UWB: 6.2 – 8.2 GHz Chip Antenna



ACG0301U

Request Samples | Check Inventory

3.2 x 1.6 x 1.2mm
RoHS Compliant
MSL Level = 1

Features

- BW of 2000 MHz
- Linear Polarization
- VSWR <2.0
- Extended Operating Temperature of -40 ^{0}C ~ +105 ^{0}C

Applications

- UWB (Ultra-Wide Band)
- IoT
- M2M
- Secure car access
- Item Tracking
- Indoor Navigation
- Hands-Free Payment
- Smart Access
- Object Detection

Product Image





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Electrical Specifications

Parameters	Min	Typical	Max	Unit	Notes
Operating Frequency	6220	-----	8200	MHz	-----
Band Width	-----	2000	-----	MHz	-----
VSWR	-----	-----	2.0	-----	-----
Polarization	Linear			-----	-----
Azimuth Beam width	Omni-directional			-----	-----
Impedance	-----	50	-----	Ω	-----

Mechanical Specifications

Parameters	Specifications
Filter Dimension	3.2 x 1.6 x 1.2 mm
Mounting Type	SMD Mount
Material Type	Ceramic

Environmental Specifications

Parameters	Specifications
Operating Temperature Range	-40ºC ~ +100ºC
Storage Temperature Range	-40ºC ~ +100ºC
MSL level	1
ESD	-
Temperature range	25±5°C
Relative Humidity range	90 ~ 95 %

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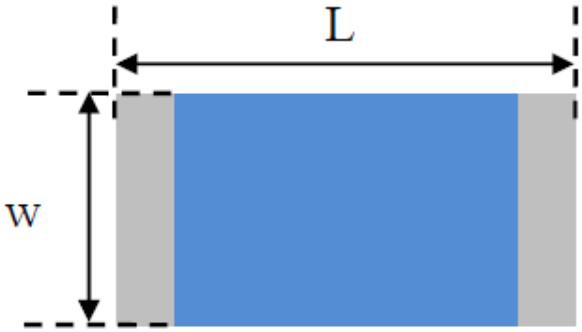
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RoHS Compliant
MSL Level = 1

Package Dimensions



(Top View)

Number	Terminal Name
①	INPUT
②	NC



(Bottom View)



(Side View)



(Side View)

Symbol	L	W	T	A
Dimension (mm)	3.2±0.2	1.6±0.2	1.2±0.1	0.5±0.2

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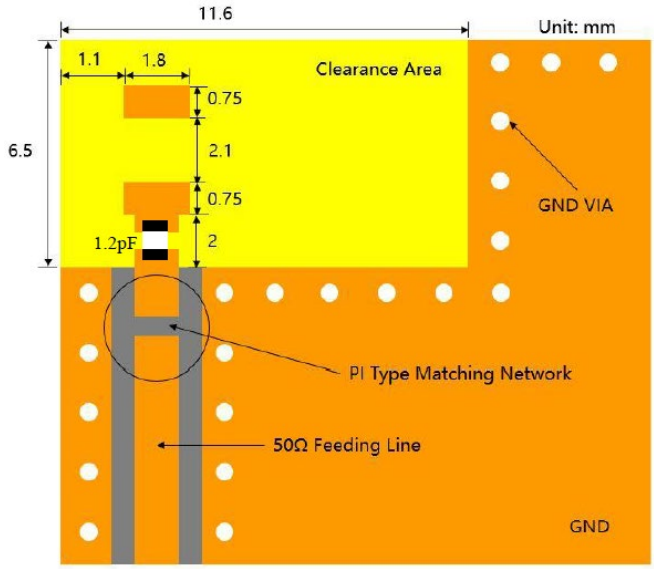


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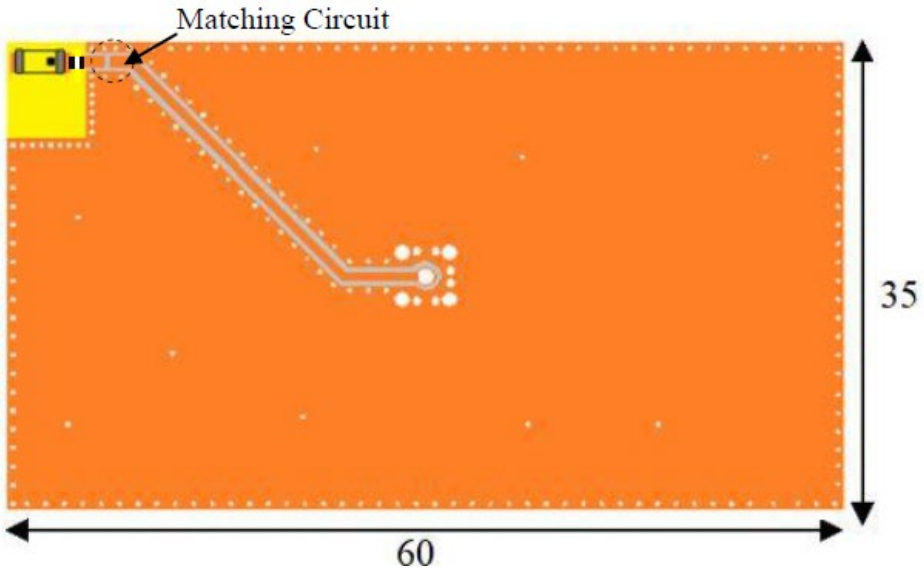
3.2 x 1.6 x 1.2mm
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Footprint



*Note: The 1.2 pF capacitance is added in antenna clearance area

Evaluation Board and Matching



Unit: mm

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Measurement Setup

The antenna measurements were all performed in free space with the antenna mounted on its evaluation board of size 36 x 61 mm, see image below.



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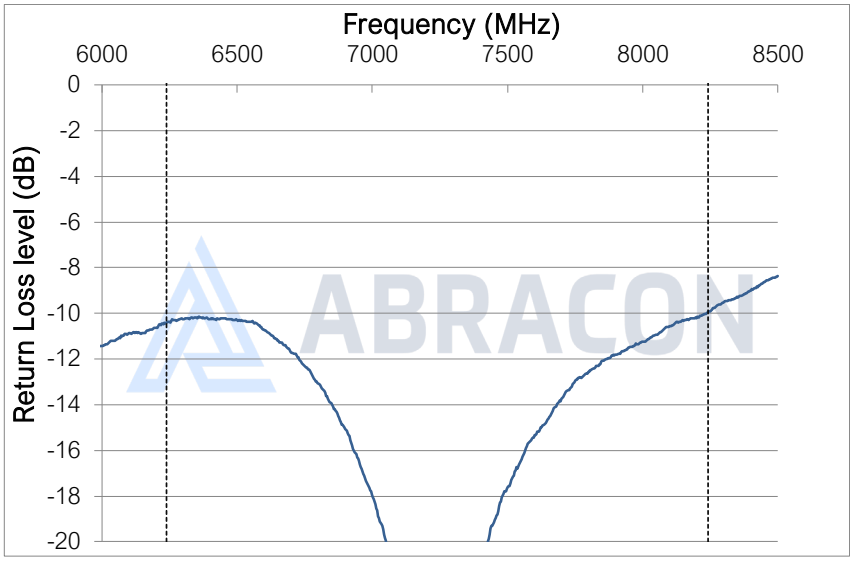
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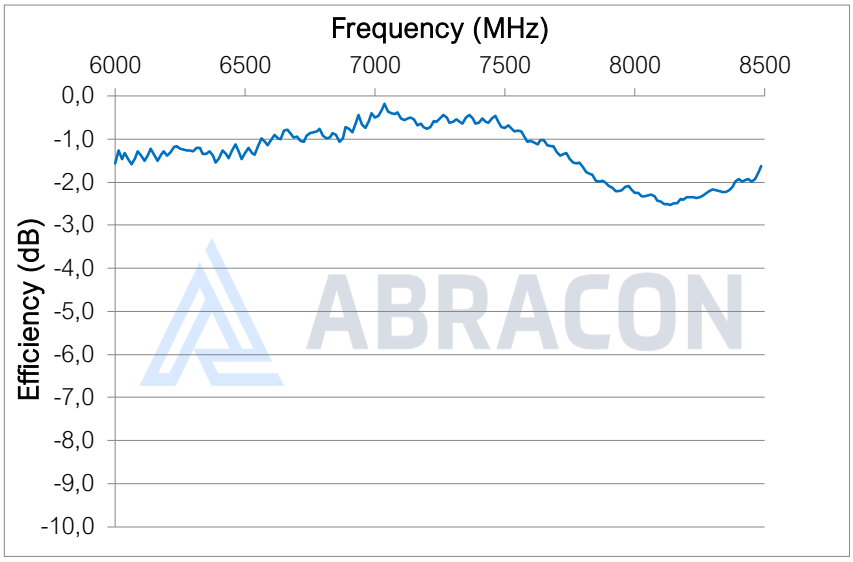
3.2 x 1.6 x 1.2mm
RoHS Compliant
MSL Level = 1

Impedance Characteristics – Return Loss

The (dashed) vertical lines mark the frequency span of 6.24 to 8.24 GHz.



Radiation Characteristics – Total Efficiency



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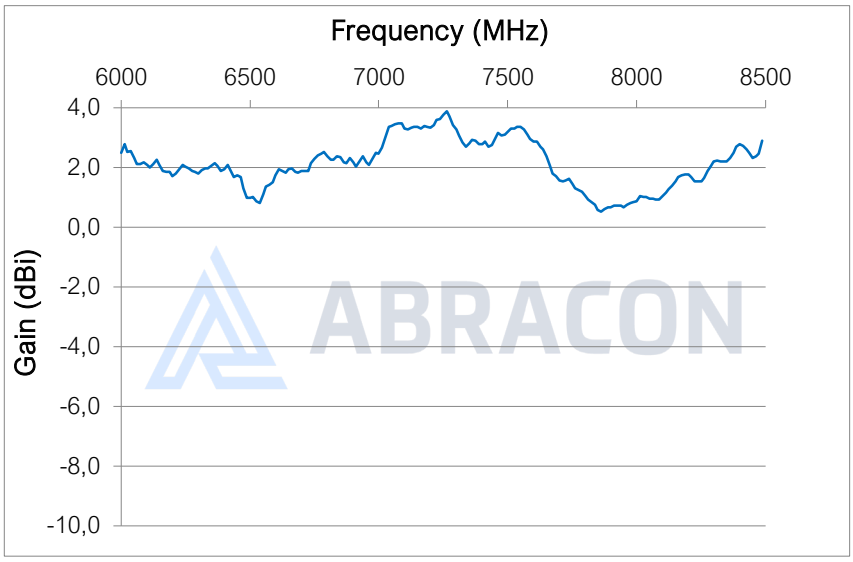


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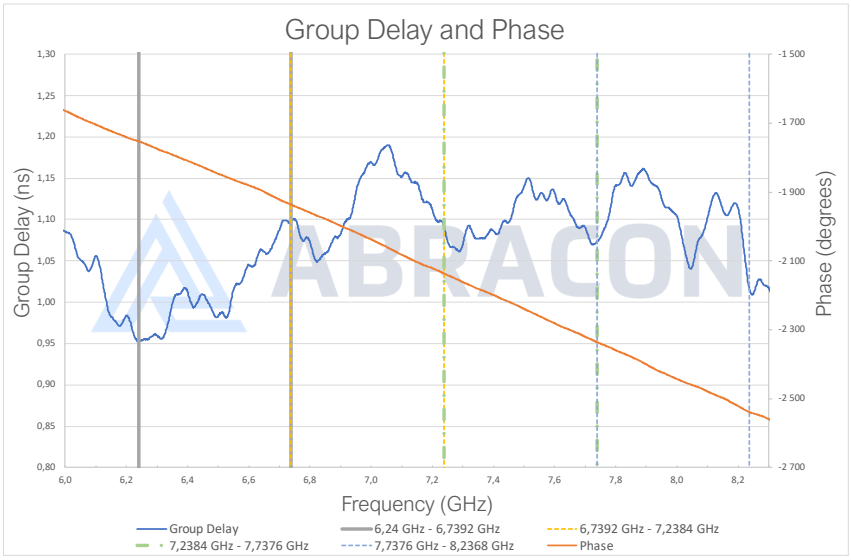
3.2 x 1.6 x 1.2mm
RoHS Compliant
MSL Level = 1

Radiation Characteristics – Maximum Gain



Radiation Characteristics – Group Delay

Two identical antennas were placed a distance d_{sep} apart in an anechoic chamber. The Group Delay, τ_{GD}, is then calculated from the transmission S-parameter (S12) by $\tau_{GD} = -\frac{1}{2 \cdot 360}\frac{\Delta\phi}{\Delta f}$, where $\Delta\phi$ is the change of phase over an aperture Δf. The maximum variation in group delay per channel, $\Delta_{\max}\tau_{GD}$, can be found in the table below.



Maximum Group Delay Variation			
UWB Ch.	Freq. Low (GHz)	Freq. High (GHz)	$\Delta_{\max}\tau_{GD}$ (ps)
5	6,24	6,7392	147
6	6,7392	7,2384	141
8	7,2384	7,7376	89
9	7,7376	8,2368	147

Measurement Parameters	
Distance d_{sep} (cm)	Aperture Δf (MHz)
50	220

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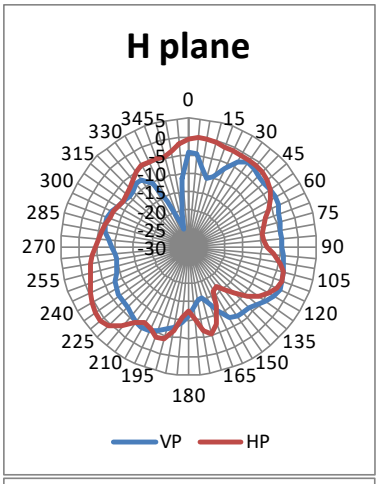


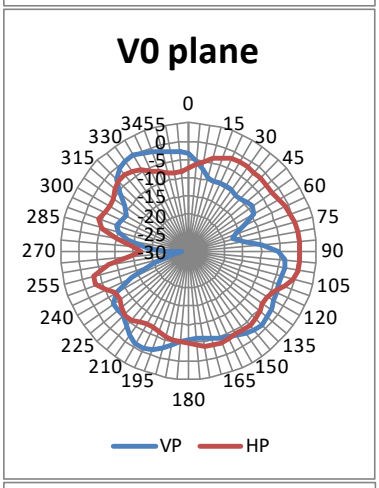
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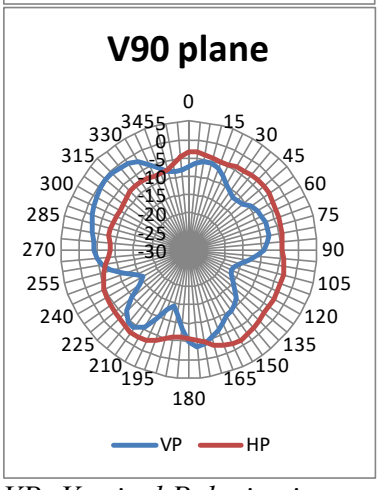
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3.2 x 1.6 x 1.2mm
RoHS Compliant
MSL Level = 1

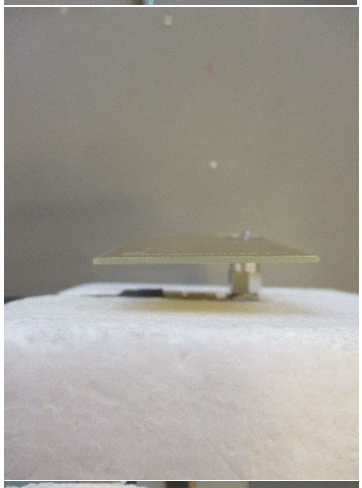
Radiation Characteristics – 2D Pattern (6.5 GHz)

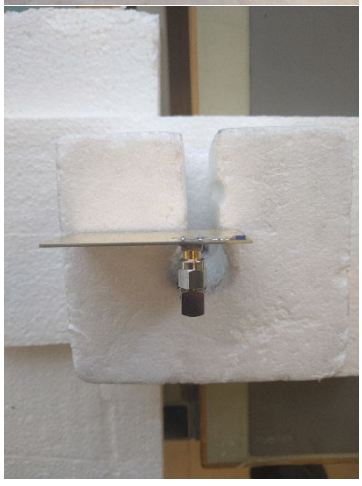












VP: Vertical Polarization
HP: Horizontal Polarization

Unit: dBi

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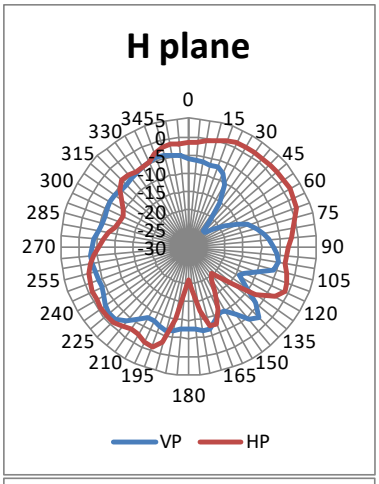


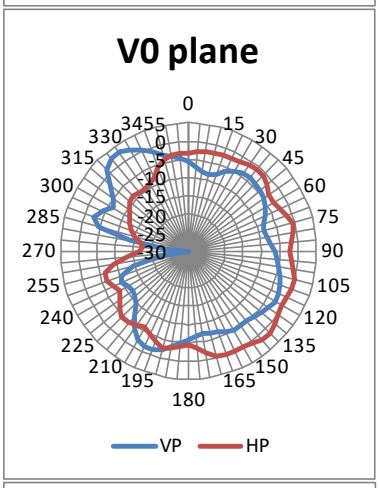
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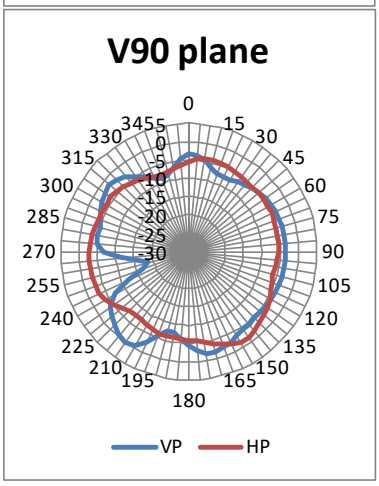
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3.2 x 1.6 x 1.2mm
RoHS Compliant
MSL Level = 1

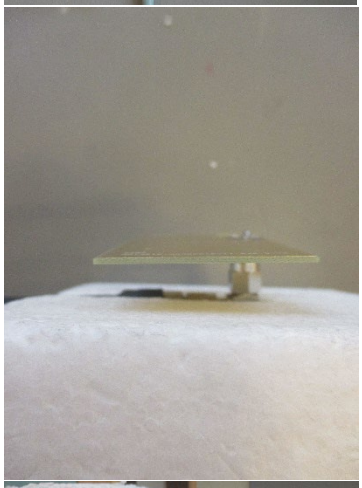
Radiation Characteristics – 2D Pattern (7.0 GHz)

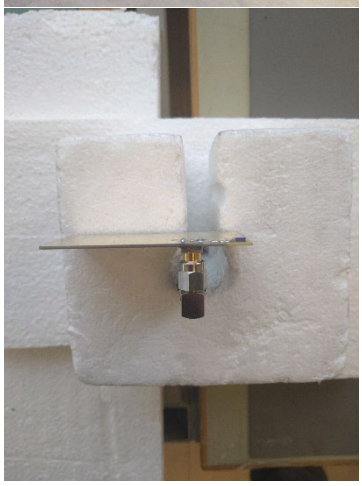












VP: Vertical Polarization
HP: Horizontal Polarization

Unit: dBi

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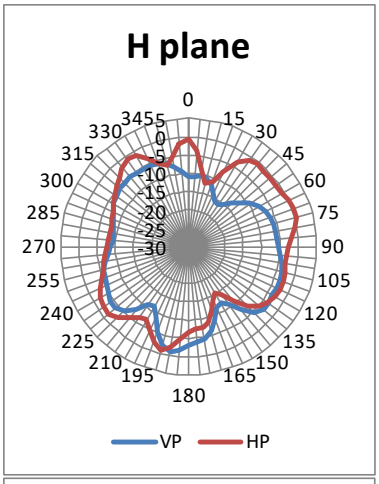


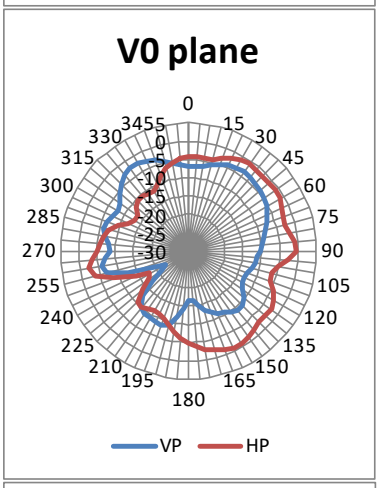
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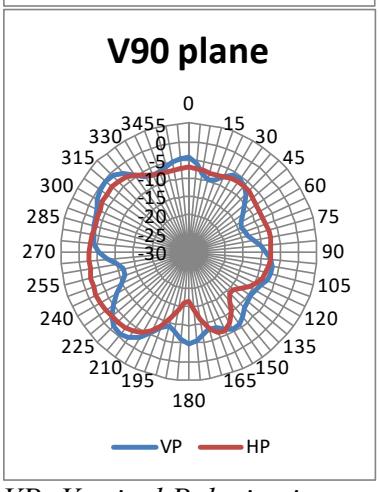
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3.2 x 1.6 x 1.2mm
RoHS Compliant
MSL Level = 1

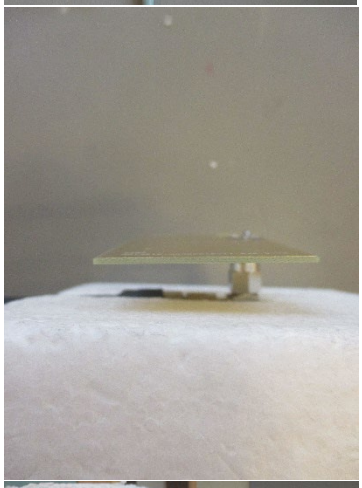
Radiation Characteristics – 2D Pattern (8.0 GHz)

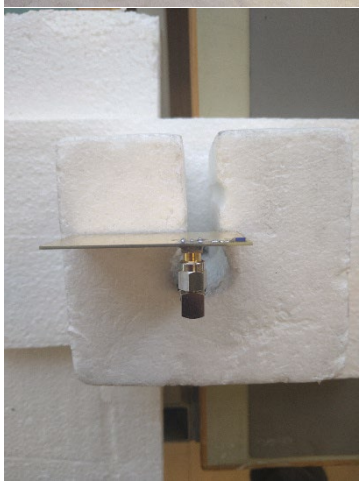












VP: Vertical Polarization
HP: Horizontal Polarization

Unit: dBi

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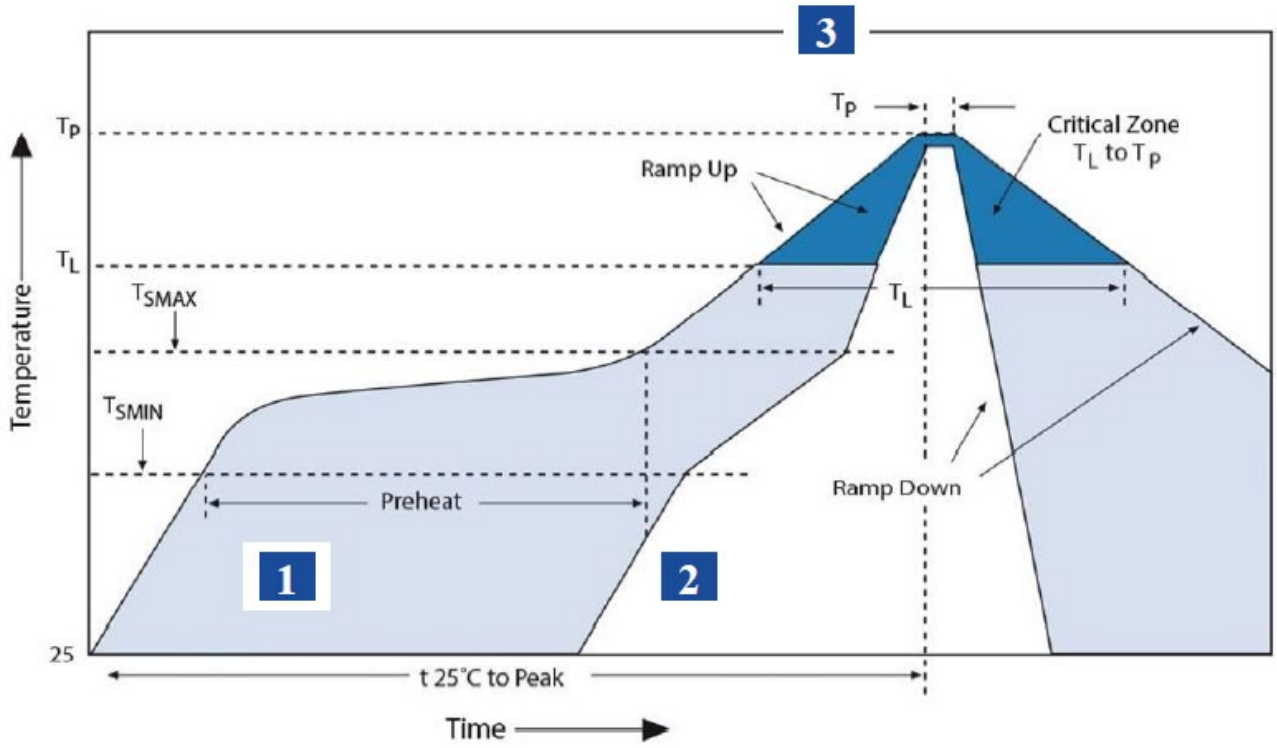


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RoHS Compliant
MSL Level = 1

Soldering Profile: Reflow



Zone	Description	Temperature	Time
1	Preheat / Soak	T_{SMIN} ~ T_{SMAX} 160 – 180 ºC	60 ~ 120 sec
2	Reflow	T_L 220 ºC	60~80 sec
3	Peak heat	T_P 265 ºC	5 sec (Max)

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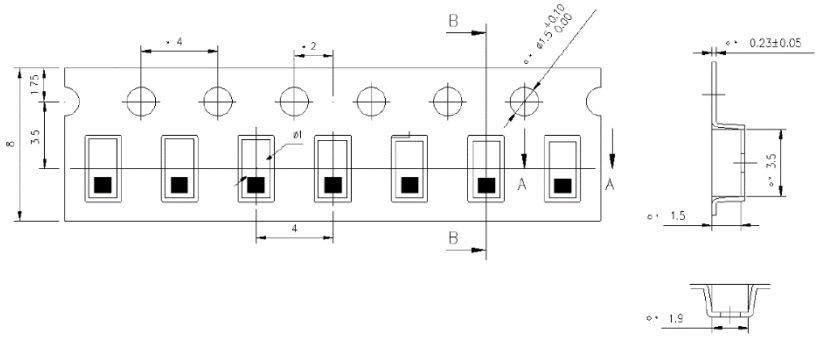
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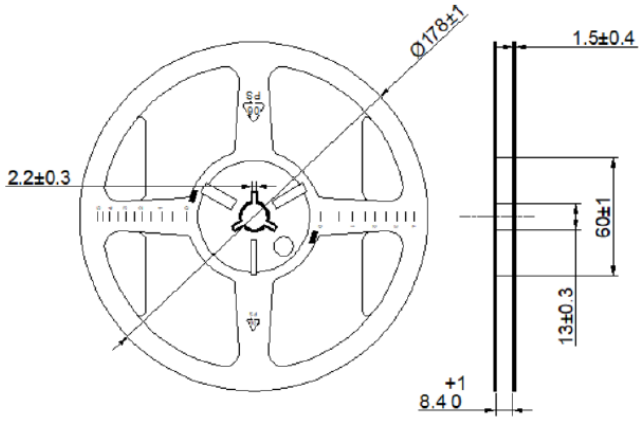
Packaging and Dimensions

1. Plastic Tape



Reserve a length of 150~200mm for the trailer of the carrier and 250~300 mm for the leader of the carrier and further 250mm of cover tape at the leading part of the carrier.

2. Reel (3000 pcs/Reel)



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