SUNTSU

Chip Antenna

SATCA-3C1GF-WFB3

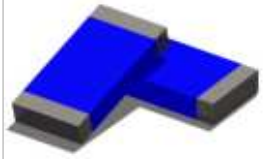
3.2mm x 1.6mm x 0.5mm

Features

- Dual Band WiFi
- Chip Type
- Stable And Reliable Performance
- 2400-2500MHz & 5150-5850MHz
- SMT Process Compatible

Applications

- Wireless Communication Devices
- WiFi Certified AC Applications
- IoT Applications
- Machine To Machine Communication
- Wireless PCMCIA Cards Or USB Dongles



Part Numbering Guide

S AT CA 3C1GF WF B3

SUNTSU	ANTENNA	CHIP ANTENNA	PACKAGE SIZE*	APPLICATION	FREQUENCY
RoHS COMPLIANT			3C1GF = 3.2mm x 1.6mm x 0.5mm	WF - WiFi	B3 = 2400-2500MHz 5150-5850MHz

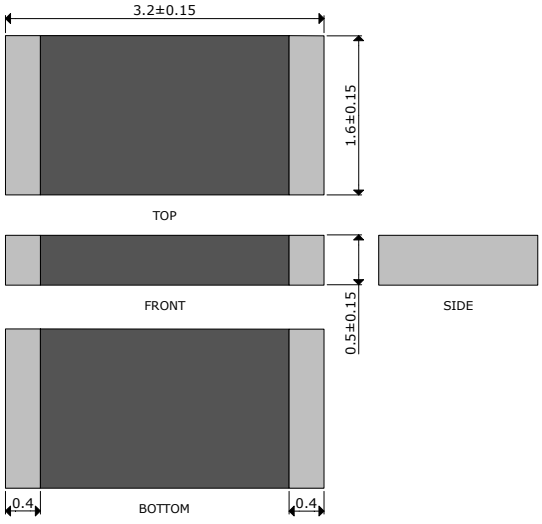
* Where letters denote decimal location (A=.0, B=.1, C=.2, etc.); e.g. B5=0.15, 3A5=3.05, 9A=9.0

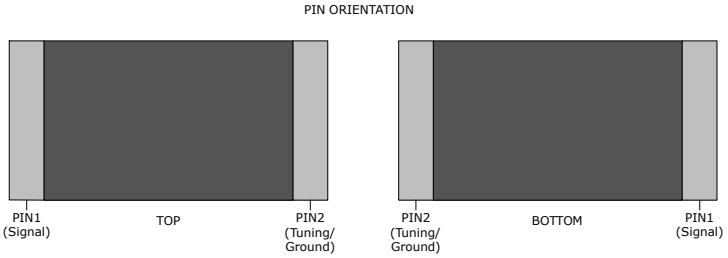
Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	2400		2500	
Impedance	Ω		50		
Polarization			Linear		
Peak Gain	dBi		1.4		At 2442MHz
Efficiency	%		76		At 2442MHz
VSWR				2	At Center Frequency
Operating Temperature	C	-40		85	

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Band	MHz	5150		5800	
Impedance	Ω		50		
Polarization			Linear		
Peak Gain	dBi		2.3		At 5550MHz
Efficiency	%		67		At 5550MHz
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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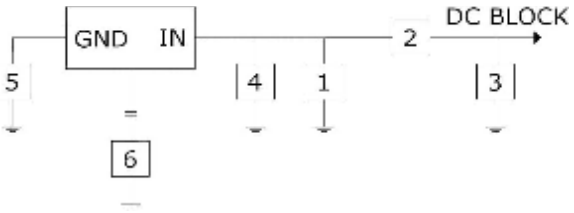
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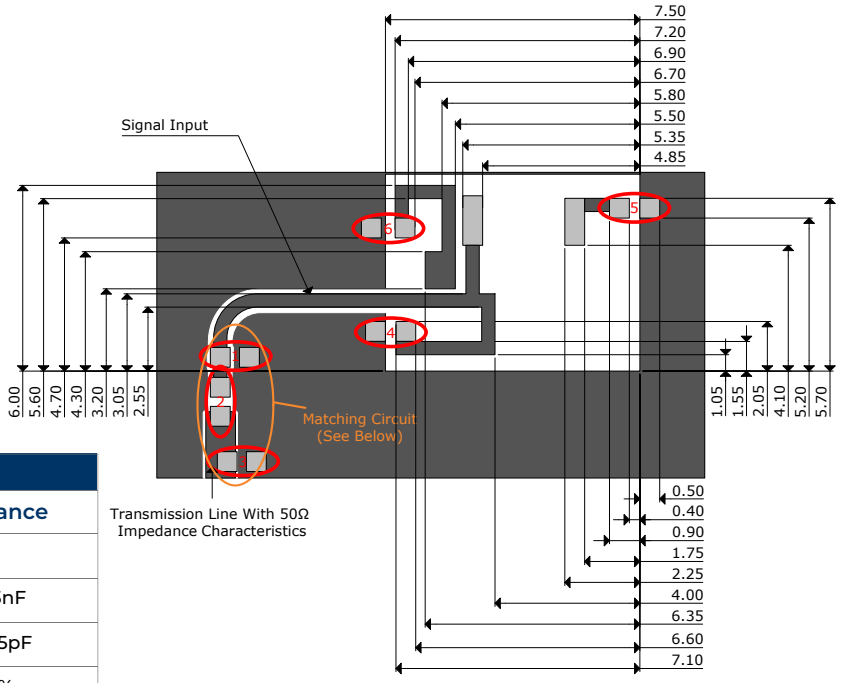
Recommended Land Pattern & Frequency Tuning Scenario Circuit

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 2442Mhz for the lower Band and around 5550MHz for the higher on a standard 80 x 40mm² Evaluation board.

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

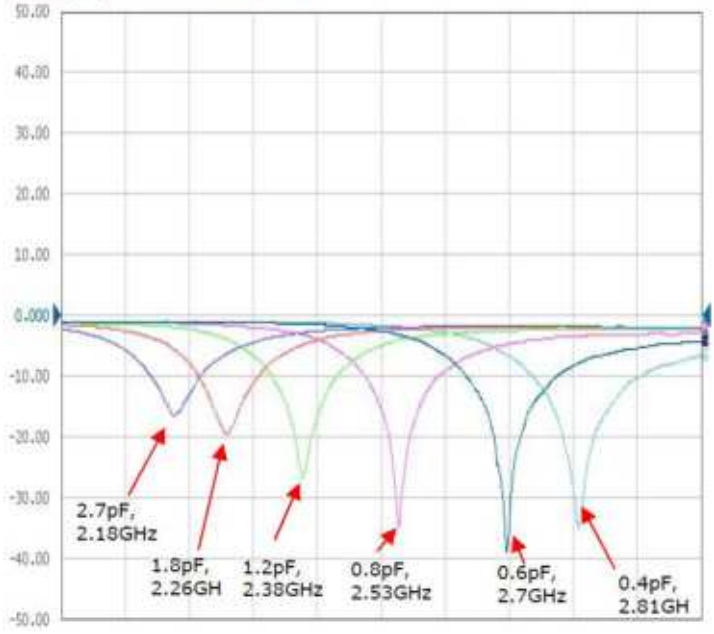




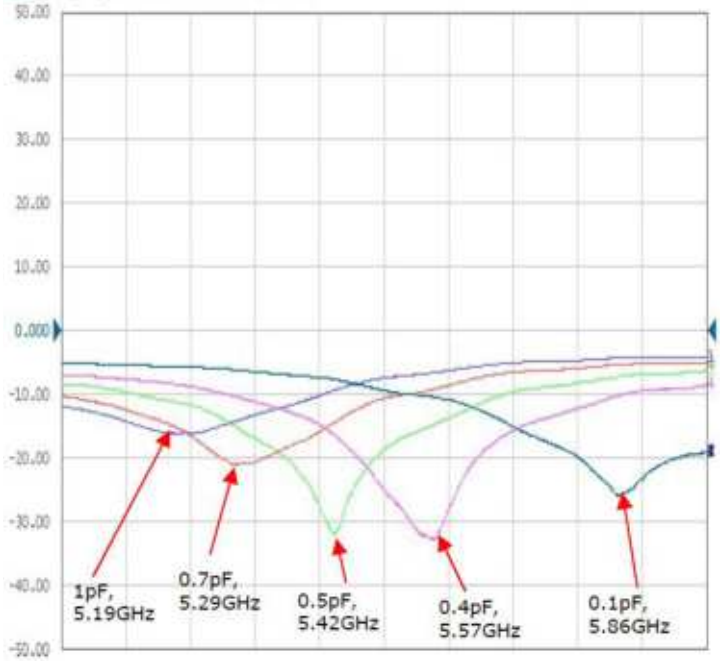
System Matching Circuit Components

Location	Description	Vendor	Tolerance
1	N/A	-	-
2	1nH, (0402)	DARFON	±0.3nF
3	0.2pF, (0402)	DARFON	±0.05pF
4	22pF, (0402)	DARFON	±5%
5 (Fine Tuning)	1pF, (0402)	DARFON	±0.05pF
6 (Fine Tuning)	0.2pF, (0402)	DARFON	±0.05pF

Reference chart for the 2400-2500MHz Band



Reference chart for the 5150-5850MHz Band



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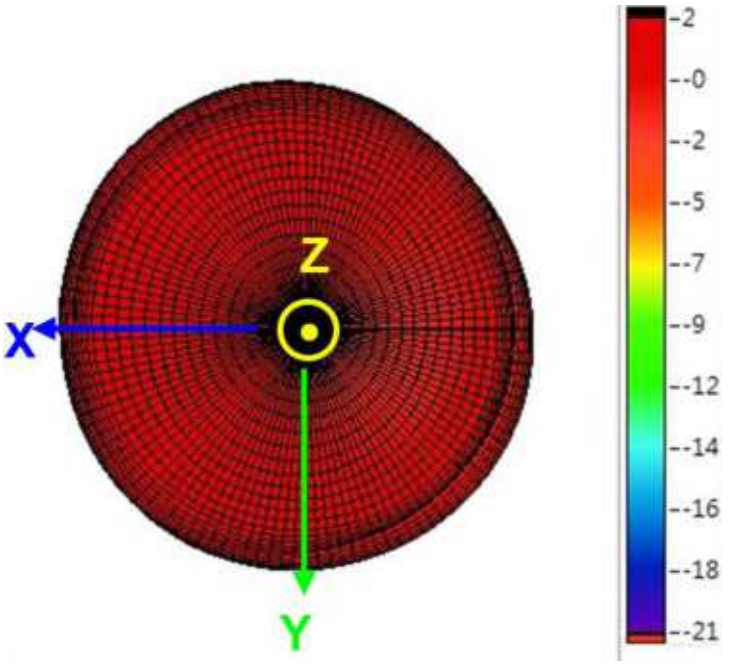
Chip Antenna

SATCA-3C1GF-WFB3

3.2mm x 1.6mm x 0.5mm

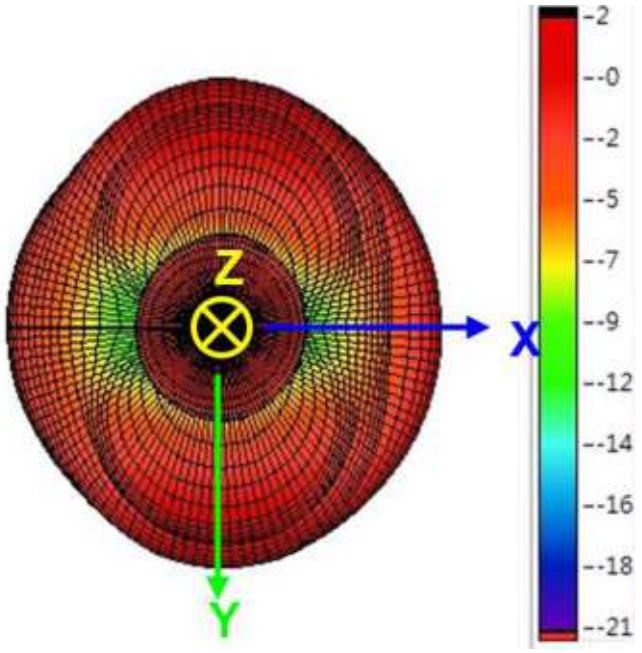
Radiation Pattern

2442MHz



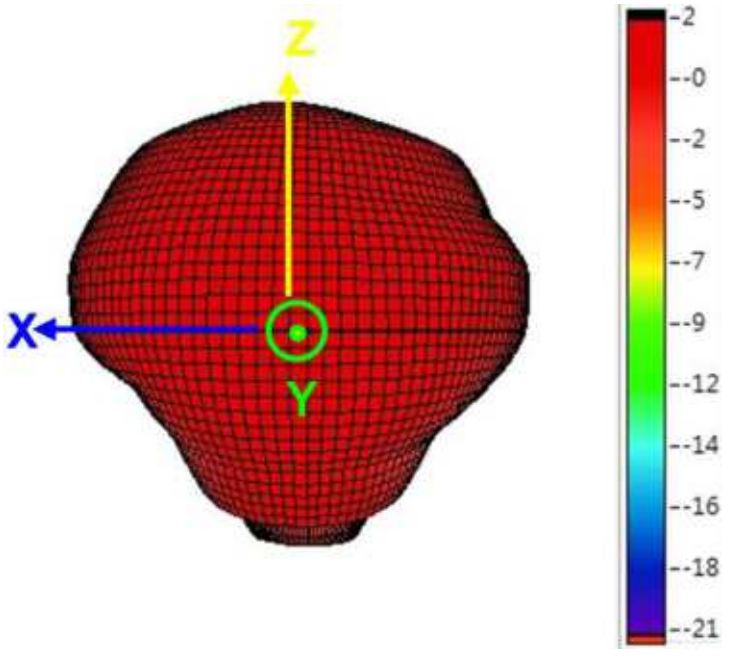
Radiation Pattern

2442MHz



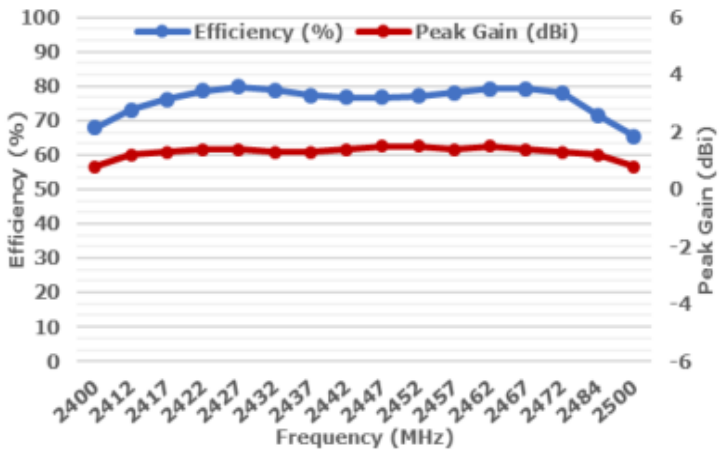
Radiation Pattern

2442MHz



Efficiency V's Frequency

2442MHz



Freq.	2400	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2484	2500
Eff. (%)	67.9	73.2	76.1	78.7	79.9	78.8	77.4	76.8	76.8	77.2	78.1	79.3	79.2	78.1	71.5	65.5
P.G.	0.8	1.2	1.3	1.4	1.4	1.3	1.3	1.4	1.5	1.5	1.4	1.5	1.4	1.3	1.2	0.8

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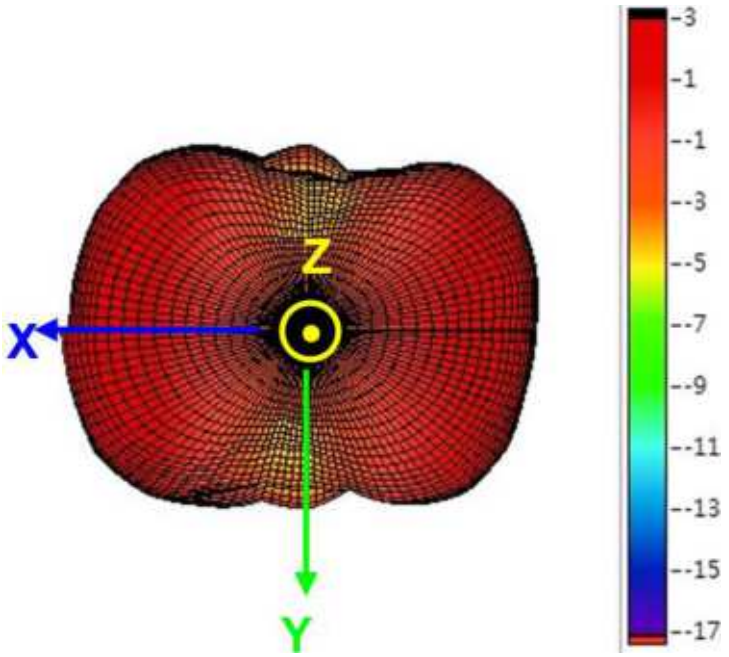
Chip Antenna

SATCA-3C1GF-WFB3

3.2mm x 1.6mm x 0.5mm

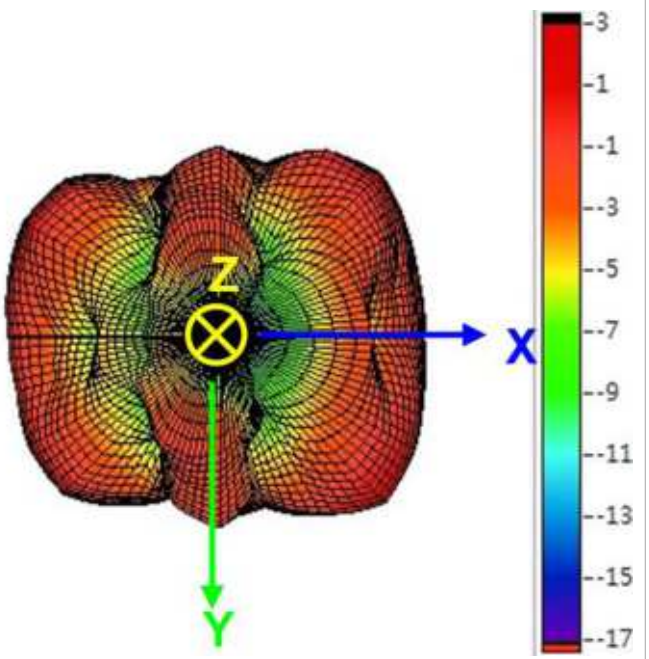
Radiation Pattern

5150MHz



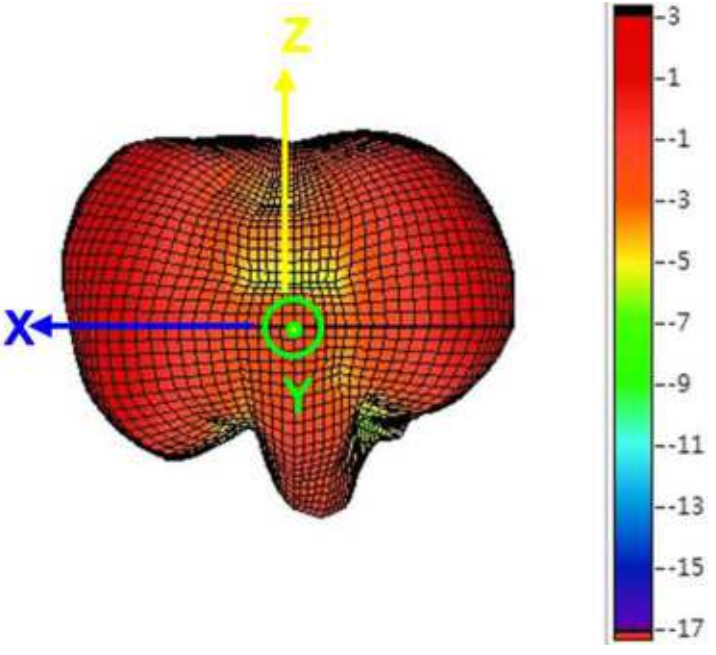
Radiation Pattern

5150MHz



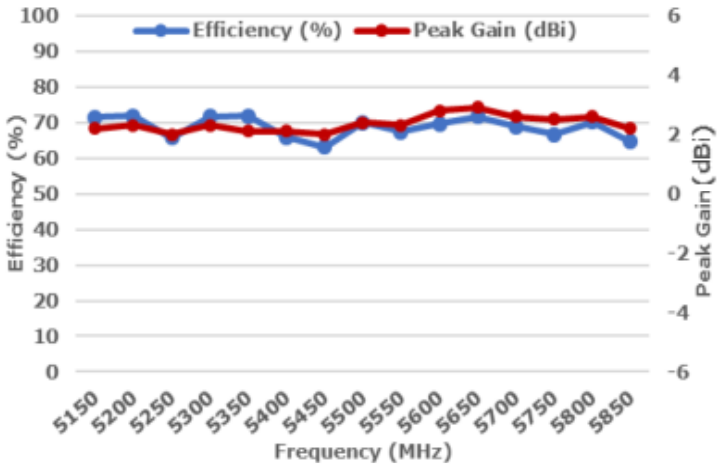
Radiation Pattern

5150MHz



Efficiency V's Frequency

5150MHz



Freq.	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Eff. (%)	71.5	71.9	65.7	71.6	71.9	65.8	63.2	69.9	67.3	69.6	71.7	68.9	66.6	70.1	64.6
P.G.	2.2	2.3	2	2.3	2.1	2.1	2	2.4	2.3	2.8	2.9	2.6	2.5	2.6	2.2

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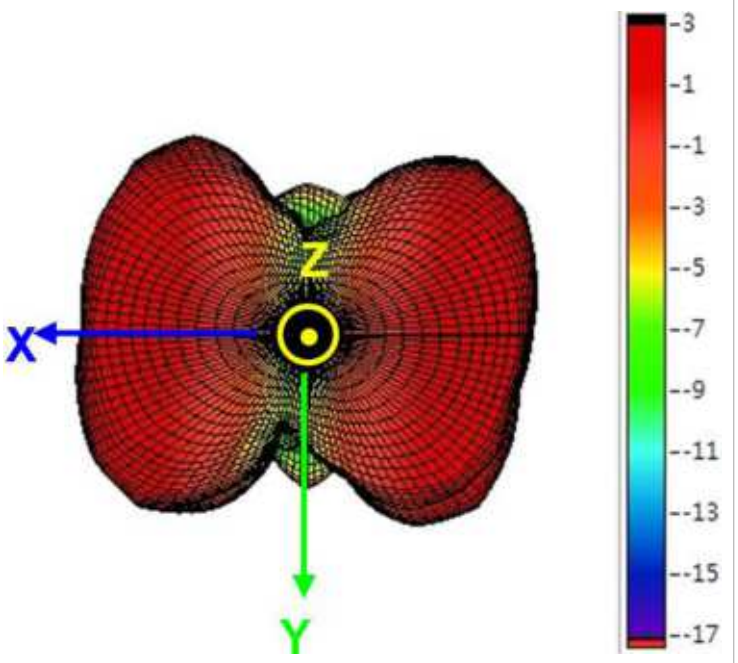
Chip Antenna

SATCA-3C1GF-WFB3

3.2mm x 1.6mm x 0.5mm

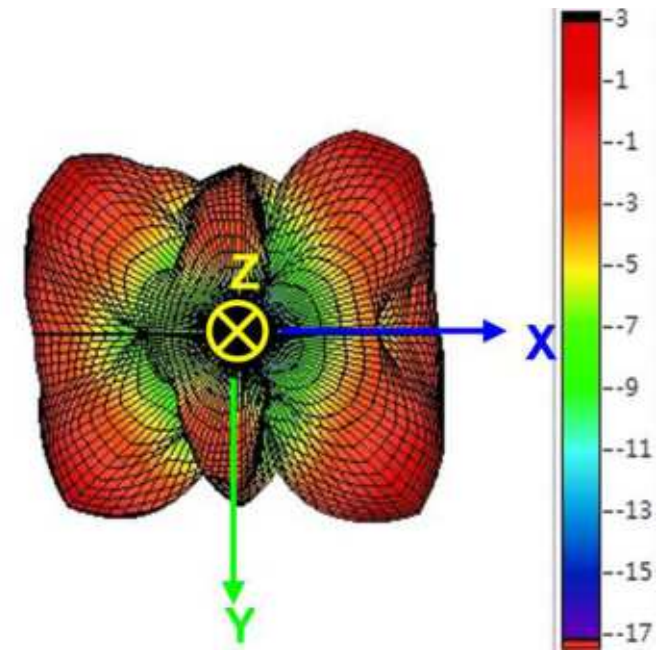
Radiation Pattern

5550MHz



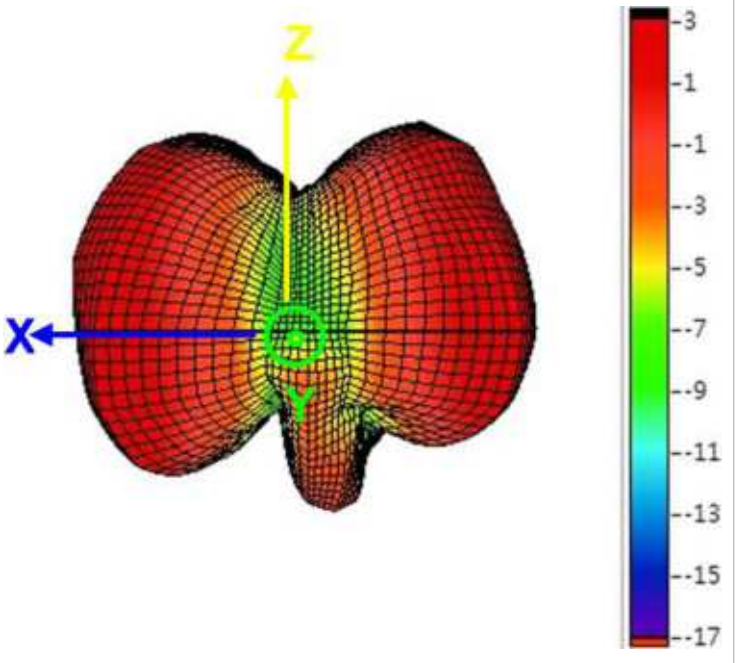
Radiation Pattern

5550MHz



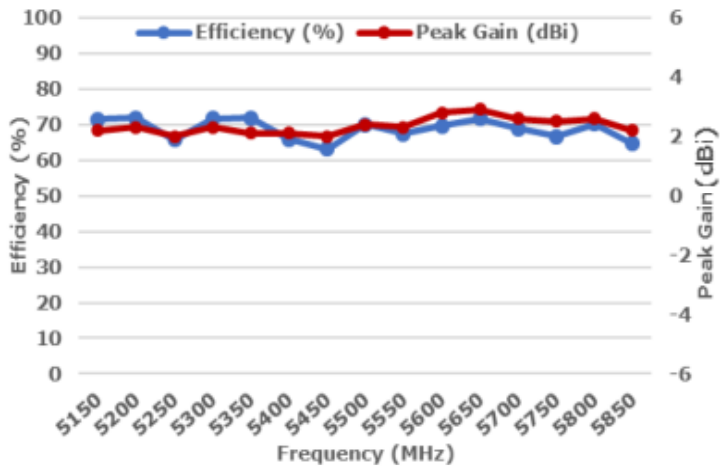
Radiation Pattern

5550MHz



Efficiency V's Frequency

5550MHzd



Freq.	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Eff. (%)	71.5	71.9	65.7	71.6	71.9	65.8	63.2	69.9	67.3	69.6	71.7	68.9	66.6	70.1	64.6
P.G.	2.2	2.3	2	2.3	2.1	2.1	2	2.4	2.3	2.8	2.9	2.6	2.5	2.6	2.2

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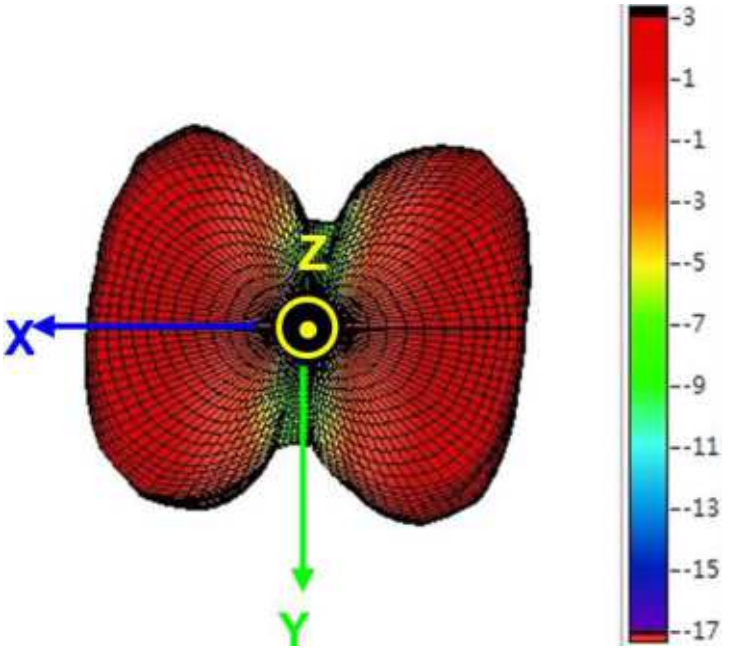
Chip Antenna

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3.2mm x 1.6mm x 0.5mm

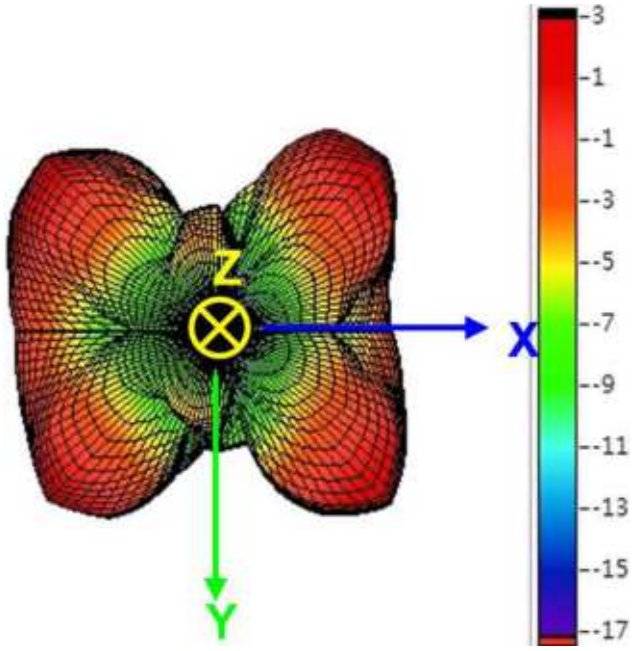
Radiation Pattern

5850MHz



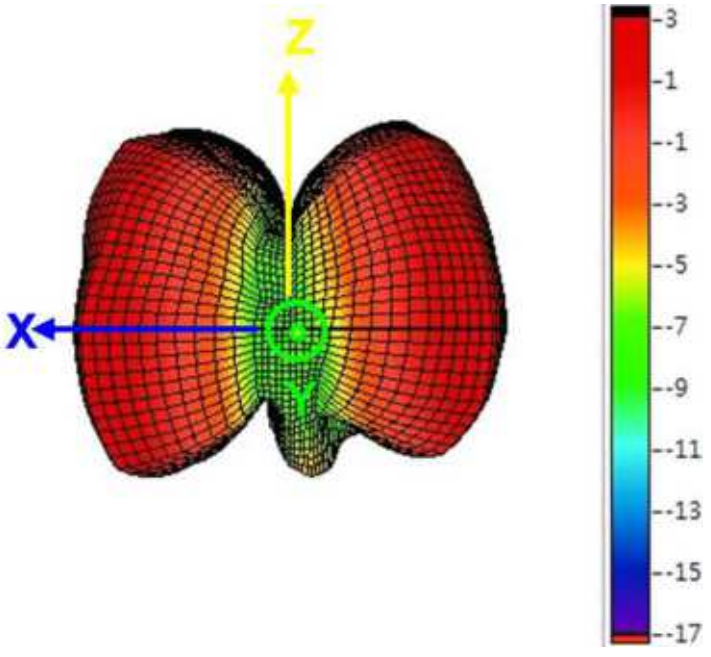
Radiation Pattern

5850MHz



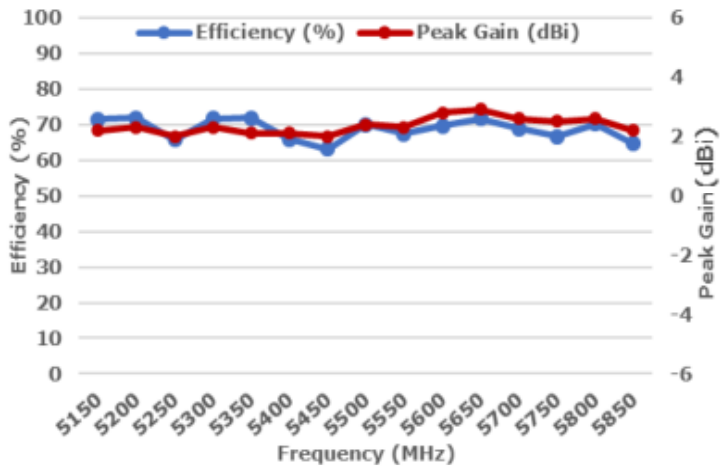
Radiation Pattern

5850MHz



Efficiency V's Frequency

5850MHz



Freq.	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Eff. (%)	71.5	71.9	65.7	71.6	71.9	65.8	63.2	69.9	67.3	69.6	71.7	68.9	66.6	70.1	64.6
P.G.	2.2	2.3	2	2.3	2.1	2.1	2	2.4	2.3	2.8	2.9	2.6	2.5	2.6	2.2

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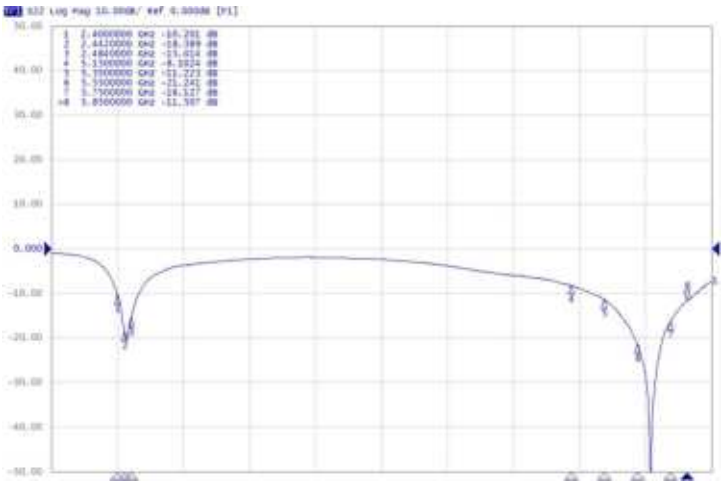
Chip Antenna

SATCA-3C1GF-WFB3

3.2mm x 1.6mm x 0.5mm

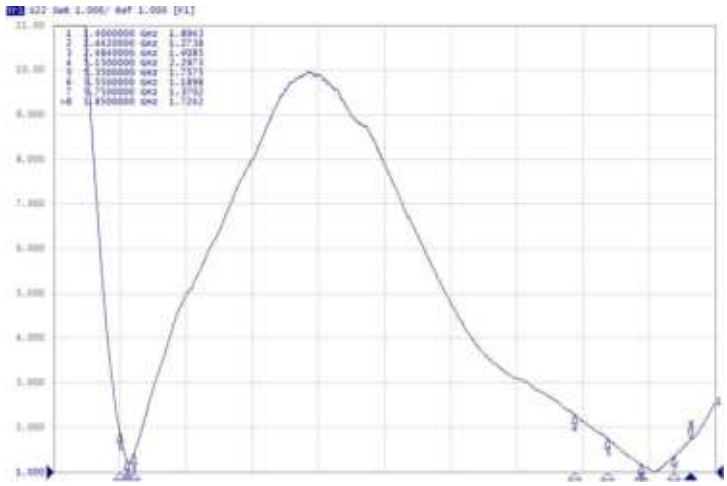
Electrical Test

Return Loss



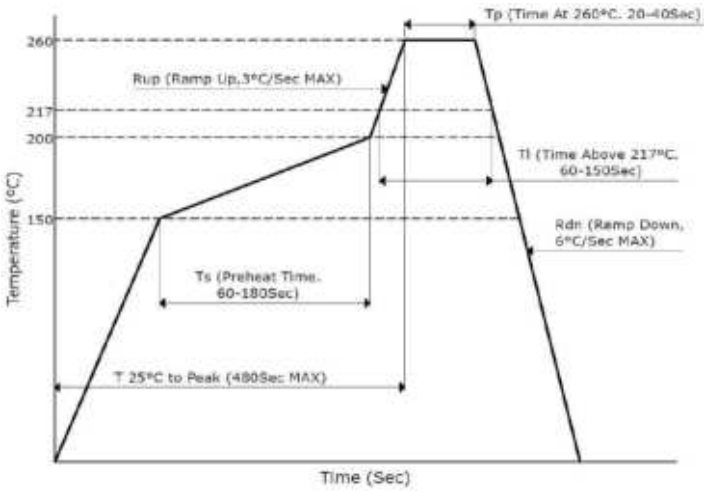
Electrical Test

VSWR



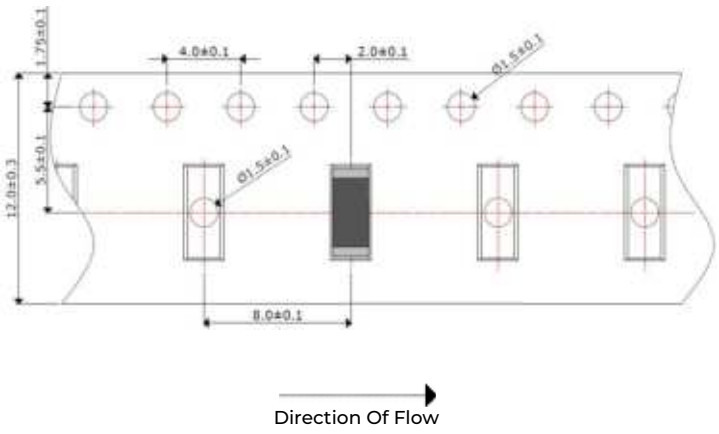
Soldering Conditions

Typical Soldering Profile For Lead-Free Process



Packaging - Tape And Reel

5000Pcs / 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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