

Datasheet

3.71-8.44GHz

Chip Antenna

Features:

High performing UWB antenna with SMT mounting on PCB. It meets EU & US specification and can apply to UWB channel 2~3 & 5~9.

Applications:

- CPE - Router, Set-top boxes & Gateway
- IoT devices
- UWB Mesh
- Smart Metering
- Robotics



8 X 6 X 0.5 mm

Chip Antenna



Electrical Specifications

Antenna Characteristics

Antenna Type	Radiation Pattern	Polarization	Max. Input Power	Impedance
Chip Antenna	Omni	Linear	2W	50Ω
Frequency (GHz)	3.71~4.74	4.76~6.33	6.35~7.91	7.93~8.44
Return Loss (dB)	< -6	< -6	< -6	< -6
Peak Gain (dBi)	3.6	4.3	4.3	4.5
Average Gain (dB)	-0.7	-1.1	-1.4	-1.4
Efficiency (%)	85	78	72	72

Mechanical Specifications

Mechanical

Dimension (mm)	8.0 × 6.0 × 0.5
Material	Ceramic
Weight (g)	0.1

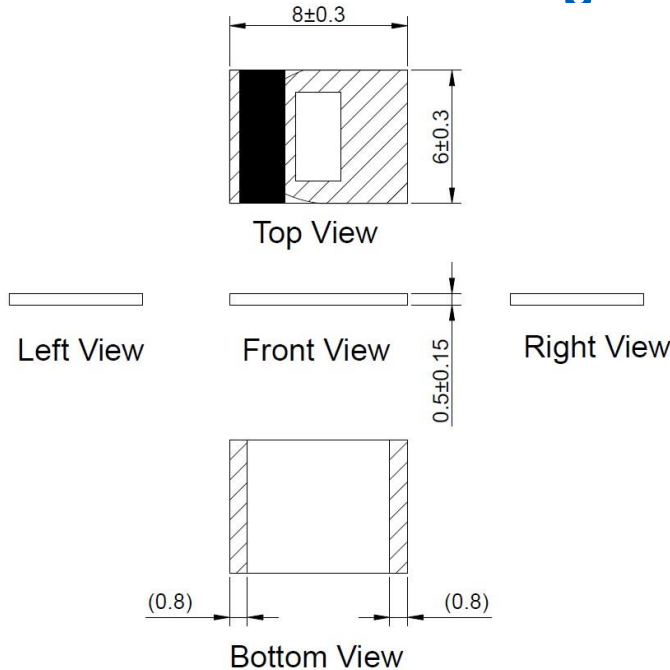
Environmental

Temperature Range (°C)	-40 to 125
Humidity	Non-condensing 65°C 95% RH

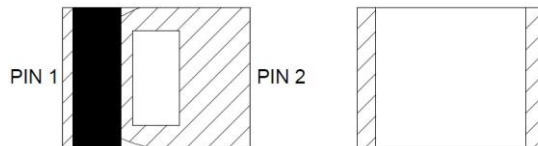
RoHS Compliant

Mechanical Drawing

Unit : mm

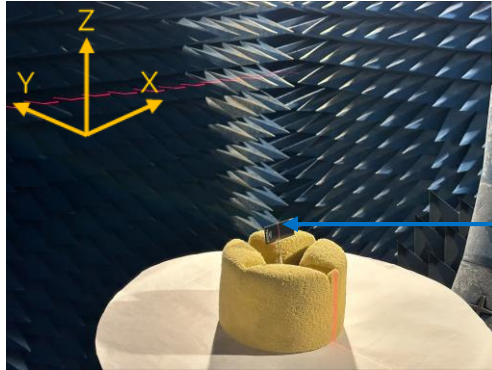


PIN Definitions



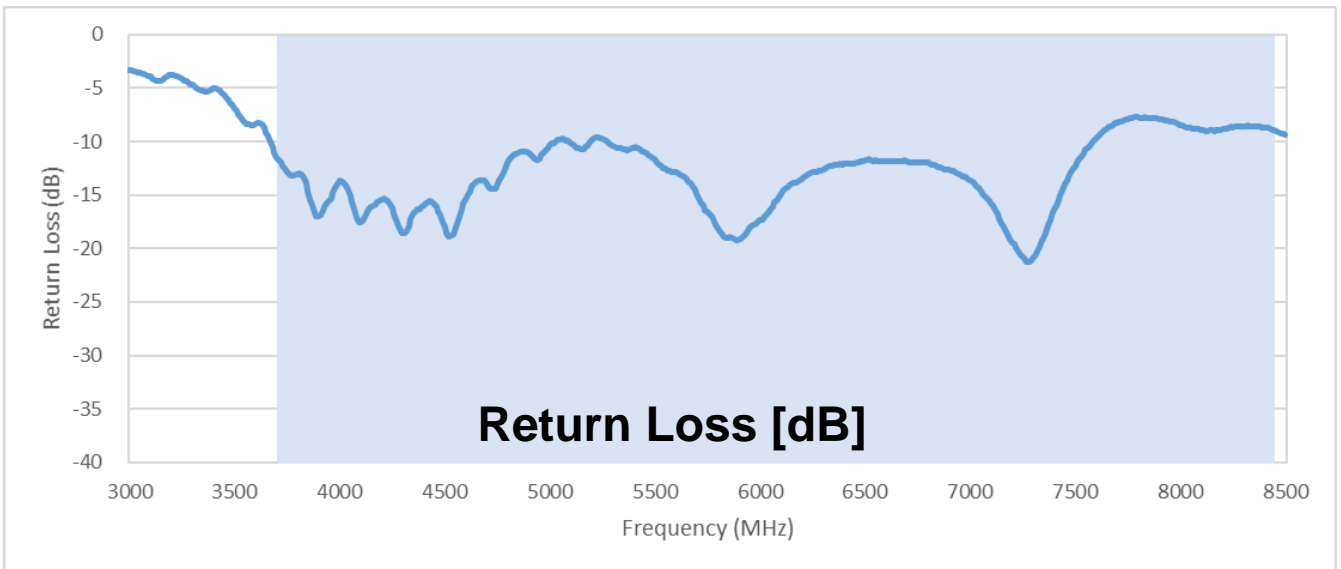
Pin	Soldering PAD
1	Signal
2	N/A

Antenna Testing Includes Evaluation Board

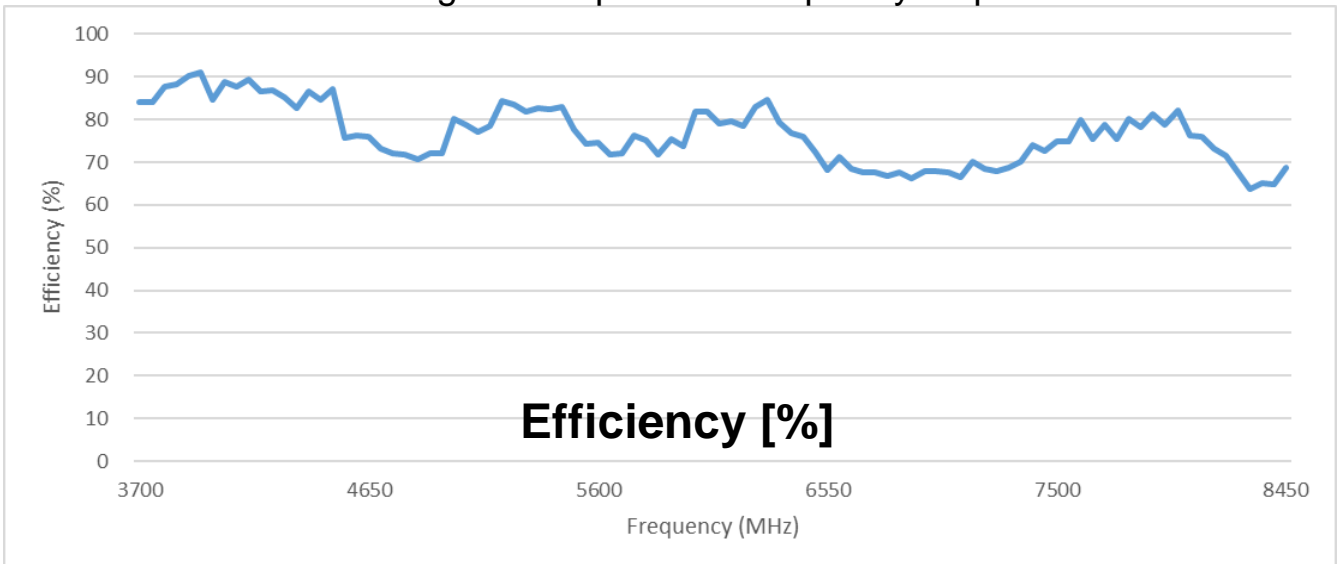


ST1143-00-N01-E

Test setup, measurement performed in 3D anechoic chamber.

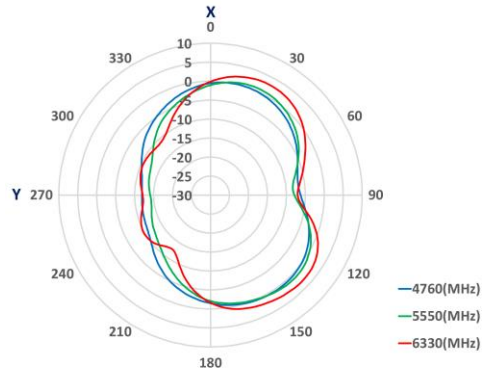
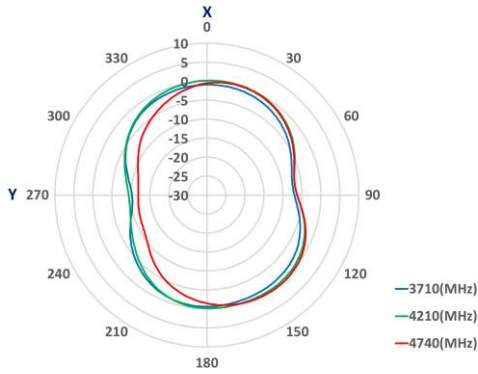


Blue background represents frequency response.

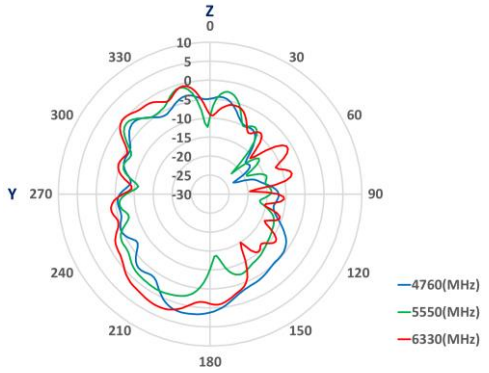
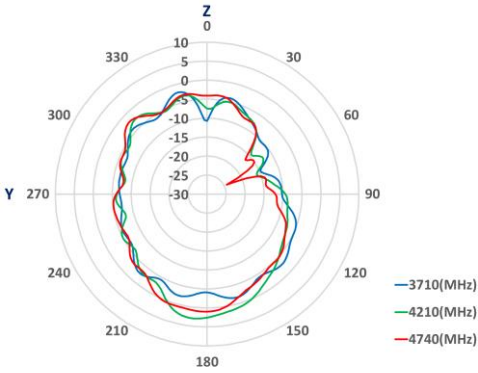


Radiation Pattern - Free Space

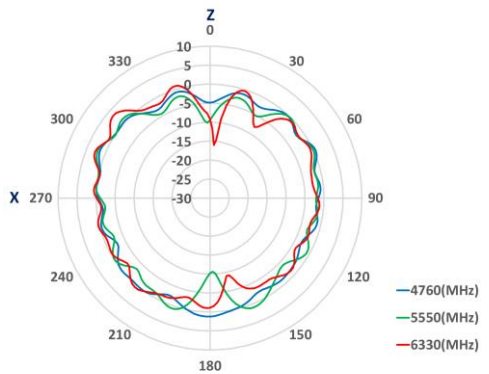
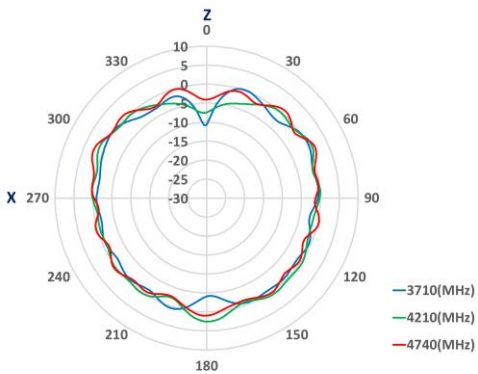
XY - Plane



YZ - Plane

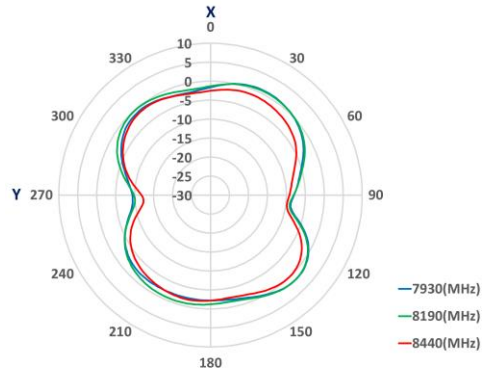
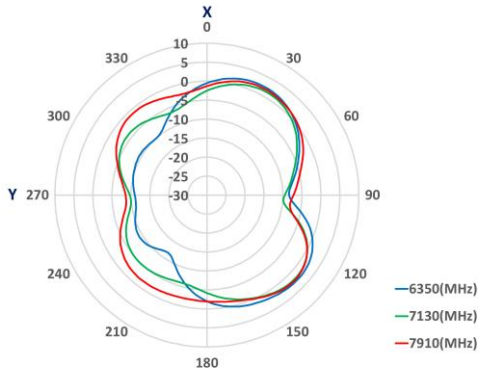


XZ - Plane

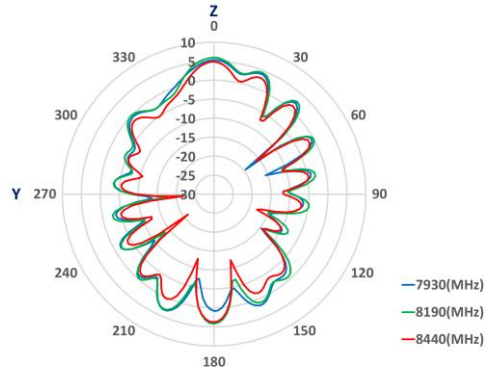
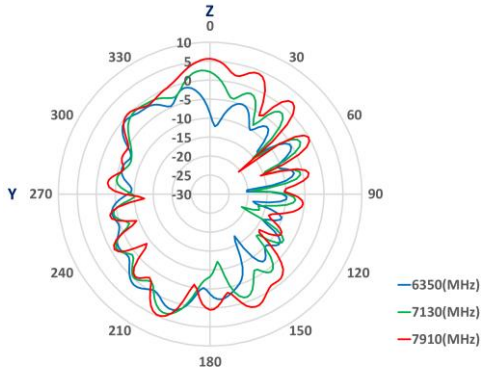


Radiation Pattern - Free Space

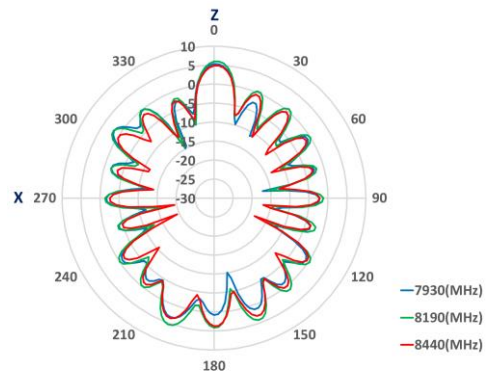
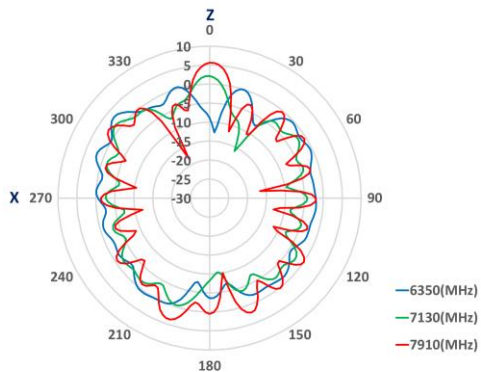
XY - Plane



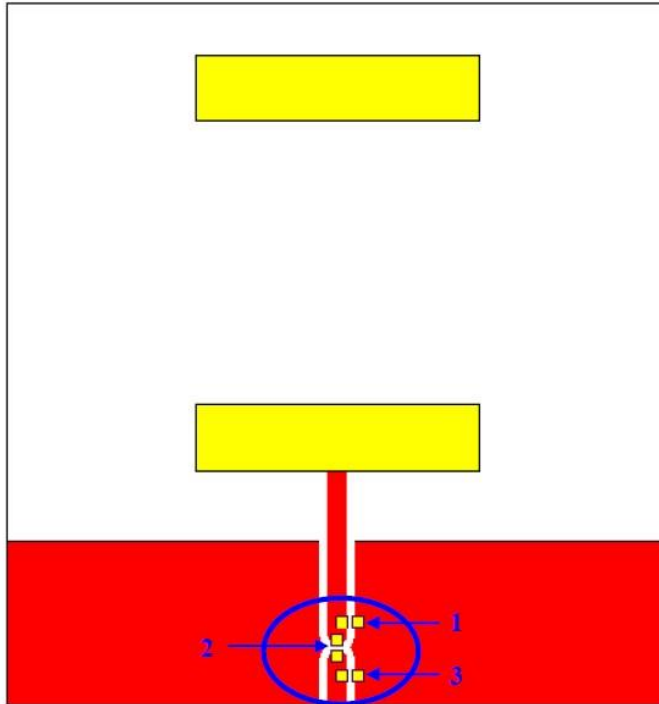
YZ - Plane



XZ - Plane



Matching Circuit Design

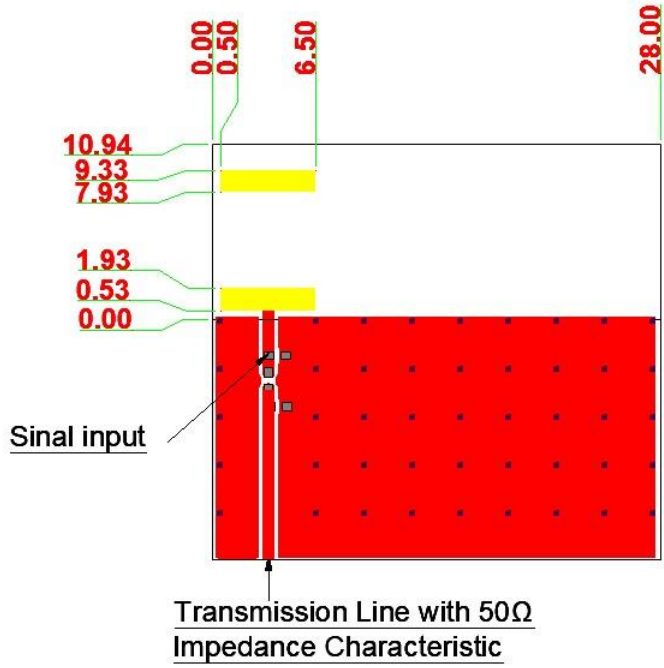


- * To make the antenna have this resonance must be matched with the matching circuit.
- * The matching component may be slightly different than that shown depending on the distance to the ground plane, the dielectric constant of the PCB, and PCB material thickness.

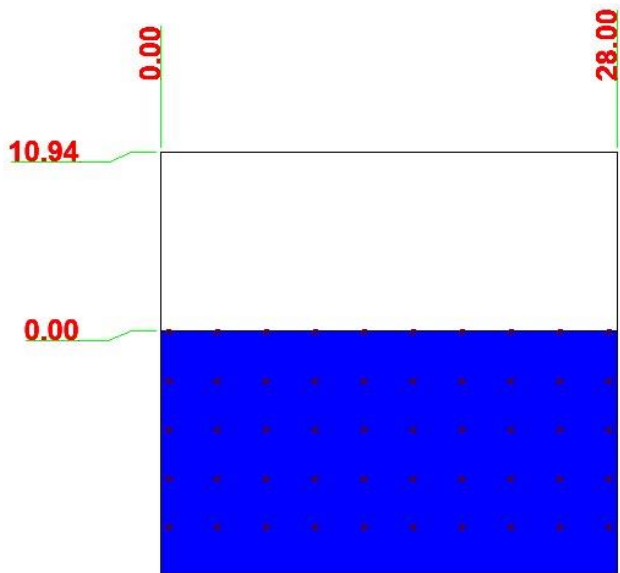
Circuit Matching Components

Circuit Symbol	Size	Description
1	0402	None
2	0402	0 Ohm Resistance
3	0402	0.2 pF Capacitor

Clearance Area Design



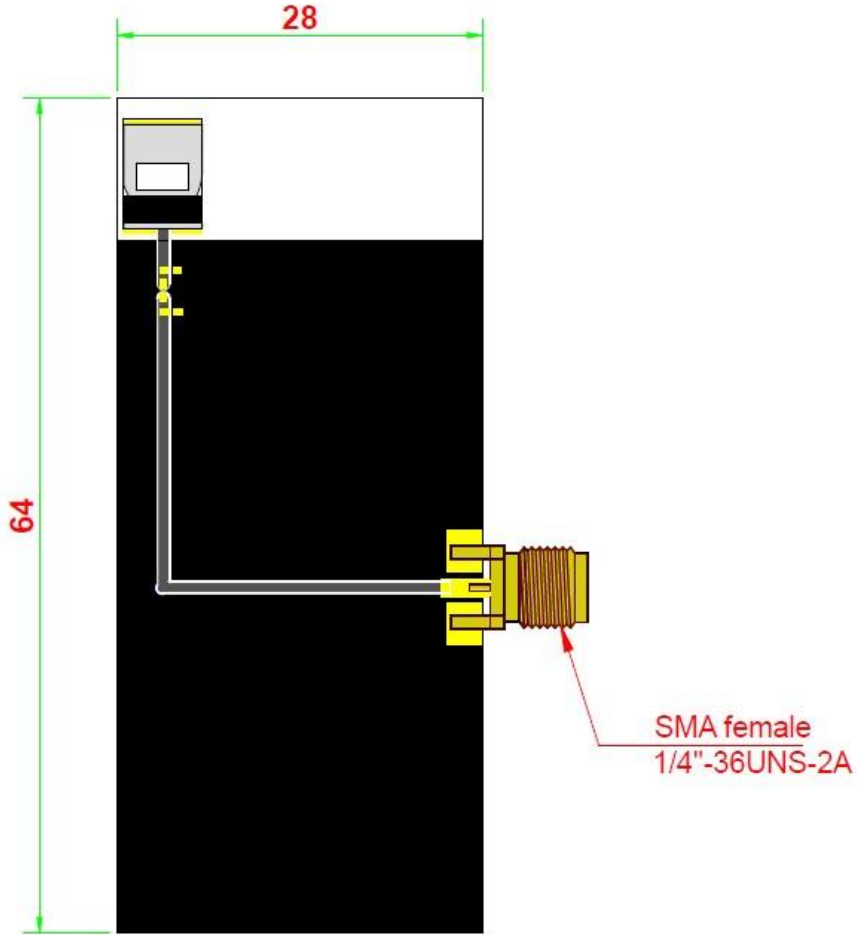
Top View



Bottom View

Evaluation Board

Unit : mm

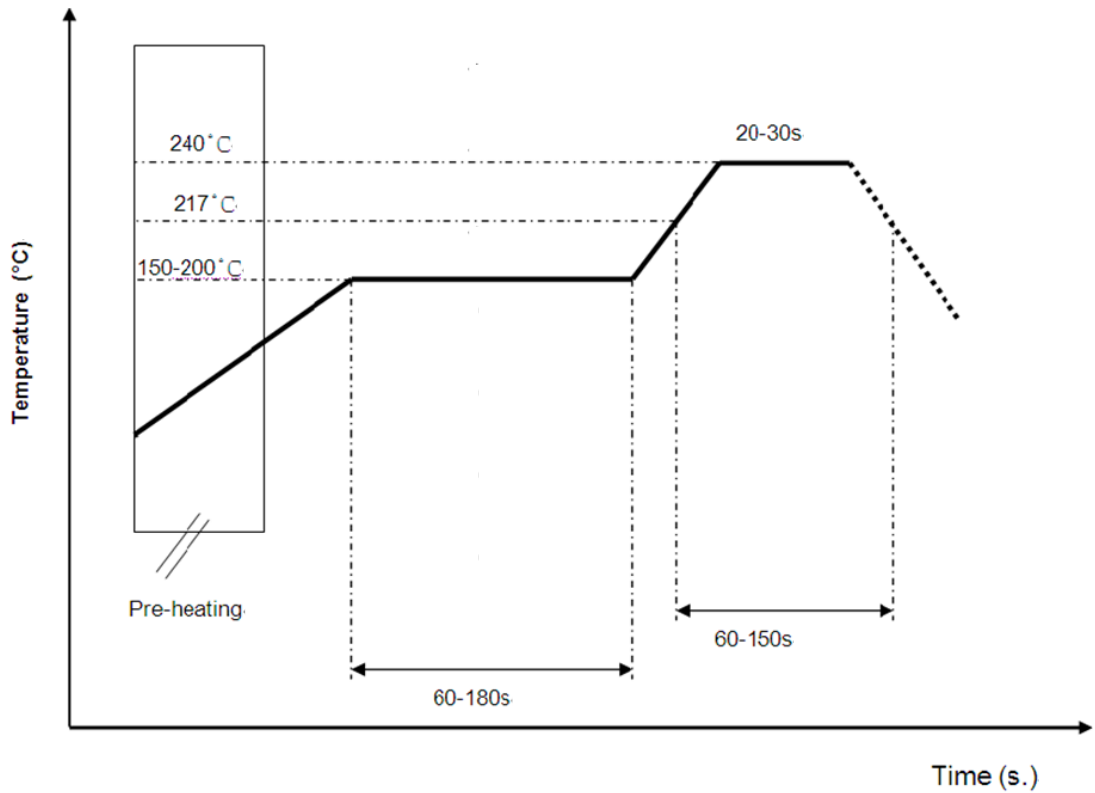


Base Material : FR-4, T=1.0

Recommended Reflow Temperature Profile

Recommended solder paste alloy:

SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste



Revisions

Rev.	Description	Date	ECN	Approval
A	Initial Release	2023-02-15	ST1143-00-N01-E-RA00	ATC

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