

## Datasheet

## 0.69-0.96GHz &amp; 1.7-2.7GHz

Chip antenna

Features:

High performing full 4G LTE band antenna with SMT mounting on PCB.

Applications:

- Telematics Control Unit (TCU)
- HD Video over 4G LTE
- First Responder and Emergency Services
- Intelligent Transport Systems
- Internet of Things (IoT)
- High Definition Video Broadcast Systems
- Wireless 4G LTE M2M Devices
- Medical Devices
- MSL 3

 $35 \times 5 \times 4 \text{ mm}$ 

## Chip Antenna



## Electrical Specifications

## Antenna Characteristics

Antenna Type	Radiation Pattern	Polarization	Max. Input Power	Impedance
Chip Antenna	Omni	Linear	5W	50Ω

Frequency (GHz)	0.698~0.96	1.71~2.17	2.3~2.69
Return Loss (dB)	< -6	< -6	< -6
Peak Gain (dBi)	3.5	2.8	5.6
Average Gain (dB)	-2.2	-2.9	-1.2
Efficiency (%)	60	51	76

## Mechanical Specifications

## Mechanical

Dimension (mm)	35.0 × 5.0 × 4.0
Material	Ceramic
Weight (g)	2.3

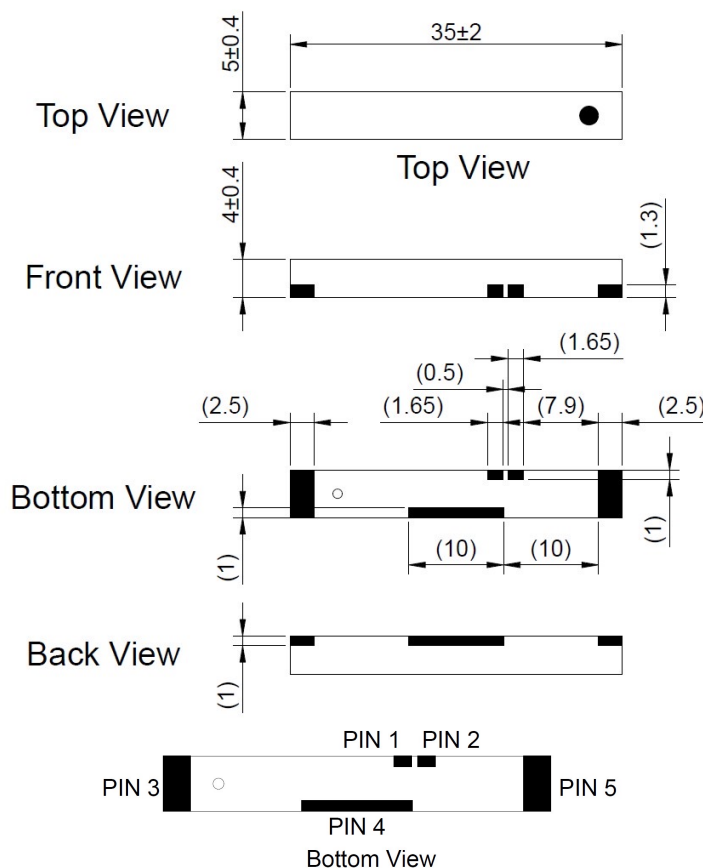
## Environmental

Temperature Range (°C)	-40 to 85
Humidity	Non-condensing 65°C 95% RH

RoHS Compliant

## Mechanical Drawing

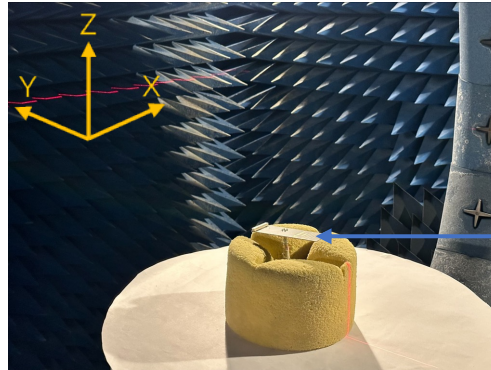
Unit : mm



Pin	Soldering PAD
1	Tuning/Ground
2	Signal
3~5	N/C

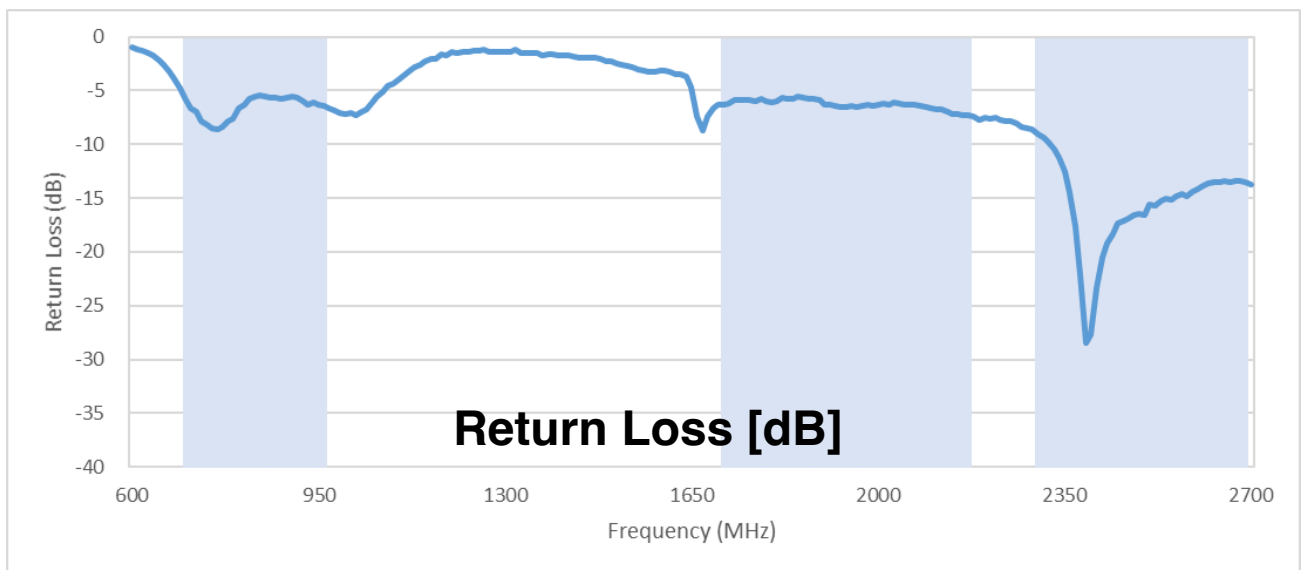
ST0343-10-N01-B

## Antenna Testing Includes Evaluation Board

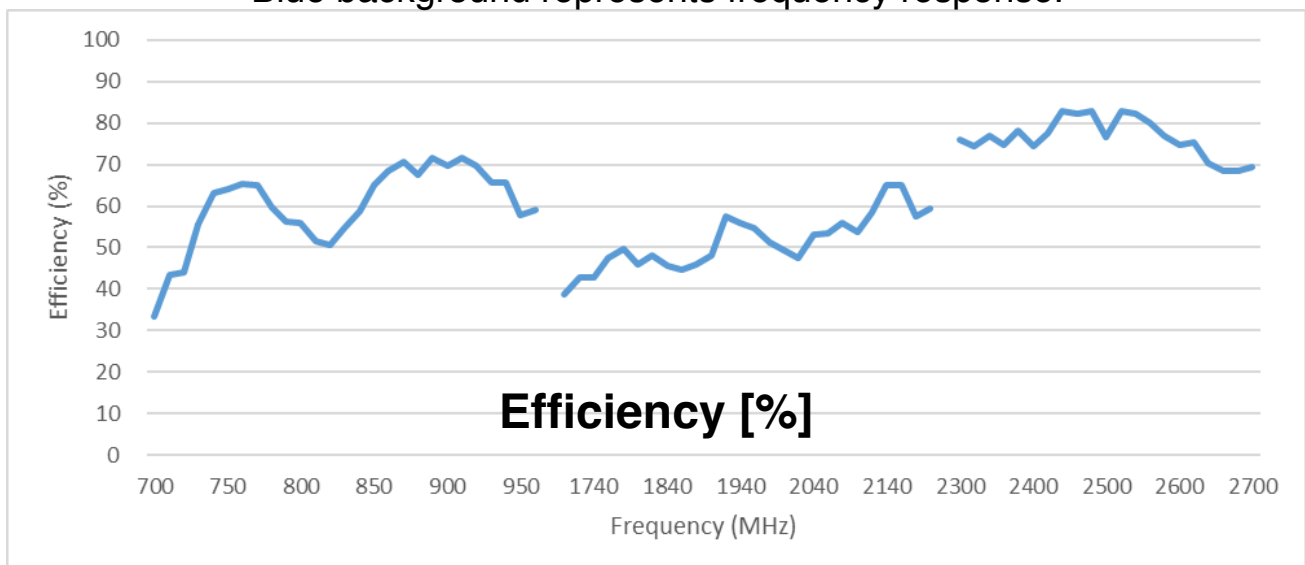


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Test setup, measurement performed in 3D anechoic chamber.

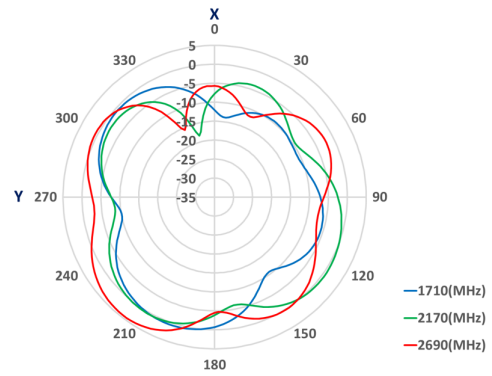
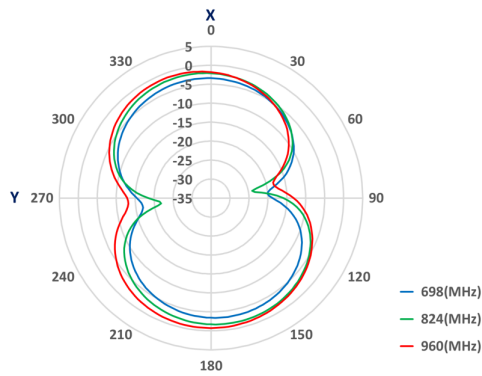


Blue background represents frequency response.

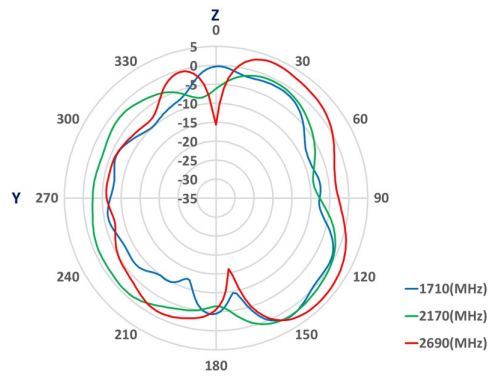
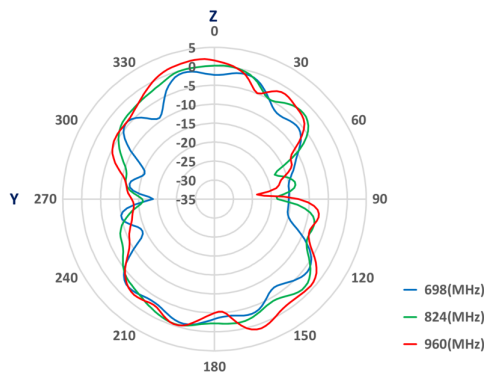


## Radiation Pattern - Free Space

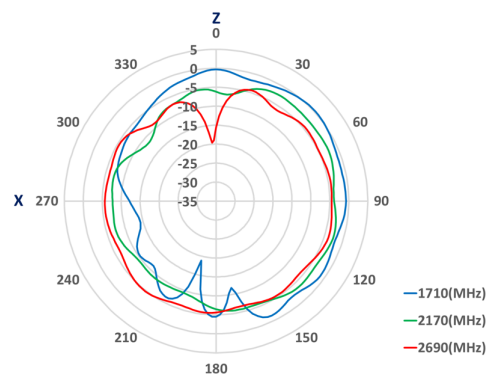
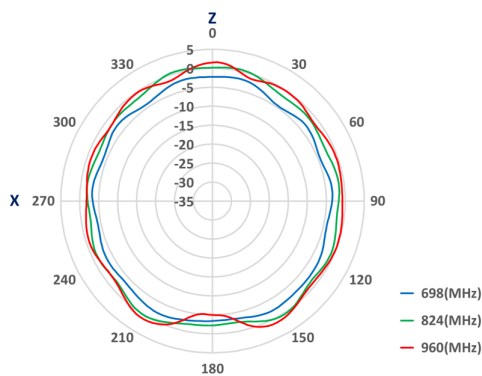
### XY - Plane



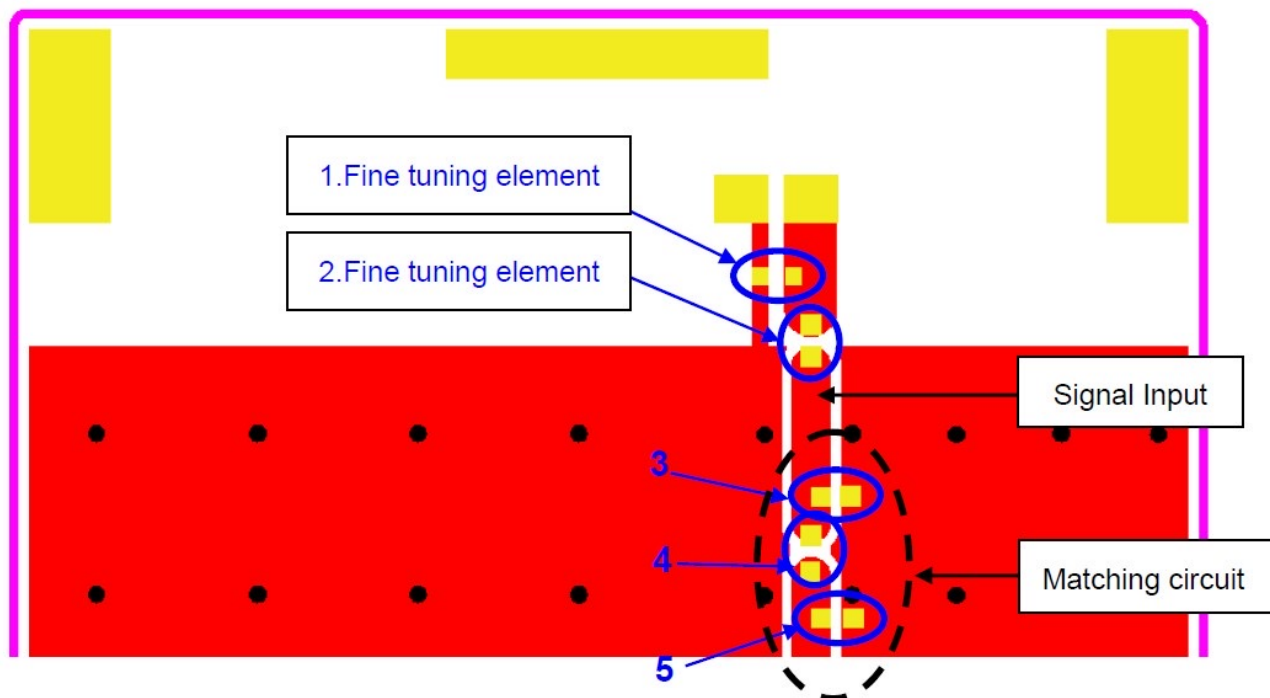
### YZ - Plane



### XZ - Plane



## Matching Circuit Design



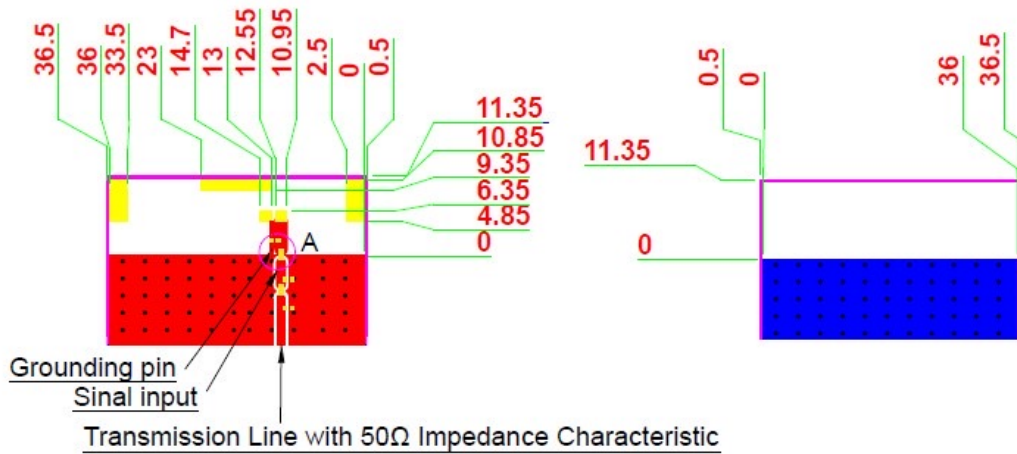
\* To make the antenna have this resonance must be matched with the matching circuit.

\* 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

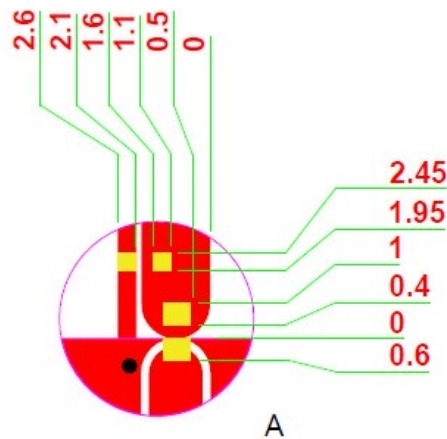
Circuit Symbol	Size	Description
1. Fine tuning element	0402	6.8 nH Inductance
2. Fine tuning element	0402	3.9 pF Capacitor
3	0402	None
4	0402	0 Ohm Resistance
5	0402	None

## Clearance Area Design



Top View

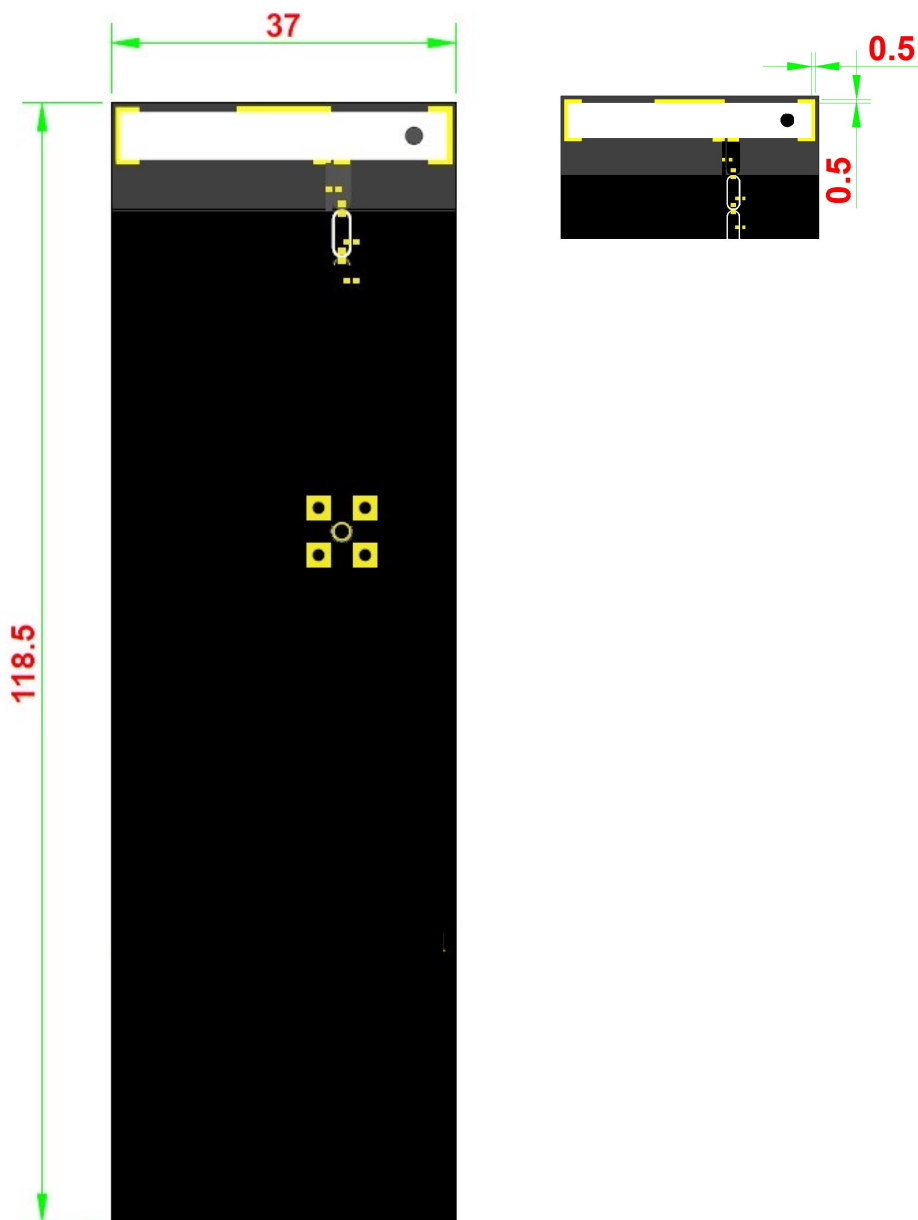
Bottom View



A

## Evaluation Board

Unit : mm

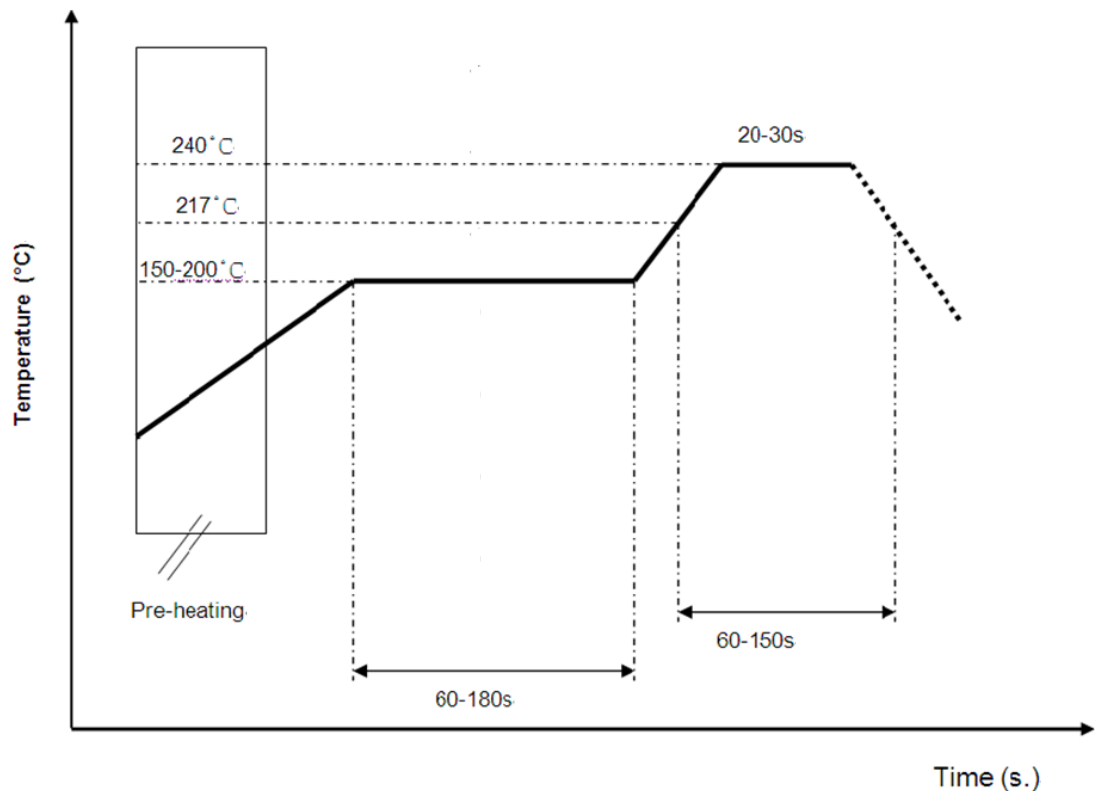


Base Material : FR-4, T=1.0

## 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	2023-02-17	ST0343-10-N01-B-RA00	ATC

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