SUNTSU

Chip Antenna

SATCA-10F3A1G-ISB4

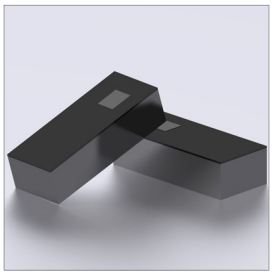
10.0mm x 3.0mm x 1.6mm

Features

- ISM
- Chip Type
- Stable And Reliable Performance
- 433.05-434.79MHz, 863-870MHz & 902-928MHz
- SMT Process Compatible

Applications

- ISM 433/868/915 Band
- Short Range Devices
- IOT Applications
- Wireless Alarm and Security Systems
- Machine To Machine Communication



Part Numbering Guide

S AT CA 10F3A1G IS B4

SUNTSU	ANTENNA	CHIP ANTENNA	PACKAGE SIZE*	APPLICATION	FREQUENCY
RoHS COMPLIANT			10F3A1G = 10.0mm x 3.0mm x 1.6mm	IS = ISM	B4 = 433.05-434.79MHz 868-870MHz 902-928MHz

* Where letters denote decimal location (A=.0, B=.1, C=.2, etc.); e.g. B5=0.15, 3A5=3.05, 9A=9.0

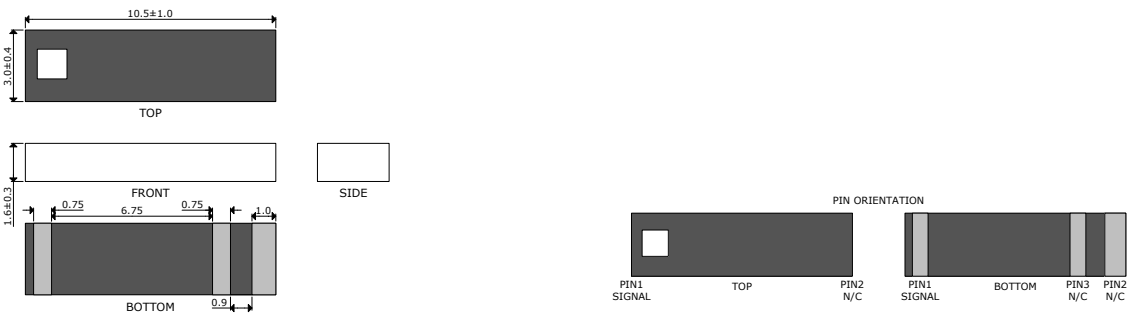
Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	433.05		434.79	
Impedance	Ω		50		
Polarization			Linear		
Peak Gain	dBi		N/A		At 433MHz
Efficiency	%		N/A		At 433MHz
VSWR				2	At Center Frequency
Operating Temperature	C	-40		85	

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	863		870	
Impedance	Ω		50		
Polarization			Linear		
Peak Gain	dBi		-2.1		At 868MHz
Efficiency	%		26		At 868MHz
VSWR				2	At Center Frequency
Operating Temperature	C	-40		85	

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	902		928	
Impedance	Ω		50		
Polarization			Linear		
Peak Gain	dBi		-1.9		At 915MHz
Efficiency	%		26.3		At 915MHz
VSWR				2	At Center Frequency
Operating Temperature	C	-40		85	

Outline Drawing

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



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Specifications are subject to change without notice.

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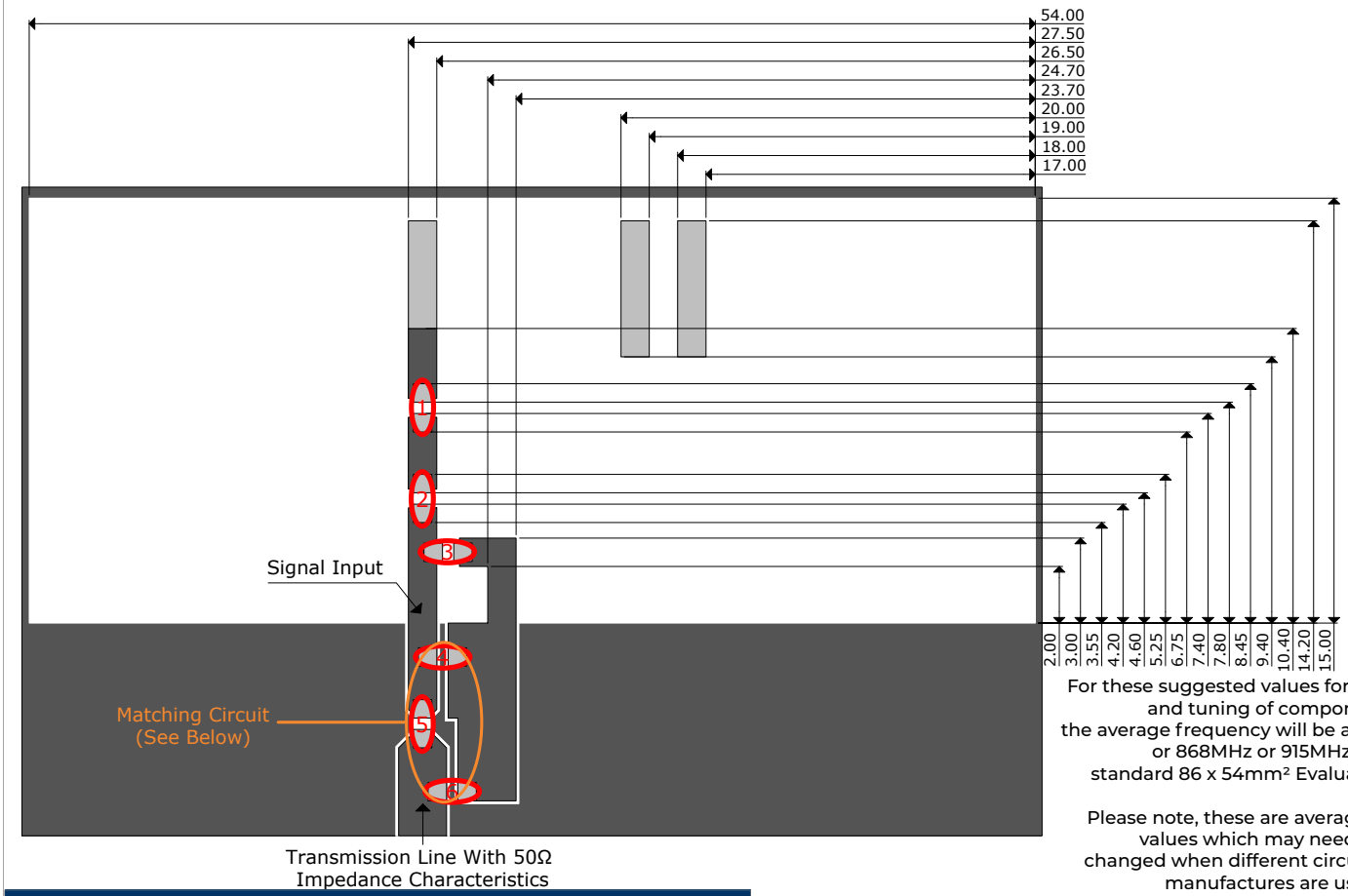
Recommended Land Pattern & Frequency Tuning Scenario Circuit

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

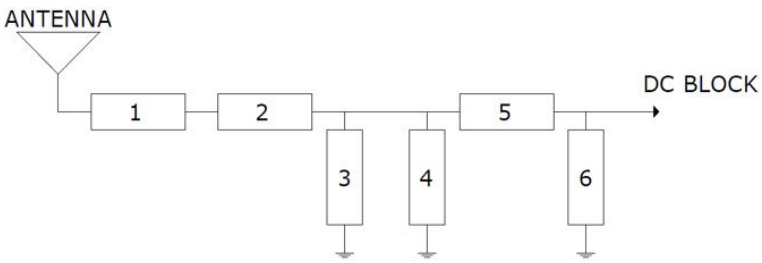


For these suggested values for the matching and tuning of components, the average frequency will be around 433MHz or 868MHz or 915MHz on a standard 86 x 54mm² Evaluation board.

Please note, these are average reference values which may need to be changed when different circuit boards or manufactures are used.

System Matching Circuit Components For 433MHz Band

Location	Description	Vendor	Tolerance
1	150nH, (0402)	MURATA	±5%
2	82nH, (0402)	MURATA	±5%
3	N/A	-	-
4	8.2pF, (0402)	MURATA	±5%
5	39pF, (0402)	MURATA	±5%
6	18pF, (0402)	MURATA	±5%



System Matching Circuit Components For 915MHz Band

Location	Description	Vendor	Tolerance
1	33nH, (0402)	MURATA	±5%
2	18nH, (0402)	MURATA	±5%
3	N/A	-	-
4	2.2pF, (0402)	MURATA	±0.05pF
5	0Ω, (0402)	-	-
6	N/A	-	-

System Matching Circuit Components For 868MHz Band

Location	Description	Vendor	Tolerance
1	2.7nH, (0402)	MURATA	±5%
2	18nH, (0402)	MURATA	±5%
3	N/A	-	-
4	2.2pF, (0402)	MURATA	±0.05pF
5	0Ω, (0402)	-	-
6	N/A	-	-

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SATCA-10F3A1G-ISB4

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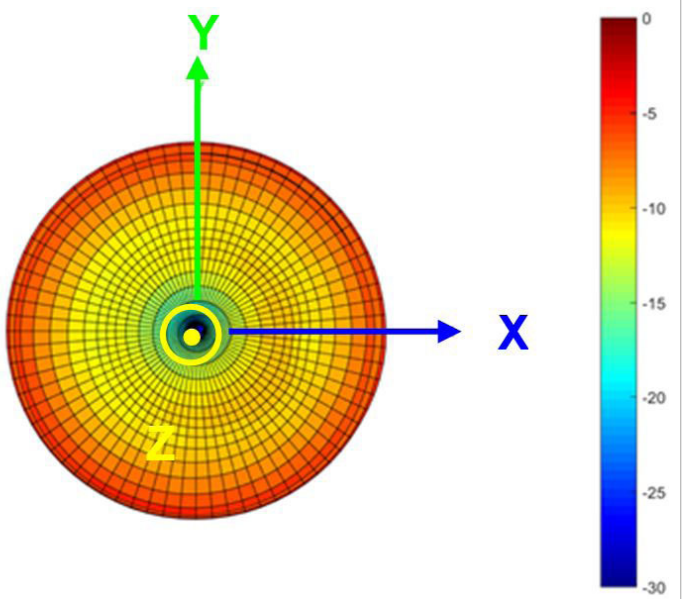
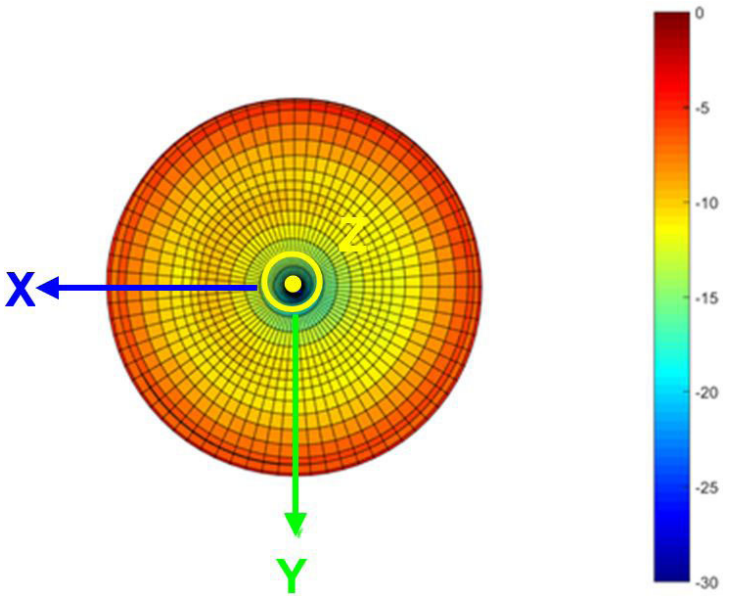
Radiation Pattern

868MHz



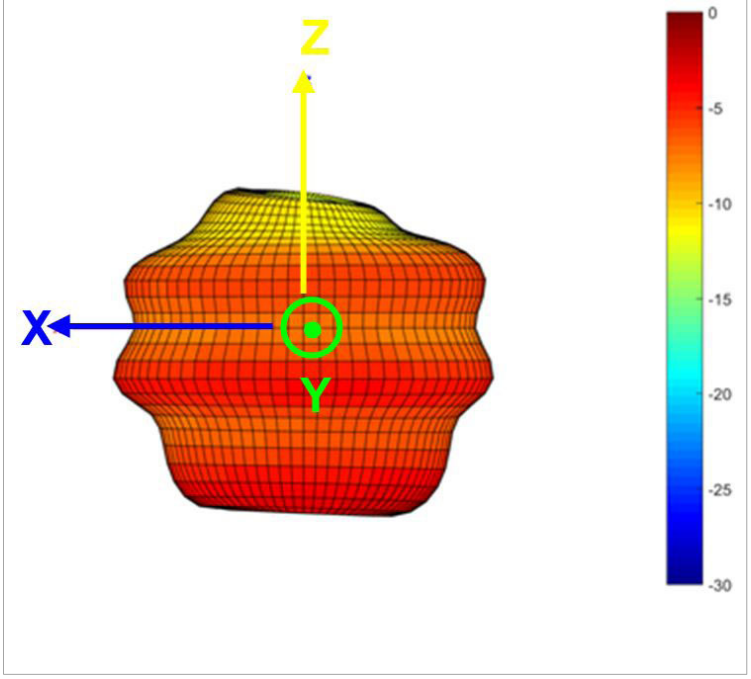
Radiation Pattern

868MHz



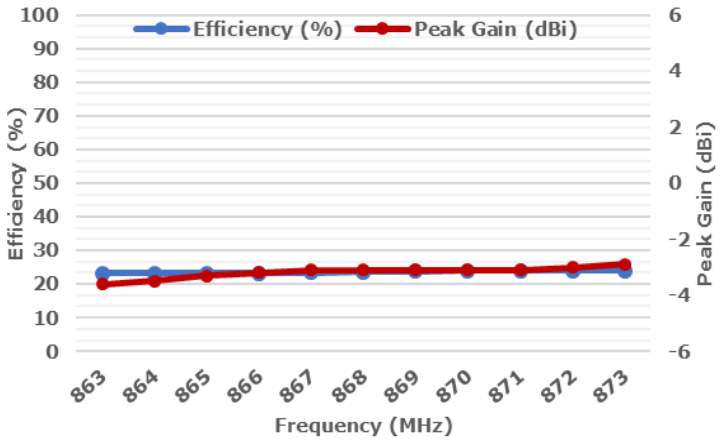
Radiation Pattern

868MHz



Efficiency V's Frequency

868MHz



Freq.	863	864	865	866	867	868	869	870	871	872	873
Eff. (%)	23.3	23.3	23.3	23.3	23.4	23.6	23.7	23.9	23.9	23.9	23.9
P.G.	-3.6	-3.5	-3.3	-3.2	-3.1	-3.1	-3.1	-3.1	-3.1	-3	-2.9

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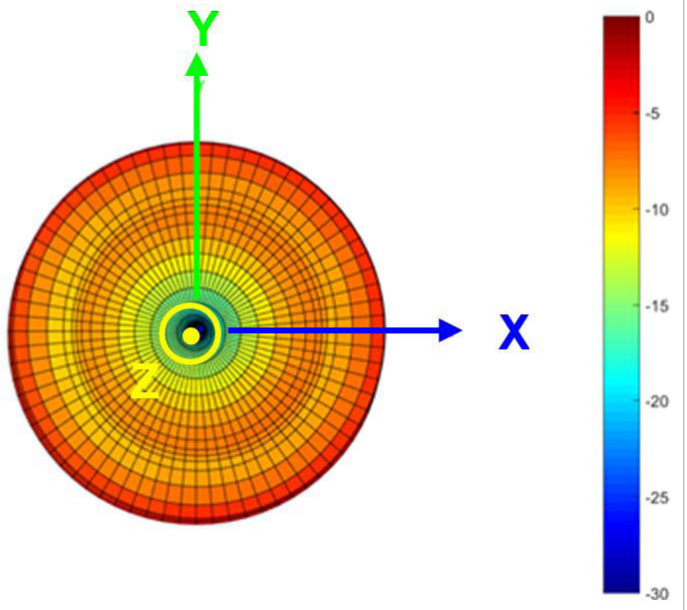
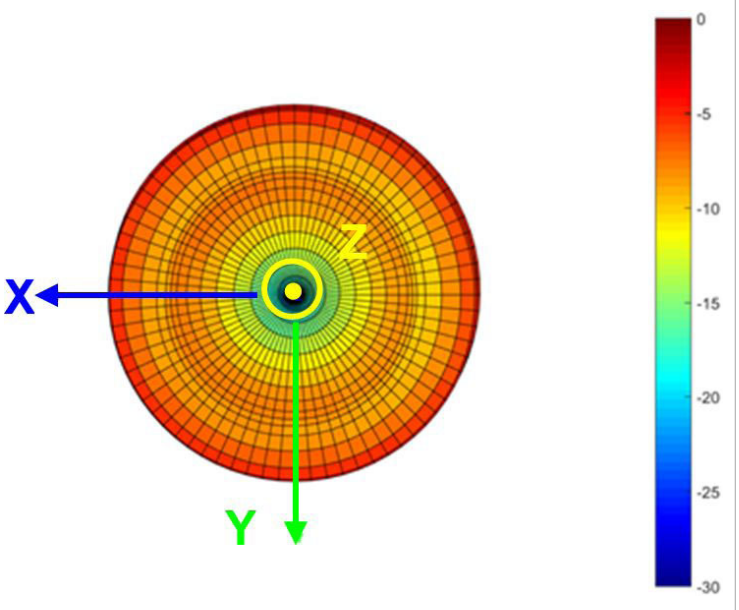
Radiation Pattern

915MHz



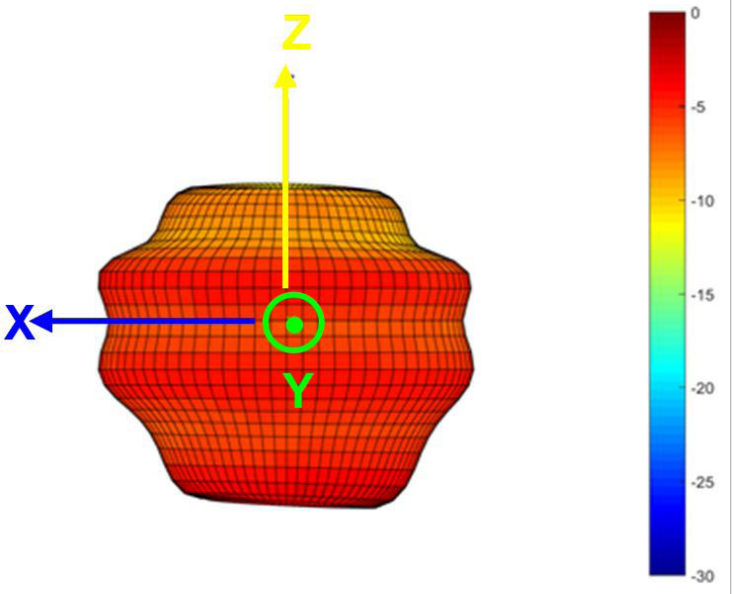
Radiation Pattern

915MHz



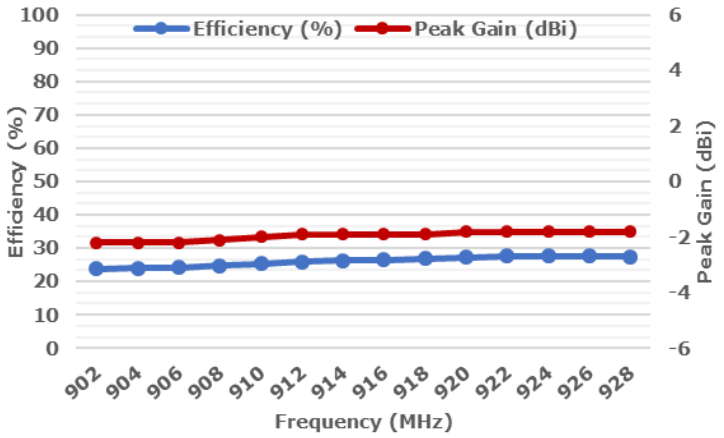
Radiation Pattern

915MHz



Efficiency V's Frequency

915MHz



Freq.	902	904	906	908	910	912	914	916	918	920	922	924	926	928
Eff. (%)	23.7	23.9	24.2	24.7	25.4	25.9	26.2	26.4	26.8	27.2	27.6	27.7	27.7	27.5
P.G.	-2.2	-2.2	-2.2	-2.1	-2	-1.9	-1.9	-1.9	-1.9	-1.8	-1.8	-1.8	-1.8	-1.8

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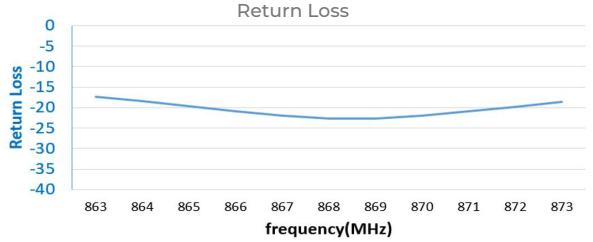
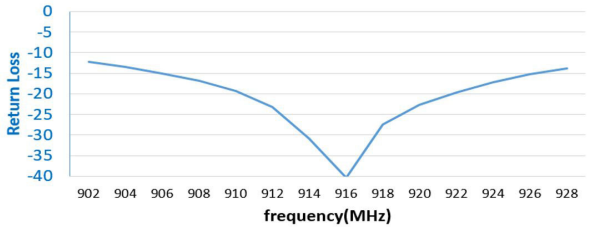
Electrical Test

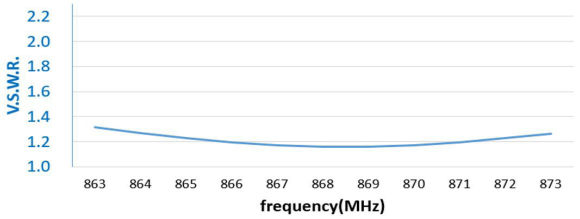
Return Loss

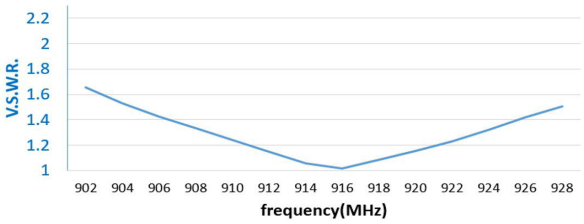




Electrical Test

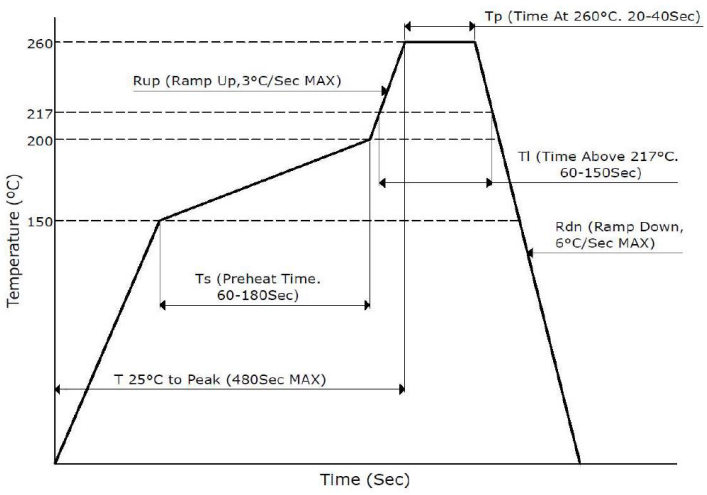
VSWR





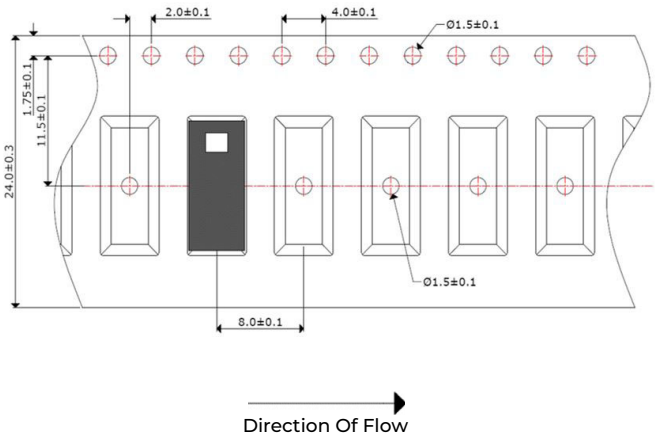
Soldering Conditions

Typical Soldering Profile For Lead-Free Process



Packaging - Tape And Reel

3,000Pcs / Reel



Environmental & Mechanical Specifications

High Temperature Test	85°C for 500 hours, and then to normal temperature/humidity for 24hours.
Low Temperature Test	-30°C for 500 hours, and then to normal temperature/humidity for 24hours.
Humidity Test	85°C / 90-95%RH for 96 hours, and then to normal temperature/humidity for 24hours.
Thermal Shock Test	-30°C for 30 min and +85°C for 30 min. 5 cycles, then expose to normal temperature/humidity for 24 hours or more.
Vibration Test	5 to 200 to 5Hz, swept in 10min, 4.5G at max(2mm amplitude), in X and Y directions for 2 hours each and in Z direction for 4 hours.

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