

# Miniature Ceramic Resonator



AWSCR-CRLB

4.5 x 2.0 x 1.0 mm

RoHS/RoHS II Compliant

Pb in ceramic, exemption (7c-1)

This product is not Moisture Sensitive - MSL = 1

## Features

- Industry standard footprint
- Low resonance impedance
- Built-in capacitance options
- Wide operating temperatures in extended industry range

## Applications

- Metering systems
- Remote control
- Microprocessor
- Industrial control
- Electric appliances

## Electrical Specifications

Parameters	Min	Typ.	Max	Units	Notes
Oscillating Frequency (Fosc)	4.000		12.000	MHz	
Frequency Tolerance	-0.5		0.5	%	
Resonant Impedance (Ro)			40	Ω	
Standard Built-in Capacitance (C1=C2)		15		pF	04.00 – 12.00 MHz (Tol 1pF ± 20%)
	Other options : 10, 22, 30, 33, 39, 47				
Temperature Coefficient of Oscillation Frequency (%) max.	-0.4		0.4	%	(4.00 - 8.00 MHz) Oscillator Frequency drift (-40 °C to +125 °C)
	-0.2		0.2		(8.01 - 12.00 MHz) Oscillator Frequency drift (-40 °C to +125 °C)
Withstanding Voltage			50	V	DC, 1 min max.
Voltage Rating	(1) D.C. Voltage		6	V	
	(2) A.C. Voltage		15	Vp-p	
Insulation Resistance (Ri)	500			MΩ	10V, 1 min.
Operation Temperature	-40		+125	°C	
Storage Temperature	-55		+125	°C	
Aging Rate max (Fosc) * For 10 years	-0.2		0.2	%	From Initial value

\* Components shall be left in a chamber of +85 °C ± 2 °C for 1000 hours, then measured after leaving in natural condition for 1 hour.

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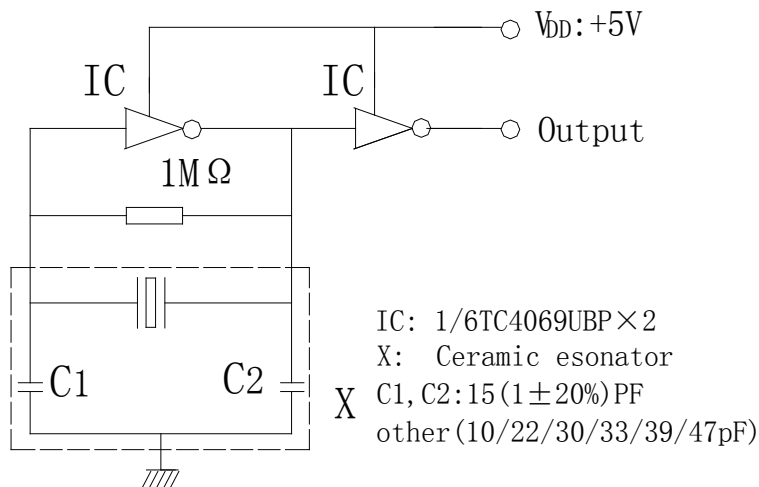
## Options and Part Identification

AWSCR - .  CRLB - C  -

Frequency (MHz)	Size (mm)	Frequency Band	Operating Temperature	Built-in Cap	Packaging
4.000 - 12.000	CR = 4.5 x 2.0	L = Lower Band	B = -40 °C to 125 °C	15 pF (Standard) 10, 22, 30, 33, 39, 47 pF (Other)	T3 = 3000 pcs/reel

## Test Circuit and Conditions

Parts shall be tested under the condition (Temp: 20 °C ± 15 °C, Humidity: 65 ± 20 % R.H.) unless the standard condition (Temp: 25 °C ± 3 °C, Humidity: 65 ± 10 % R.H.) is regulated to measure.



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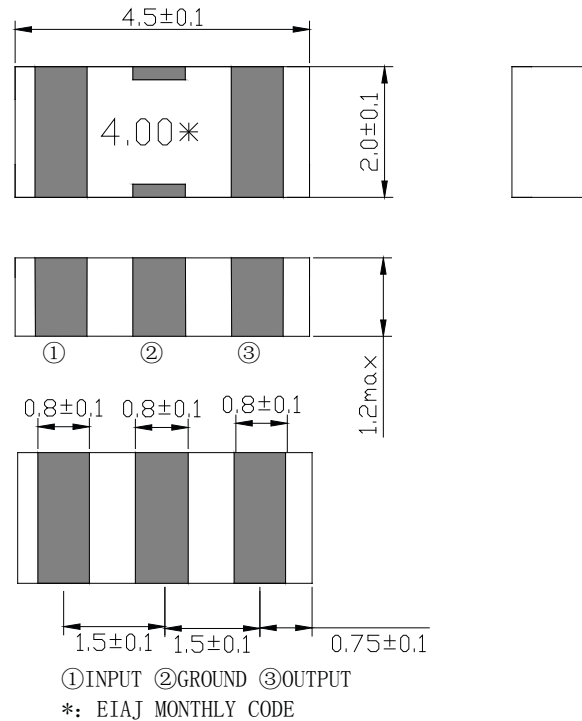
4.5 x 2.0 x 1.0 mm

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## Outline Dimensions



Unit: mm

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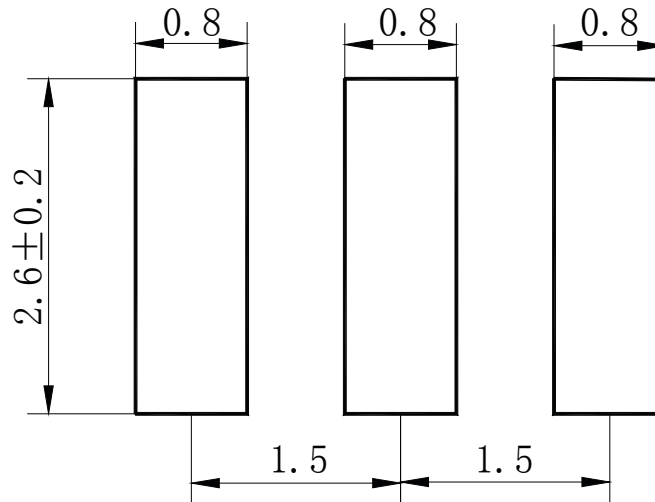
4.5 x 2.0 x 1.0 mm

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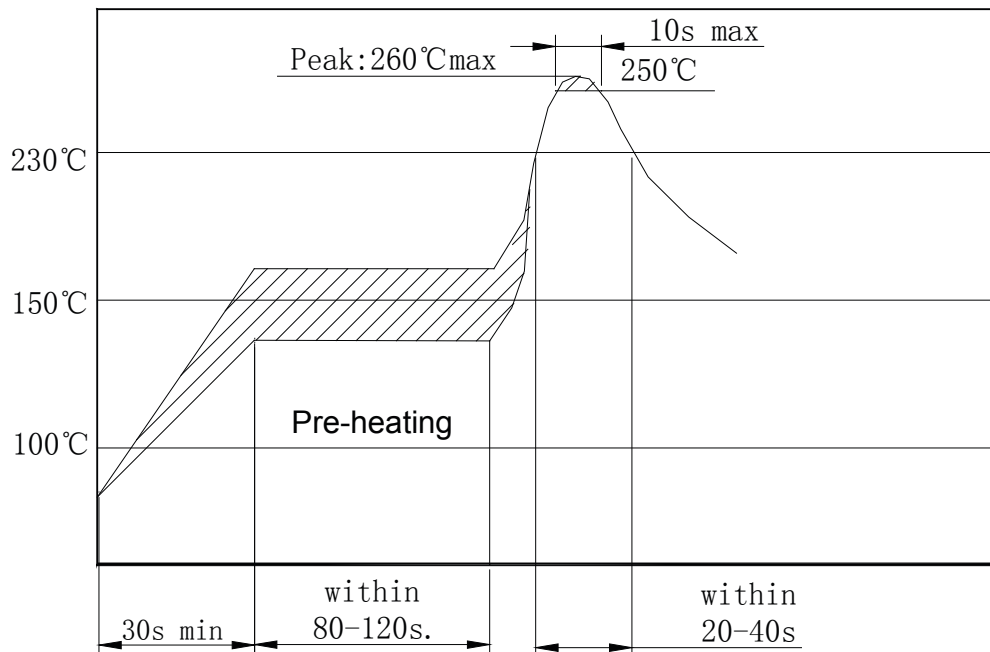
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## Recommended Land Pattern



Unit: mm

## Recommended Reflow Profile



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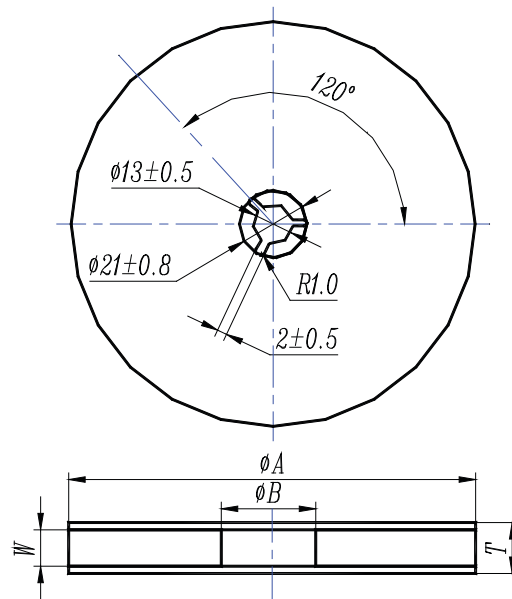
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## Packaging

T3: 3000 pcs/reel

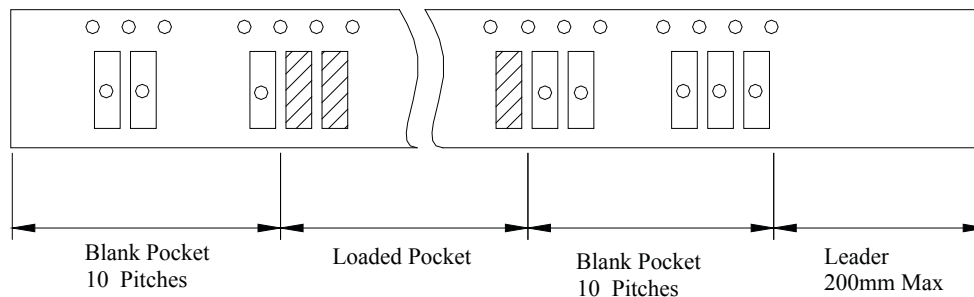
### Reel Dimension



Unit: mm

$\phi A$	$\phi B$	W	T	Pieces per reel	Carrier tape size
180 ± 3	60 min	12.4 min	19.4 max	3000 typ.	12

### Packaging Sketch



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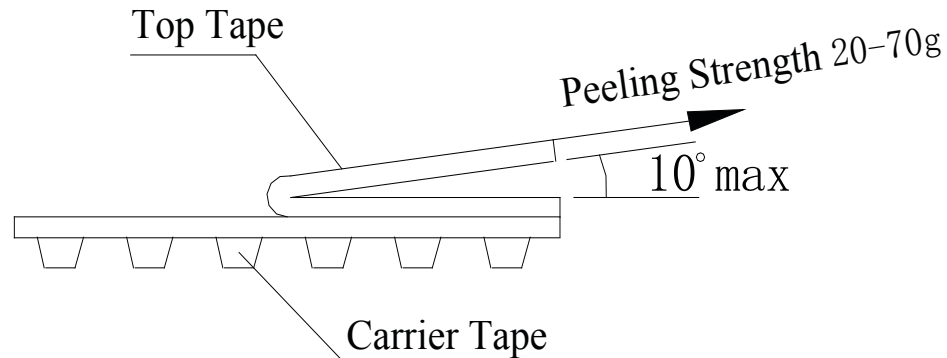
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## Packaging

### Test Condition for Peel-Off Strength



## Caution

1. Do not apply excess mechanical stress to the component and terminals during soldering. Do not use this product if it is bent or damaged.
2. Do not clean or wash the component for it is not hermetically sealed.
3. Do not use a strong acidity flux with more than 0.2 wt% chlorine content during soldering.
4. Do not place or use the item close to fire.
5. Please ensure the component is thoroughly evaluated in your application circuit as the specification mentions the quality of the component as a single unit.
6. Expiry date (Shelf life) of the products is 12 months after the date of delivery under the conditions of a sealed and an unopened package. Please use the products within 12 months after delivery. If the item is stored for more than 12 months, use caution before use as the item may be degraded in the solderability or develop rust. Please confirm solderability and characteristics for the products regularly.

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