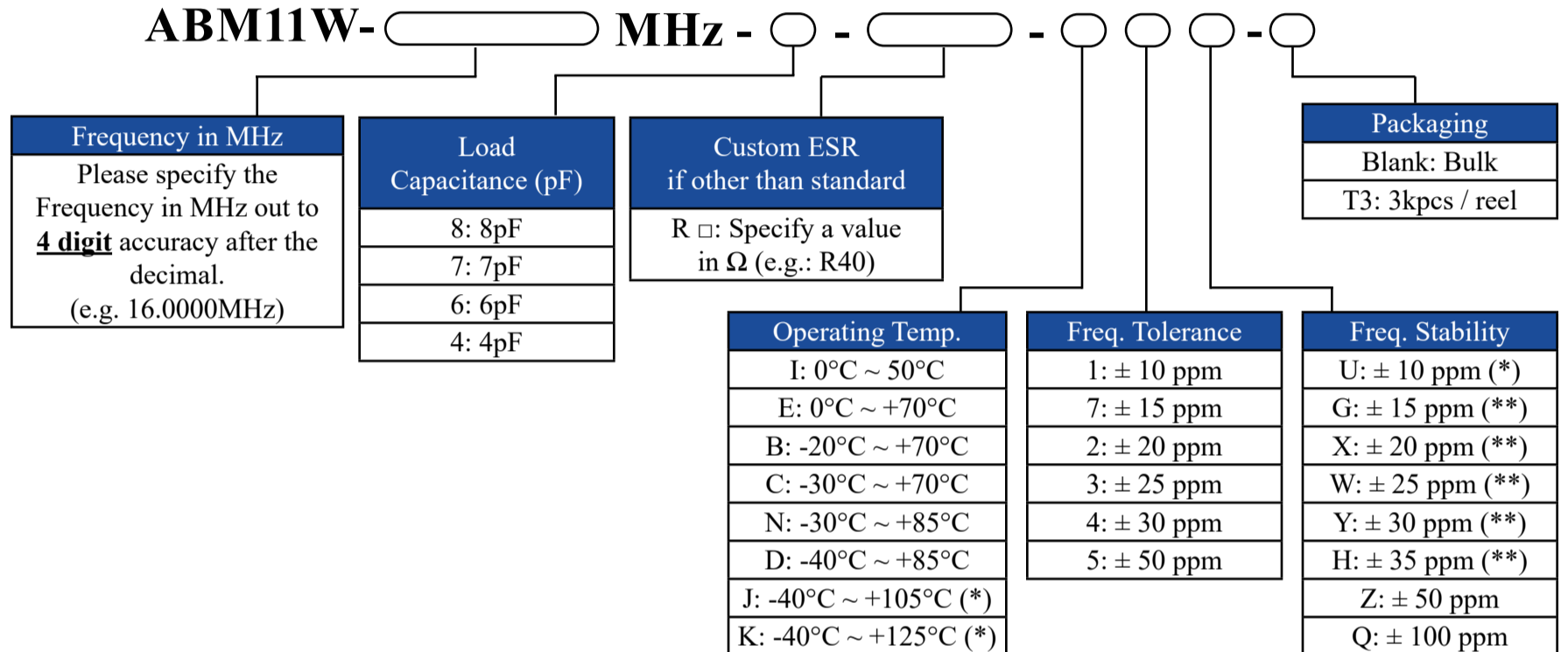
RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

ABM11W 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



2.0 x 1.6 x 0.5mm

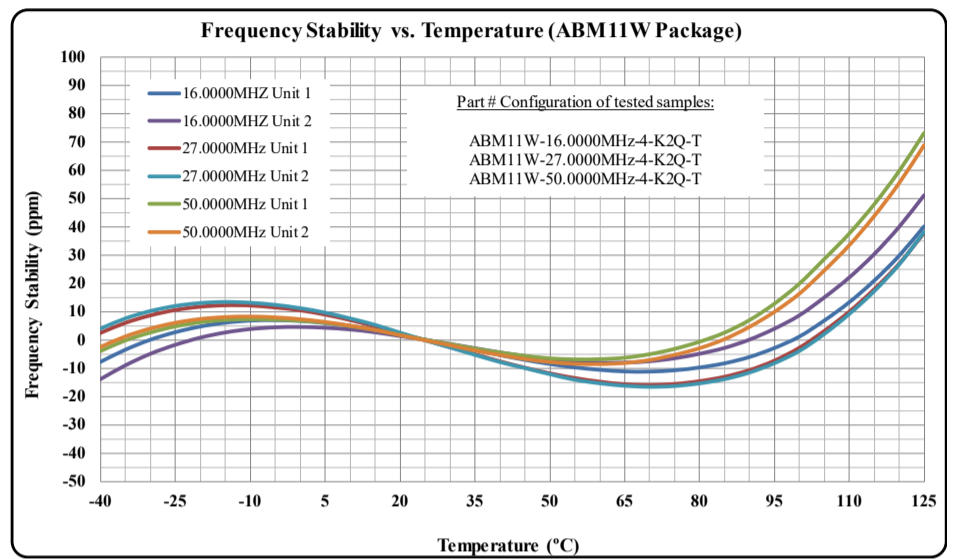
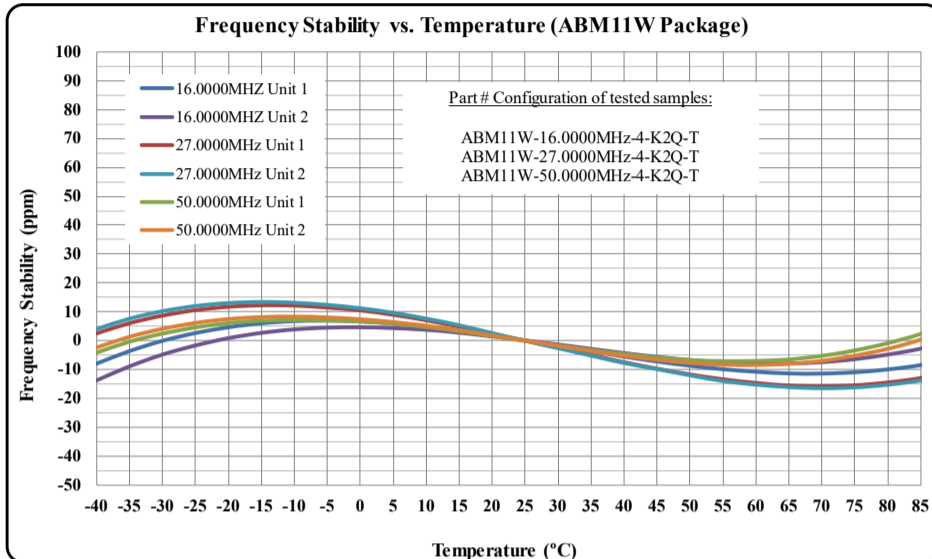


RoHS/RoHS II Compliant

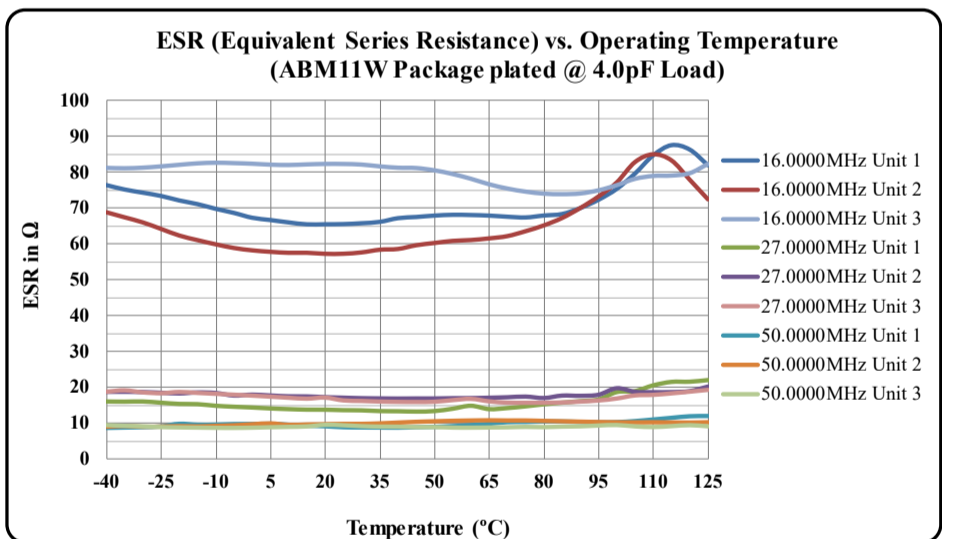
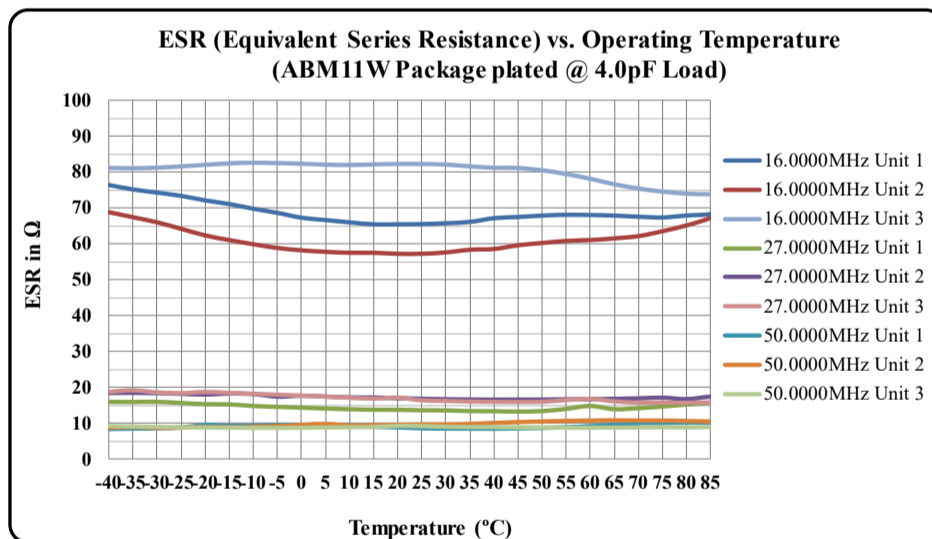
MSL = N/A: NOT APPLICABLE

ABM11W SERIES

## TYPICAL FREQUENCY Vs. TEMPERATURE CHARACTERISTICS



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



(\* ) Plating Load = Load Capacitance (CL)

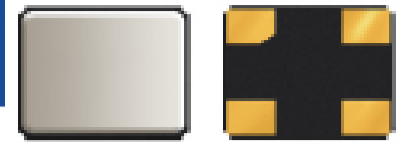


5101 Hidden Creek Ln Spicewood TX 78669  
 Phone: 512-371-6159 | Fax: 512-351-8858  
 For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 10.06.2020

ABRACON IS  
 ISO9001-2015  
 CERTIFIED

# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



2.0 x 1.6 x 0.5mm

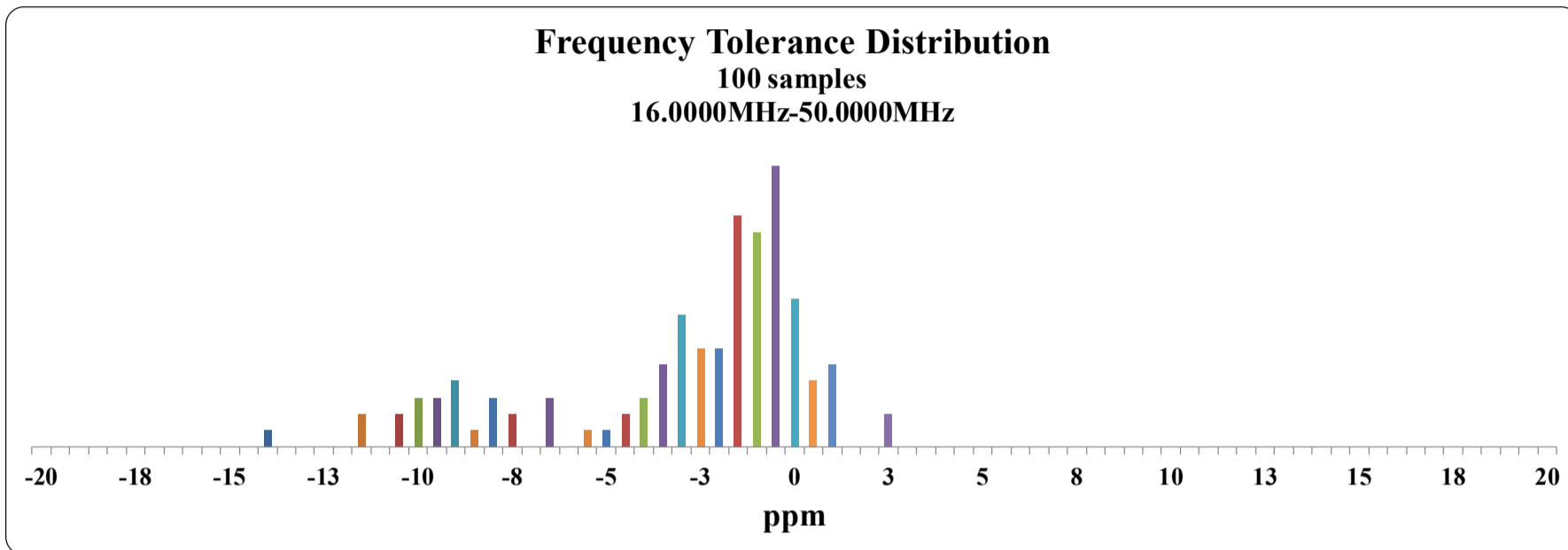


RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

ABM11W SERIES

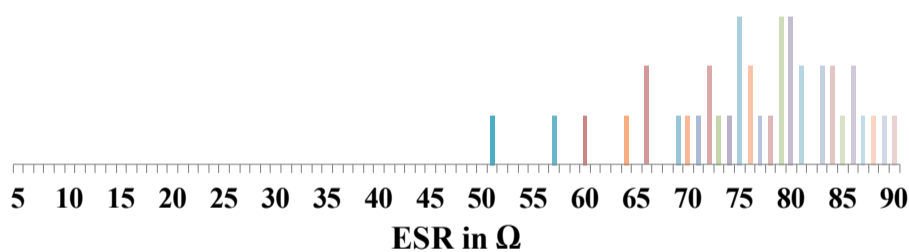
## TYPICAL FREQUENCY TOLERANCE DISTRIBUTION (AT 25°C ± 3°C)



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

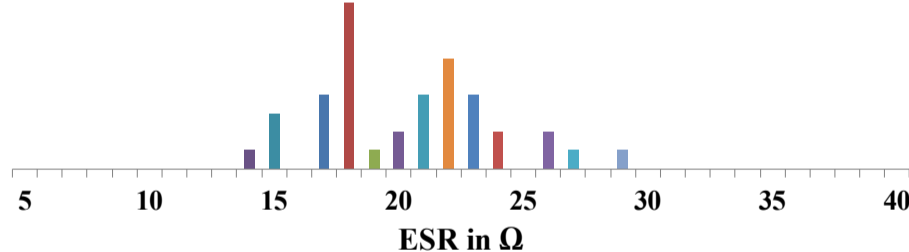
### ESR Distribution @ 16.0000MHz

100 samples  
MAX ESR = 89.5 Ω



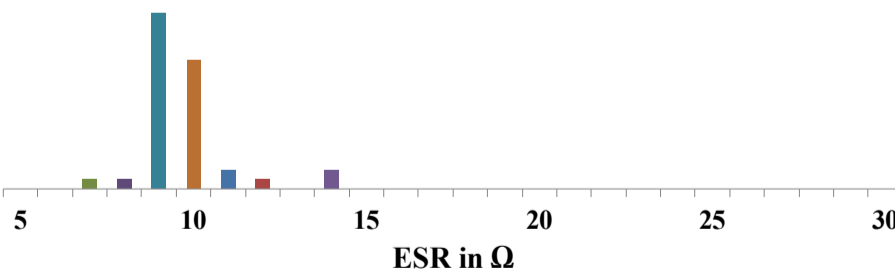
### ESR Distribution @ 27.0000MHz

100 samples  
MAX ESR = 28.3 Ω



### ESR Distribution @ 50.0000MHz

100 samples  
MAX ESR = 13.4 Ω



# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



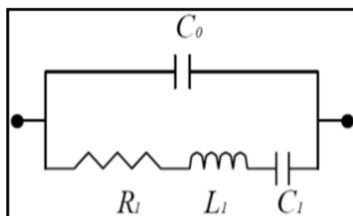
ABM11W SERIES

2.0 x 1.6 x 0.5mm

RoHS/RoHS II Compliant

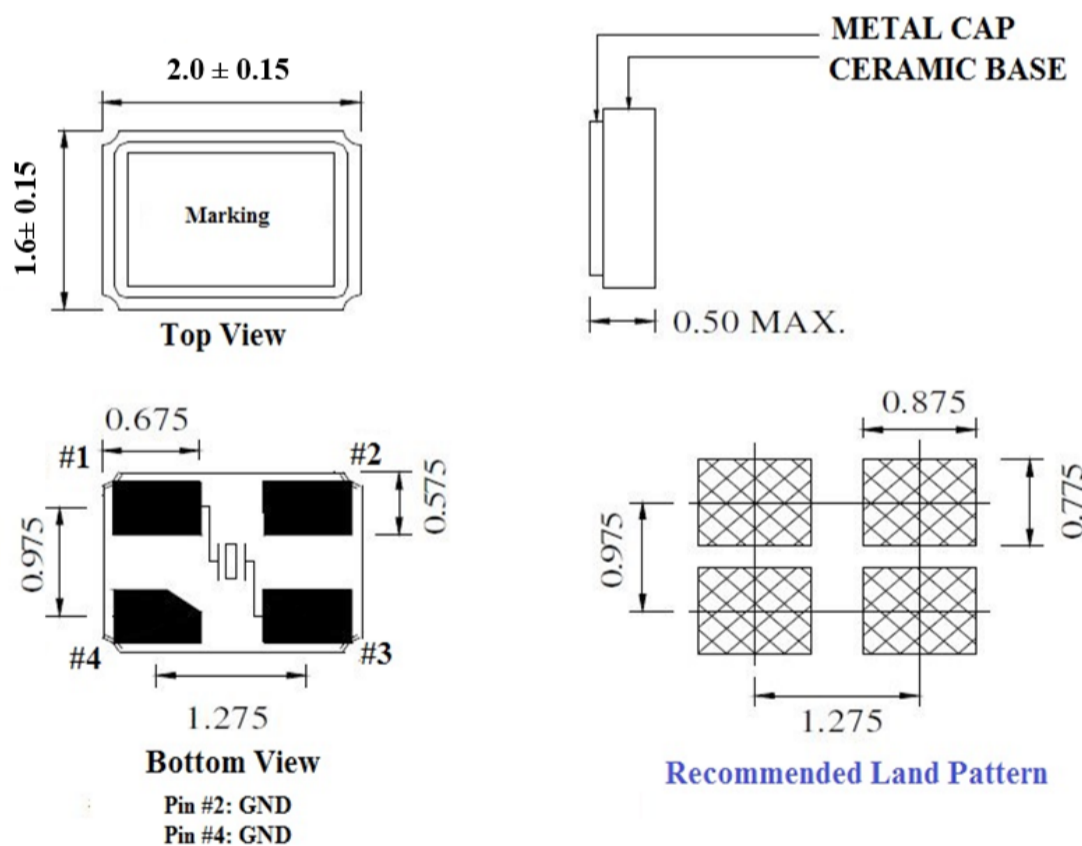
MSL = N/A: NOT APPLICABLE

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



<b>Frequency: 16.0000MHz</b>				<b>Frequency: 16.0000MHz</b>			
<b>Plating Load: 4pF</b>				<b>Plating Load: 6pF</b>			
C0	=	0.73	pF	C0	=	0.71	pF
R1	=	73.02	Ω	R1	=	81.42	Ω
L1	=	84.25	mH	L1	=	81.33	mH
C1	=	1.18	fF	C1	=	1.22	fF
<b>Frequency: 27.0000MHz</b>				<b>Frequency: 27.0000MHz</b>			
<b>Plating Load: 4pF</b>				<b>Plating Load: 6pF</b>			
C0	=	0.78	pF	C0	=	0.76	pF
R1	=	18.71	Ω	R1	=	20.45	Ω
L1	=	18.08	mH	L1	=	18.44	mH
C1	=	1.92	fF	C1	=	1.89	fF
<b>Frequency: 50.0000MHz</b>				<b>Frequency: 50.0000MHz</b>			
<b>Plating Load: 4pF</b>				<b>Plating Load: 6pF</b>			
C0	=	0.92	pF	C0	=	0.97	pF
R1	=	9.02	Ω	R1	=	8.49	Ω
L1	=	3.53	mH	L1	=	3.21	mH
C1	=	2.88	fF	C1	=	3.15	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.

**DIMENSIONS: MM**

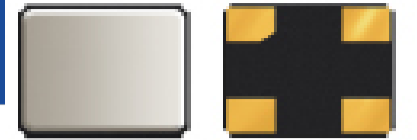


5101 Hidden Creek Ln Spicewood TX 78669  
 Phone: 512-371-6159 | Fax: 512-351-8858  
 For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

**REVISED: 10.06.2020**

ABRACON IS  
 ISO9001-2015  
 CERTIFIED

# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



ABM11W SERIES

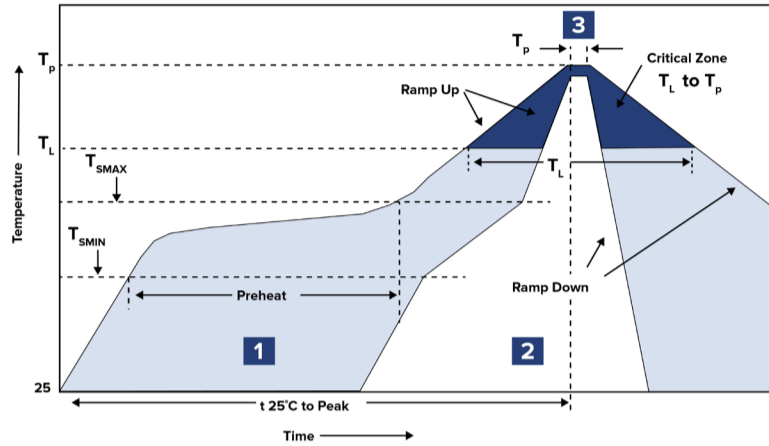
2.0 x 1.6 x 0.5mm



RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE

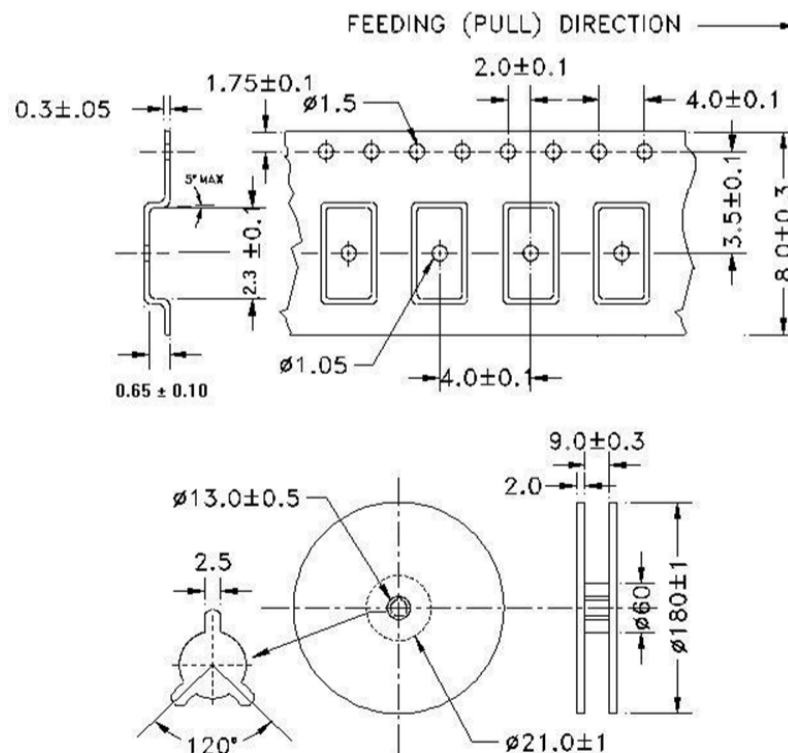
## REFLOW PROFILE



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

## PACKAGING

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



DIMENSIONS: mm



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: 10.06.2020

ABRACON IS  
 ISO9001-2015  
 CERTIFIED

## OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricy control the quality of products and services. Welcome your RFQ to

Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.