

# IoT OPTIMIZED LOW PROFILE QUARTZ CRYSTAL



2.5 x 2.0 x 0.5 mm

**ABM10-166-12.00MHz**

RoHS/RoHS II Compliant

MSL = N/A: NOT APPLICABLE (See Note #1)

## FEATURES

- Optimized for low power consumption, wearables, and IoT applications
- Guaranteed low 125Ω ESR ensures operation in power sensitive solutions
- 0.50mm max height ideally suited for height constrained designs
- Seam sealed for long-term reliability

## APPLICATIONS

- Wearables
- Internet of Things (IoT)
- Bluetooth/Bluetooth Low Energy (BLE)
- Wireless modules
- Machine-to-machine (M2M) connectivity
- Ultra-low power MCU/modules
- USB

## STANDARD SPECIFICATIONS

PARAMETERS	MINIMUM	TYPICAL	MAXIMUM	UNITS	NOTES
Frequency	12.000			MHz	
Operation Mode	Fundamental				
Operating Temperature	-20		+70	°C	
Storage Temperature	-40		+125	°C	
Frequency Tolerance @+25°C	-10		+10	ppm	See Note #2
Frequency Stability over the Operating Temperature (ref. to +25°C)	-10		+10	ppm	See Note #3
Equivalent series resistance (R1)			125	Ω	
Shunt capacitance (C0)			2	pF	
Load capacitance (CL)	8			pF	
Drive Level		10	100	μW	
Aging@25°C±3°C			±3	ppm	First year
Insulation Resistance	500			MΩ	@ 100Vdc ± 15V

**Note#1:** Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive

**Note#2:** Referenced to crystal resonant frequency, into an oscillator loop effective load of 8pF

**Note#3:** Referenced to the measured frequency at 25°C±3°C, into an oscillator loop effective load of 8pF

REVISED: 06/21/2016

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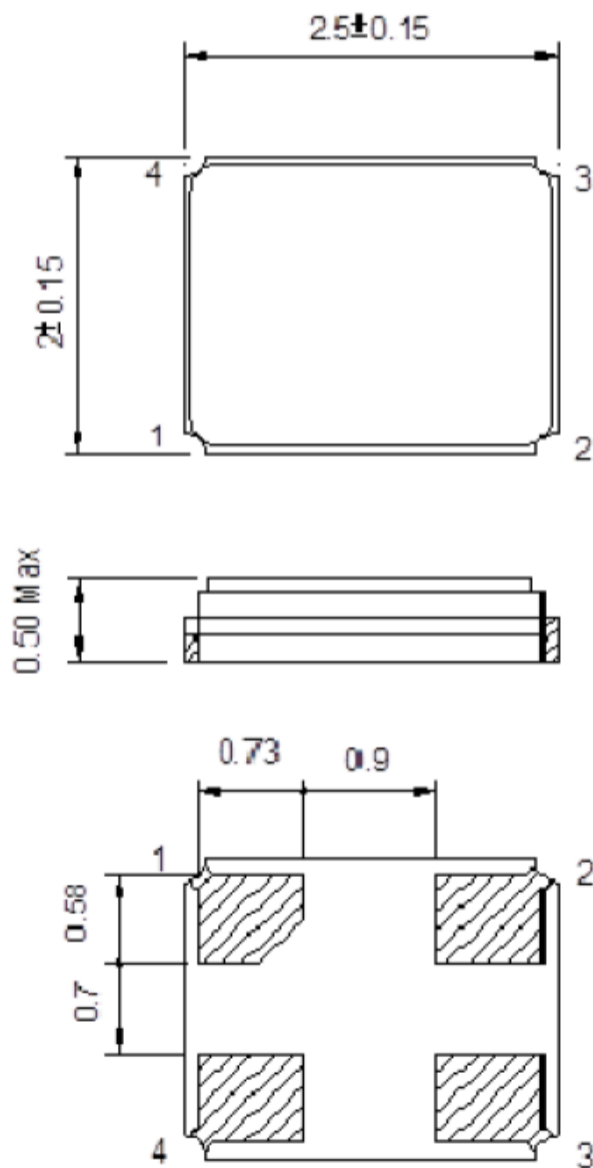
## PART IDENTIFICATION AND ORDERING INFORMATION

ABM10-166-12.000MHz-



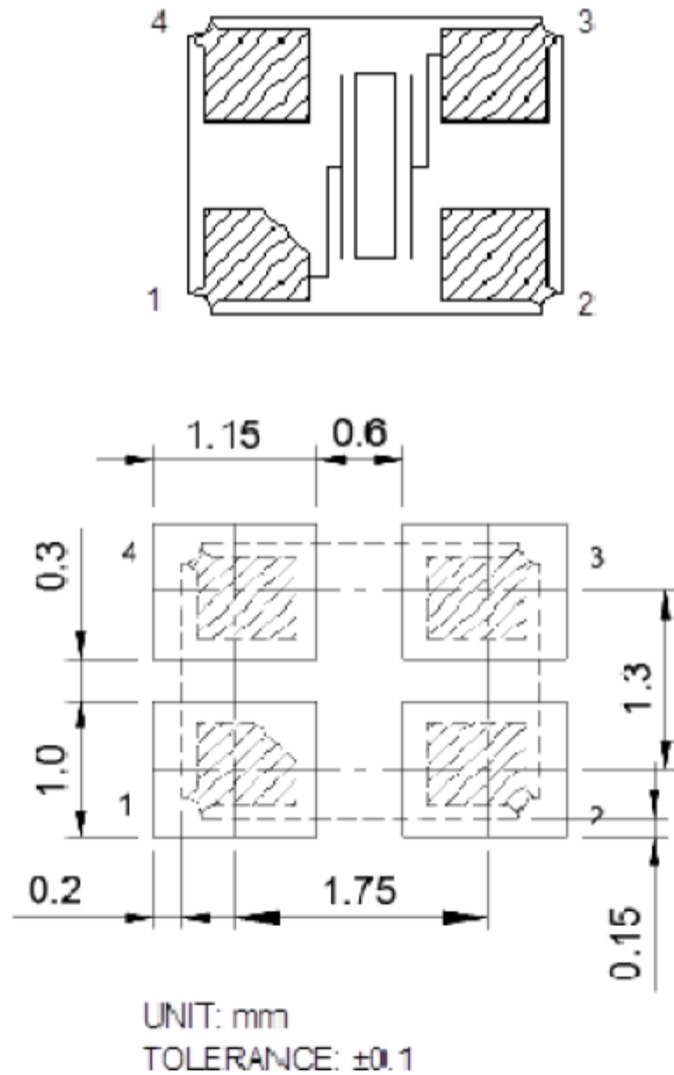
PACKAGING
Blank: Bulk
T3: 3K/Reel

## MECHANICAL DIMENSIONS (ALL DIMENSIONS ARE IN mm)



## RECOMMENDED LAND PATTERN

<TOP VIEW>



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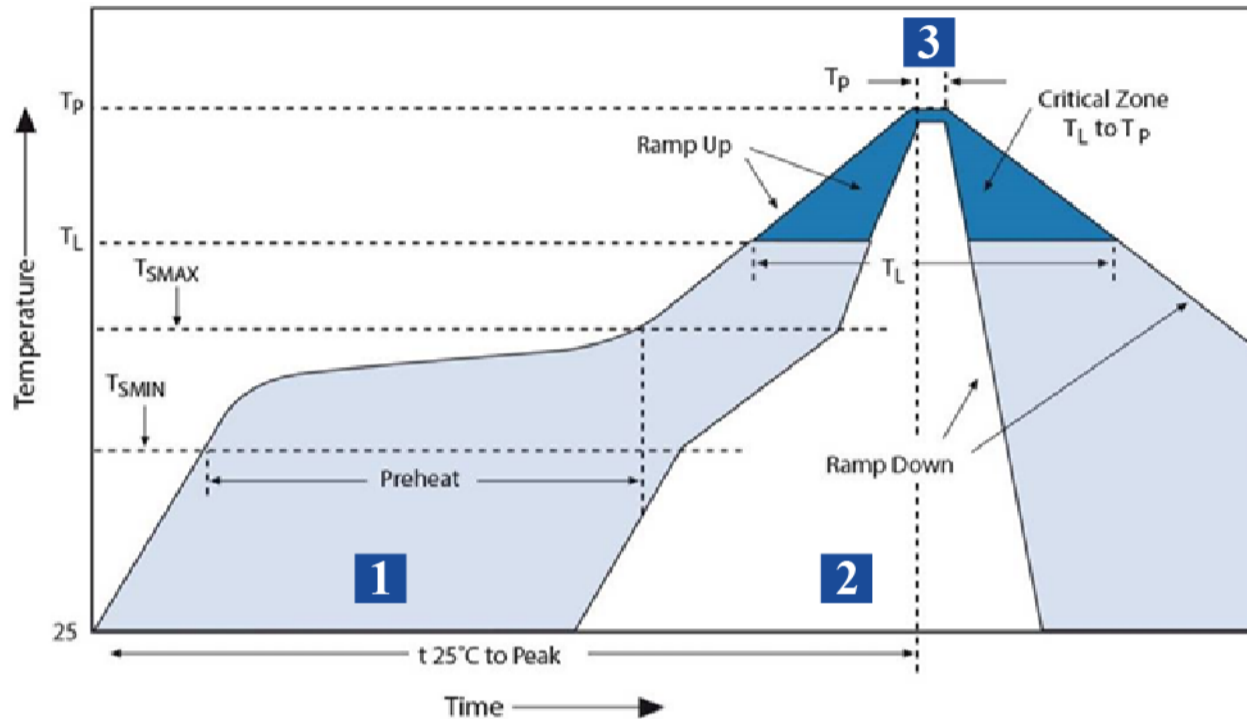
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**Pb** RoHS/RoHS II Compliant

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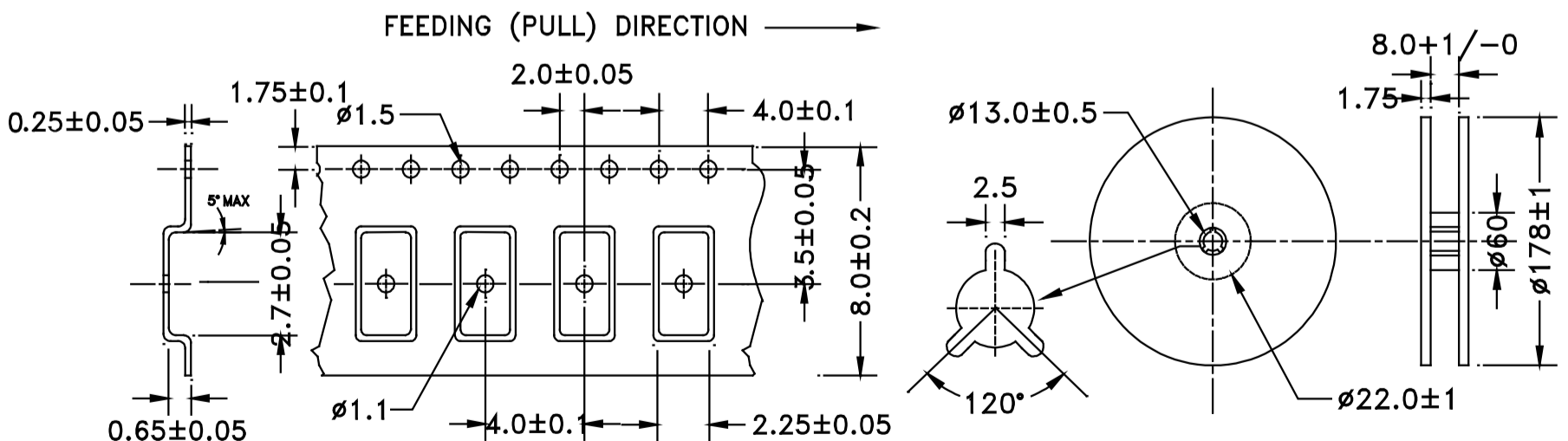
## REFLOW PROFILE



Zone	Description	Temperature	Time
1	Preheat	$T_{SMIN} - T_{SMAX}$ 160°C~180°C	120 sec.
2	Reflow	$T_L$ 60°C	60 sec.
3	Peak Heat	$T_P$ 260°C	10 sec. MAX

## PACKAGING

**T3:3000PCS/REEL**



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 CERTIFIED