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

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

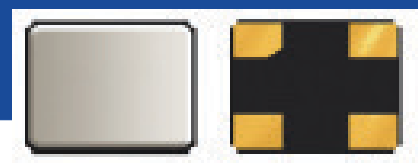
- Wearables
- Internet of Things (IoT)
- Bluetooth/Bluetooth Low Energy (BLE)
- Wireless modules
- Machine-to-machine (M2M) connectivity
- Ultra-low power MCU
- Near Field Communication (NFC)
- ISM Band

STANDARD SPECIFICATIONS

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	10.0000		54.0000	MHz	
Operation Mode		Fundamental			
Operating Temperature Range	-40		+125	ºC	See options
Storage Temperature	-55		+125	ºC	
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 -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

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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.

ABM8W- [ ] MHZ - [ ] - [ ] - [ ] - [ ] - [ ]

Frequency in MHz
Please specify the Frequency in MHz out to **4 digit** accuracy after the decimal. (e.g. 16.0000MHz)

Load Capacitance (pF)
8: 8pF
7: 7pF
6: 6pF
4: 4pF

Custom ESR if other than standard
R □: Specify a value in Ω (e.g.: R40)

Operating Temp.
I: 0°C ~ 50°C
E: 0°C ~ +70°C
B: -20°C ~ +70°C
C: -30°C ~ +70°C
N: -30°C ~ +85°C
D: -40°C ~ +85°C
J: -40°C ~ +105°C (*)
K: -40°C ~ +125°C (*)

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

Contact ABRACON for tighter Frequency Stability.

Freq. Tolerance
1: ± 10 ppm
7: ± 15 ppm
2: ± 20 ppm
3: ± 25 ppm
4: ± 30 ppm
5: ± 50 ppm

Freq. Stability
U: ± 10 ppm (*)
G: ± 15 ppm (**)
X: ± 20 ppm (**)
W: ± 25 ppm (**)
Y: ± 30 ppm (**)
H: ± 35 ppm (**)
Z: ± 50 ppm
Q: ± 100 ppm

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

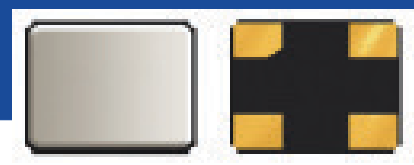
(**) Only offered @ Operating Temp. Range options: I, E, B, C, N, & D

Contact ABRACON for wider Operating Temp. Range.

Packaging
Blank: Bulk
T3: 3kpcs / reel

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ABM8W SERIES

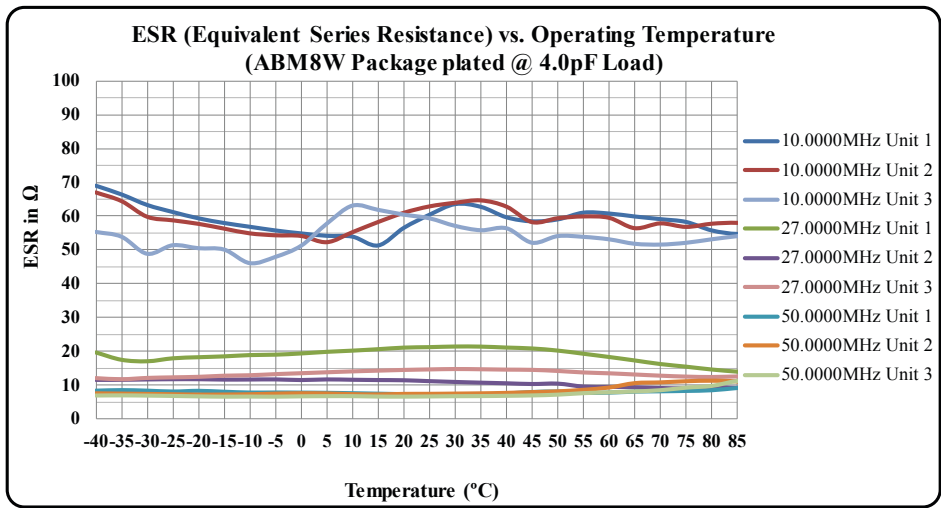


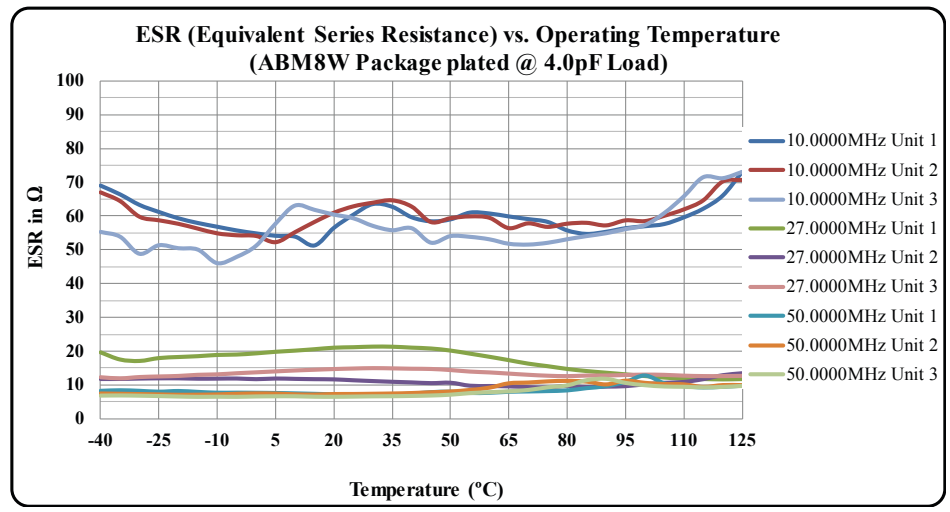
3.2 x 2.5 x 0.75mm

Pb RoHS/RoHS II Compliant

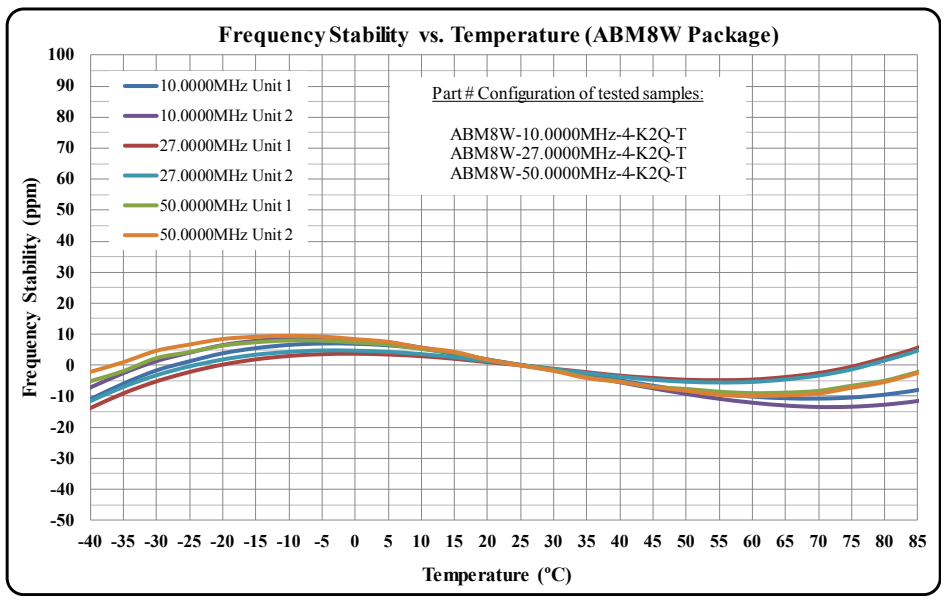
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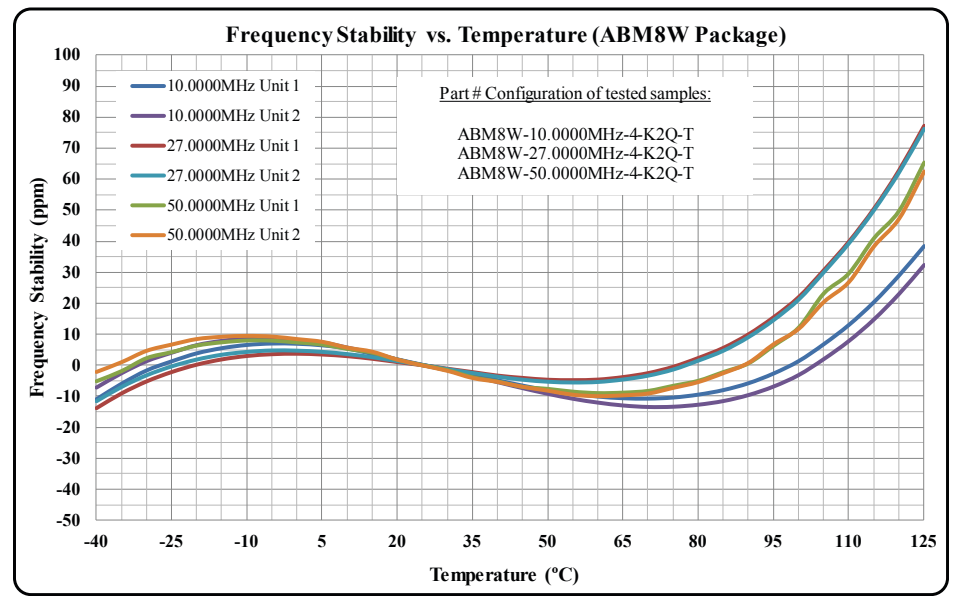
TYPICAL ESR (EQUIVALENT SERIES RESISTANCE) Vs. TEMPERATURE CHARACTERISTICS





TYPICAL FREQUENCY Vs. TEMPERATURE CHARACTERISTICS





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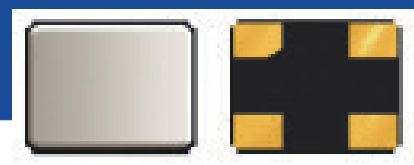
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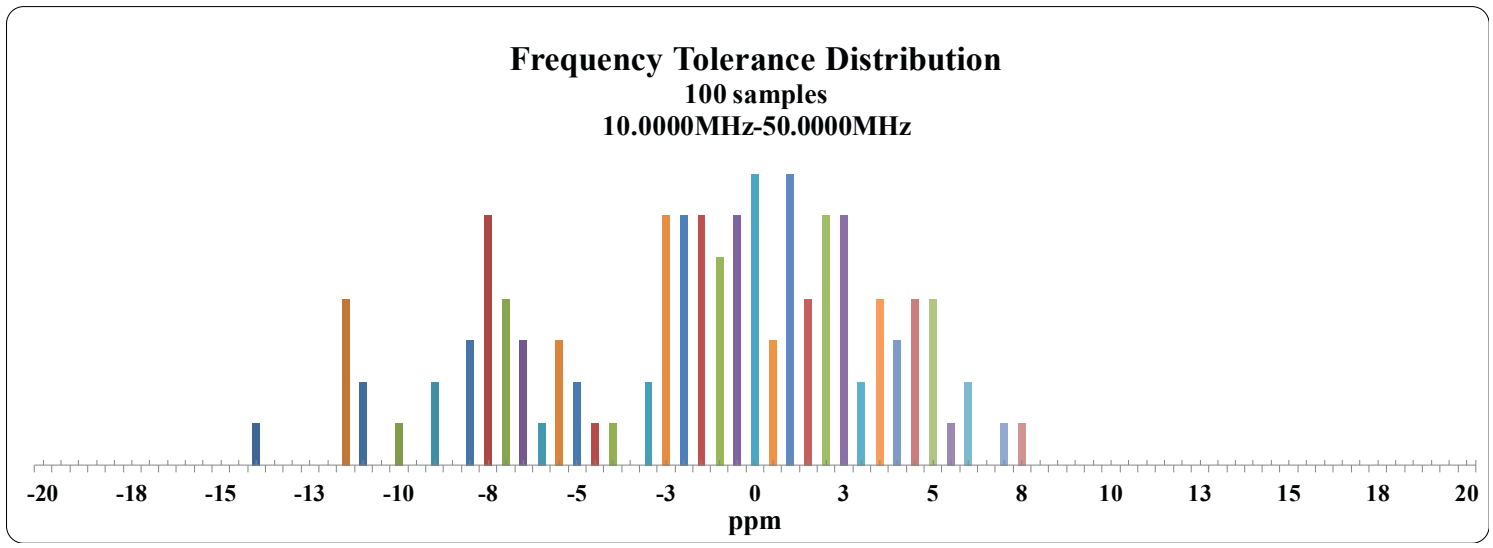


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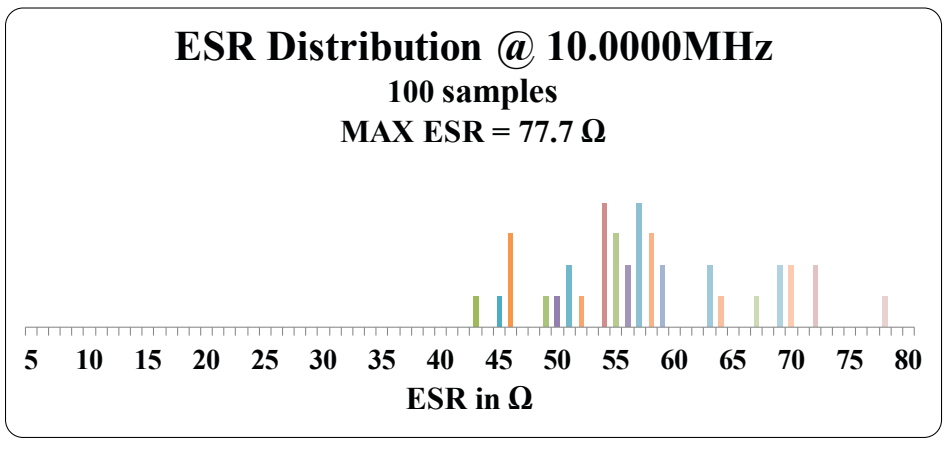
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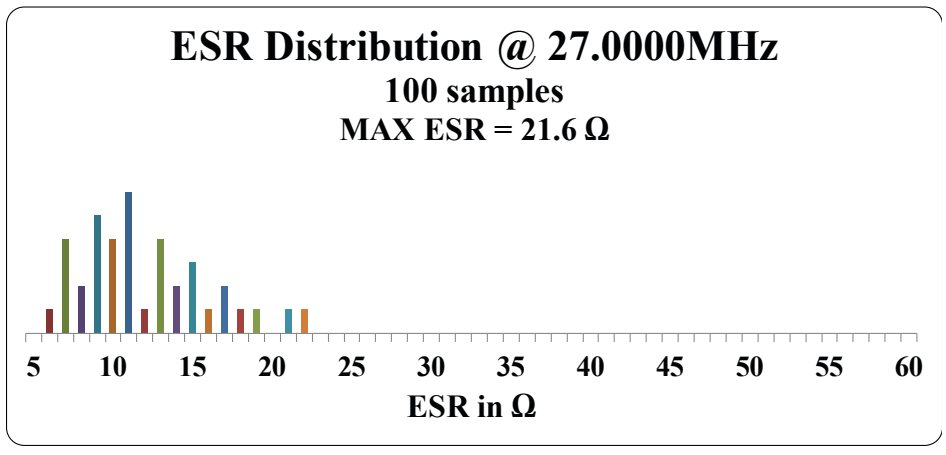
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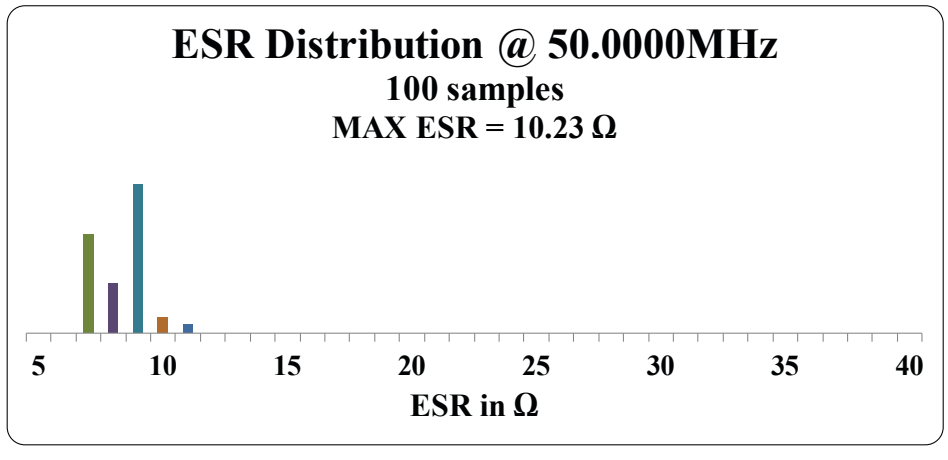
TYPICAL FREQUENCY TOLERANCE DISTRIBUTION (AT 25°C ± 3°C)



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







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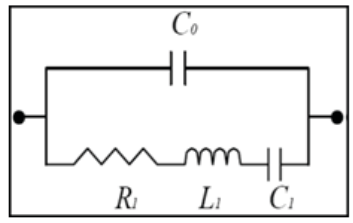
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Pb | **RoHS/RoHS II Compliant**

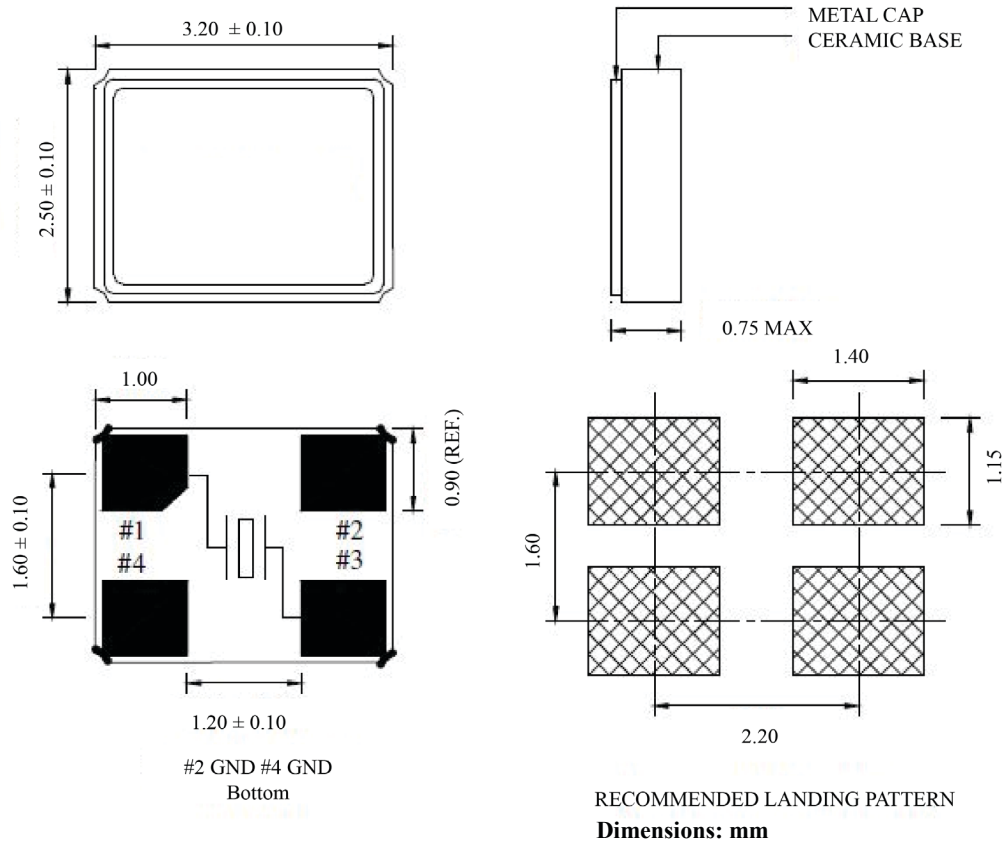
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SPICE MODELS (BASED ON TYPICAL VALUES AT 25°C ± 3°C)



Frequency: 10.0000MHz Plating Load: 4pF				Frequency: 10.0000MHz Plating Load: 6pF			
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
Frequency: 27.0000MHz **Plating Load: 4pF**				**Frequency: 27.0000MHz** **Plating Load: 6pF**			
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
Frequency: 50.0000MHz **Plating Load: 4pF**				**Frequency: 50.0000MHz** **Plating Load: 6pF**			
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



Dimensions: mm

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.

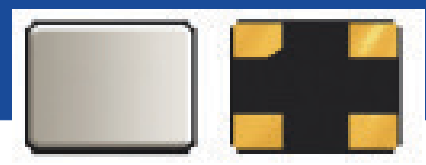
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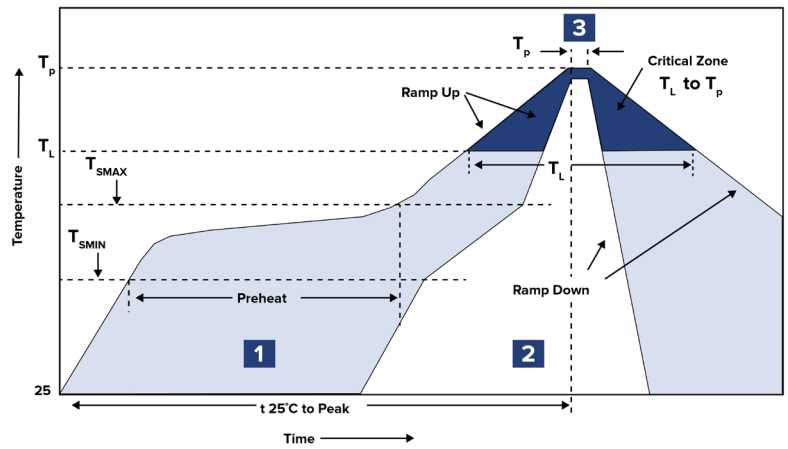
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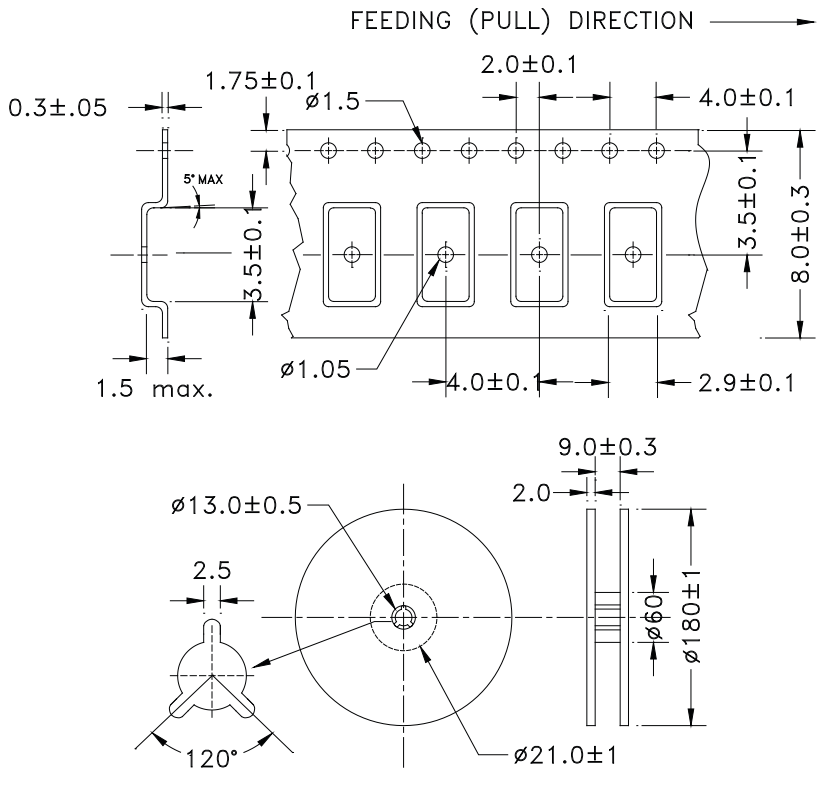
REFLOW PROFILE



Zone	Description	Temperature	Time
1	Preheat	T_{SMIN} ~ 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

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ARJ11D-MDSE-A-B-EMU2 ABM8G-16.384MHz-18-D-2-Y-T ASE-4.000MHZ-LC-T ACML-0805-151-T
AWSCR-4.00CPLA-C15-T4 ASV-24.000MHZ-EJ-T ASDMB-50.000MHZ-LC-T ABMM2-25.000MHZ-E2-T
APAM0968JL03V2.0 AX7HBF1-322.265625C ASV-12.000MHZ-EJ-T ABLS-4.194304MHz-B-4-T
ABM8G-13.560MHz-18-D-2-Y-T ABM8-16.384MHZ-D2Y-T ABM8-25.000MHz-10-B1U
ABMM2-48.000MHz-E2-F-T ABM3C-20.000MHZ-D4Y-T ASE-1.8432MHZ-LC-T
ABM8G-48.000MHz-18-D-2-Y-T ASDMB-24.000MHZ-LC-T ABM10W-24.5760MHZ-6-B1U-T3
ABLS-20.000MHZ-D4-T AWSCR-4.00CPLB-C30-T4 ACAG0301-24505500-T AWSCR-20.00CW-T
ASAK-32.768KHZ-LRS-T