

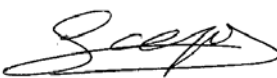
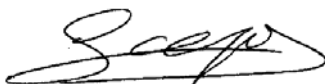


Part Approval Sheet
2008.11.26



Device ID	3030A5839-01
Device Type	SMD Antenna

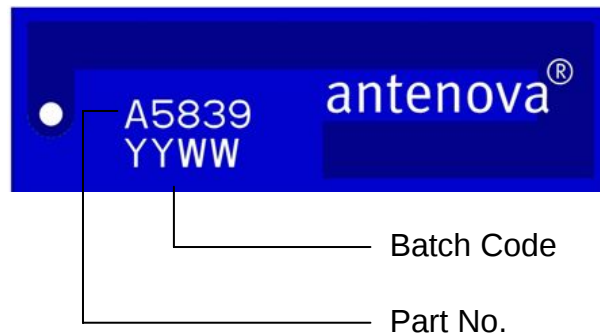
Revision History

VERSION	DATE	SUBJECT	APPROVED
Rev 1.0	17 July 2008	Initial Version	
Rev 2.0	26 Nov 2008	Add'l req'd information	

Integrated Antenna and RF Solutions

1 Part number

Rufa Left: 3030A5839-01



2 General data

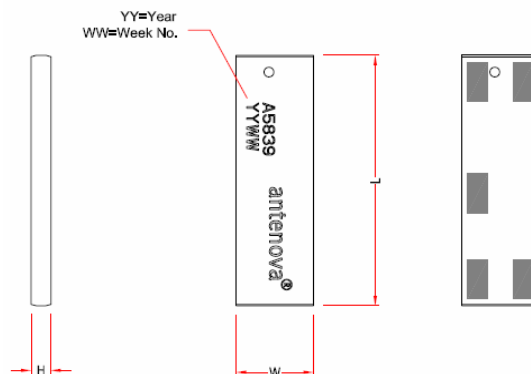
Product name	Rufa 2.4 GHz
Part Number	3030A5839-01 (Left)
	3030A5887-01 (Right)
Frequency	2.4 – 2.5 GHz
Polarization	Linear
Operating temperature	-40 °C to +85 °C
Impedance with matching	50 Ω
Weight	0.1 g
Antenna type	SMD
Dimensions	12.8 x 3.9 x 1.1 [mm]

3 Electrical characteristics

	Typical performance	Conditions
Peak gain	2.1 dBi	All data measured on Antenova's reference boards, part numbers AN-1-0543-1 and AN-1-0556-1 Data given for the 2.4 – 2.5 GHz frequency range
Average gain	-1.2 dBi	
Average efficiency	75%	
Maximum Return Loss	-11 dB	
Maximum VSWR	1.8:1	

4 Antenna dimensions

Rufa Left



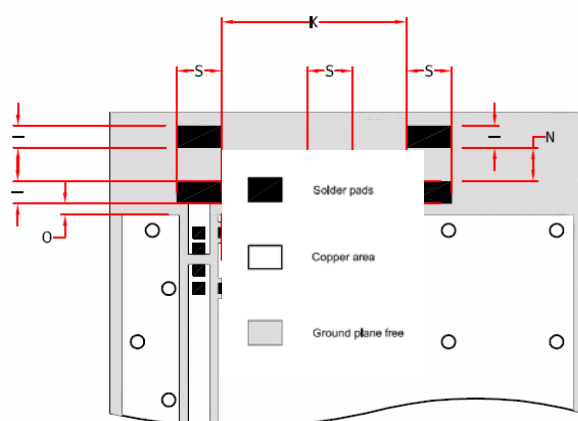
L	W	H
Length	Width	Height
12.8 ± 0.2	3.9 ± 0.2	1.1 ± 0.2

Dimensions in mm

5 Antenna footprint

Rufa Left (Part No: 3030A5839-01)

* CAD files of the antenna footprint are available from Antenova on request.



Please contact info@antenova.com for further details.

I	S	K	J	N	L	O
1.0 ± 0.1	2.0 ± 0.1	8.1 ± 0.1	3.7 ± 0.1	1.5 ± 0.1	2.4 ± 0.1	0.5 ± 0.1

Dimensions in mm

6 Antenna Pad Plating

Material: FR4 1mm

Finish: Immersion Tin / Blue Solder Mask

Material Specification:

Plating: Immersion Tin

End copper thickness: 35 μ m

White screenprint text: UL classified white colour

Image Cure Resist Blue: XV50IT-4 SM – CKXN0294 60-336

Image Cure Hardener Blue: XV50IT-4 Clear – CKXN0295 60-337

Dielectric constant: 4.50 $\pm$ 0.15 at 1 MHz

FR4: Tg > 135 °C, Td 320 °C, T260 > 4.5 min

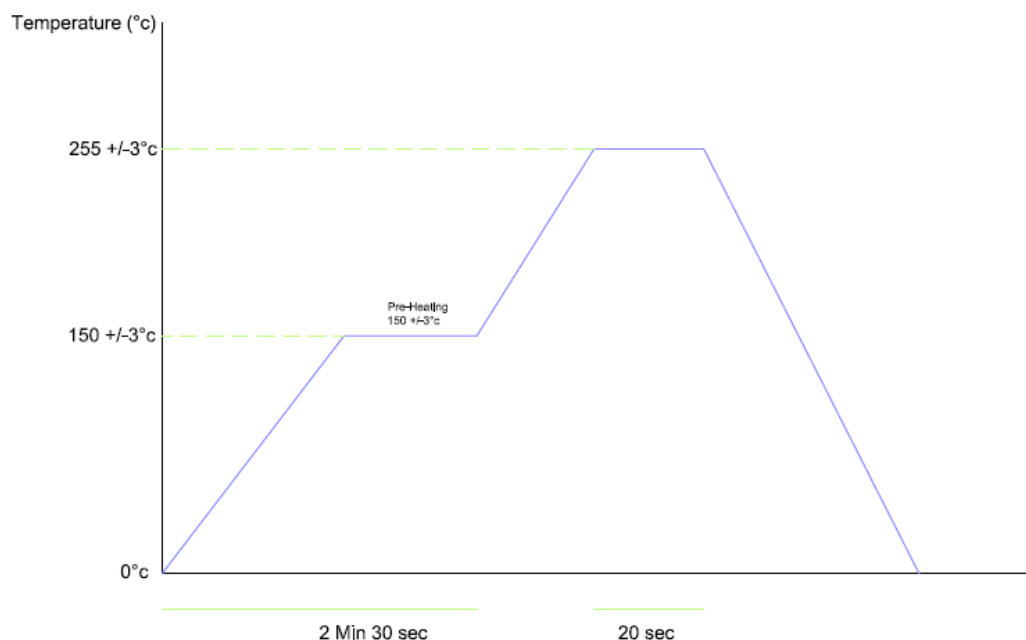
7 Soldering

This antenna is suitable for lead free soldering.

The reflow profile should be adjusted to suit the device, oven and solder paste, while observing the following conditions:

- The maximum temperature should not exceed 240 °C
- However for lead free soldering, a maximum temperature of 255 °C for no more than 20 seconds is permitted.
- The antenna should not be exposed to temperatures exceeding 120 °C more than 3 times during the soldering process.

Re-Flow Condition for PCB



8 Hazardous material regulation conformance

The antenna has been tested to conform to RoHS requirements. A certificate of conformance is available from Antenova's website.

9 Antenna Reliability Testing

Antennas are tested for quality and reliability during manufacturing, and antennas are tested for performance as follows:

- Drop test
- Vibration Test
- Humidity Test
- Thermal Shock Test
- High Temperature Test
- Low Temperature Test
- Adhesion Strength of solder

10 Packaging

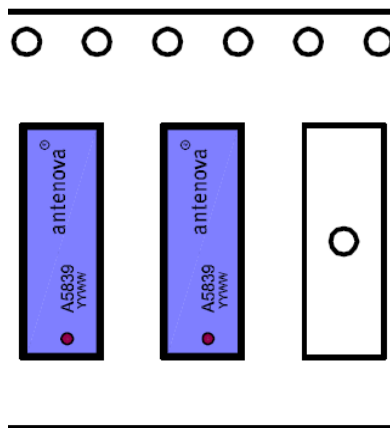
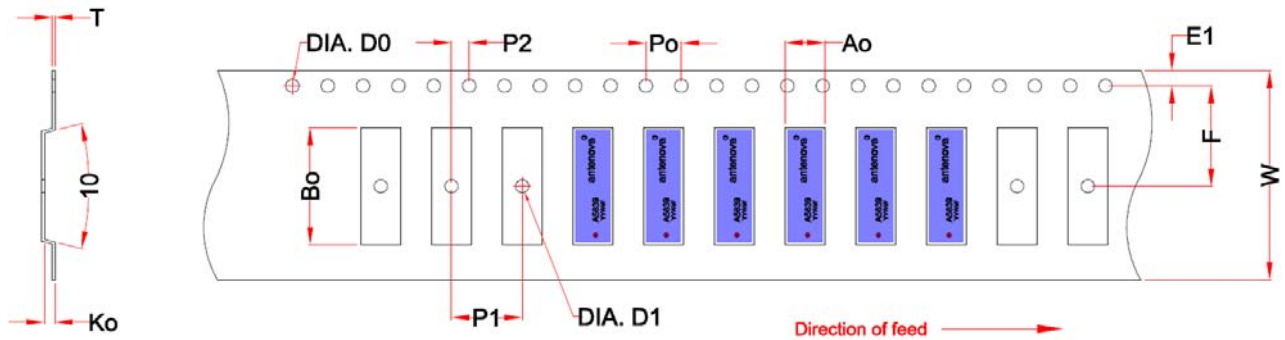
10-1 Optimal storage conditions for packaged reels

Temperature	-10°C to 40°C
Humidity	Less than 75% RH
Shelf Life	12 Months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Reels should be stored in unopened sealed manufacture's plastic packaging.

Note: Storage of open reels of antennas is not recommended due to possible oxidization of pads on antennas. If short term storage is necessary, then it is highly recommended that the bag containing the antenna reel is re-sealed and stored in like storage conditions as in above table.

10-2 Tape characteristics

Rufa Left [Part Number: 3030A5839-01]

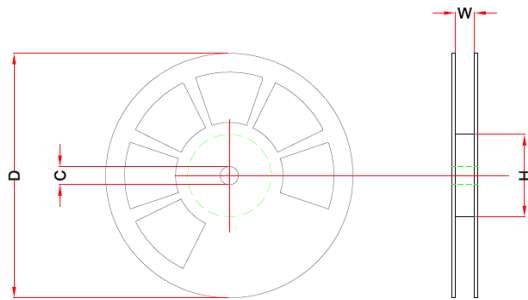


W	F	E1	P0	P1	P2	A0	B0	K0	T	D0	D1
24 ± 0.2	11.5 ± 0.1	1.75 ± 0.1	4 ± 0.1	8 ± 0.1	2 ± 0.1	4.3 ± 0.1	13.1 ± 0.1	1.4 ± 0.1	0.3 ± 0.05	Min 1.5	Min 1.5

Dimensions in mm

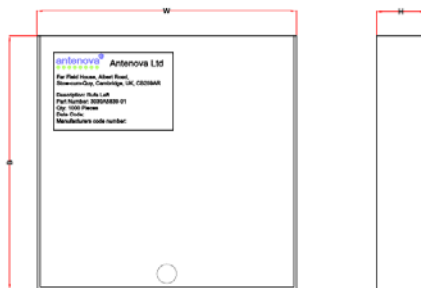
Quantity	Leading Space	Trailing Space
1000 pcs / reel	50 blank antenna holders	37 blank antenna holders

10-3 Reel dimensions



Width (W)	Reel Diameter (D)	Hub Diameter (H)	Shaft Diameter (C)
24 mm	180 mm (7")	60 mm (2")	13 mm

10-4 Box dimensions



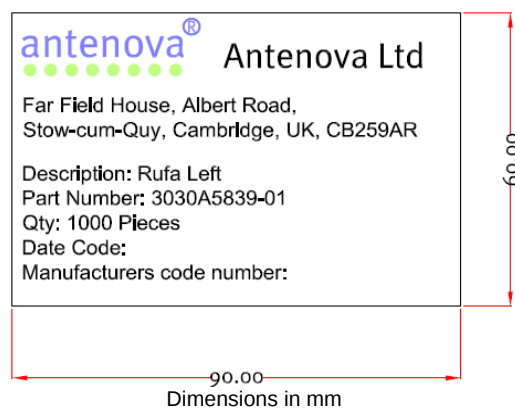
Width (W)	Breadth (B)	Thickness (H)
203 mm	188 mm	40 mm

10-5 Bag properties

Reels are supplied in protective plastic packaging with RoHS Compliance label on bag.

10-6 Reel label information

Rufa Left



Reliability Test Report

1. Test Name: Drop Test

- Test Condition : ①1.5m Height ②Drop 5 Times

Sec.	(R 25) 50Ω±15%				
NO.	Before test	After test	Change	Change rate	OK/NG
1	48.390	49.030	0.64	1.32	OK
2	50.000	50.120	0.12	0.24	OK
3	47.630	47.920	0.29	0.61	OK
4	45.880	45.930	0.05	0.11	OK
5	47.510	47.640	0.13	0.27	OK
AVG	47.882	48.128	0.25	0.51	
Min	45.880	45.930	0.05	0.11	
Max	50.000	50.120	0.64	1.32	

2. Test Name: Vibration Test

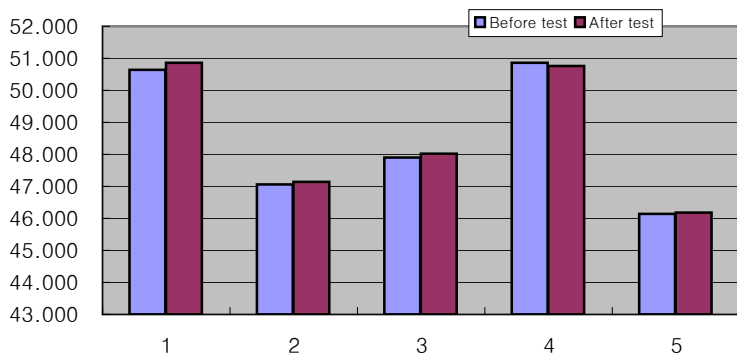
-Test Condition : ①2-55-5Hz, 1 Octave/min ②Amp.=1.5mm, acceleration=2g ,Crossover freq.=18Hz, Hold time=2Hr

Sec.	(R 25) 50Ω±15%				
NO.	Before test	After test	Change	Change rate	OK/NG
1	46.680	46.940	0.26	0.56	OK
2	48.920	48.980	0.06	0.12	OK
3	48.000	48.020	0.02	0.04	OK
4	47.570	45.860	-1.71	-3.59	OK
5	49.940	50.110	0.17	0.34	OK
AVG	48.222	47.982	-0.24	-0.51	
Min	46.680	45.860	-1.71	-3.59	
Max	49.940	50.110	0.26	0.56	

3. Test Name: Humidity Test

- Test Condition : ①60℃, 95% RH ②96Hr

Sec.	(R 25) 50Ω±15%				
NO.	Before test	After test	Change	Change rate	OK/NG
1	50.630	50.850	0.22	0.43	OK
2	47.060	47.130	0.07	0.15	OK
3	47.910	48.020	0.11	0.23	OK
4	50.860	50.760	-0.10	-0.20	OK
5	46.140	46.170	0.03	0.07	OK
AVG	48.520	48.586	0.07	0.14	
Min	46.140	46.170	-0.10	-0.20	
Max	50.860	50.850	0.22	0.43	



4. Test Name: Thermal Shock Test

- Test Condition : ①(+80℃ ×30min + 5min + -40℃ ×30min + 5min) ②100 Cycles

Sec.	(R 25) 50Ω±15%				
NO.	Before test	After test	Change	Change rate	OK/NG
1	47.680	47.550	FALSE	0.00	OK
2	50.480	50.250	-0.23	-0.46	OK
3	46.760	46.850	0.09	0.19	OK
4	50.290	50.310	0.02	0.04	OK
5	48.950	50.710	1.76	3.60	OK
AVG	48.832	49.134	0.41	0.67	
Min	46.760	46.850	-0.23	-0.46	
Max	50.480	50.710	1.76	3.60	



5. Test Name: High Temperature Resistance

– Test Condition : ①90 ± 2℃ ②96Hr

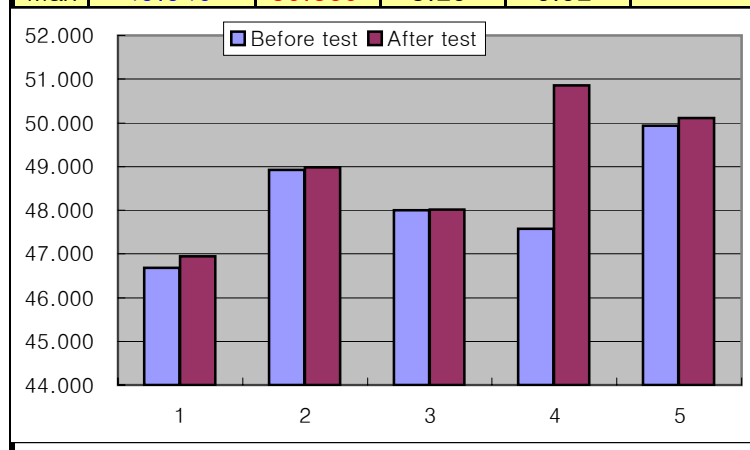
Sec.	(R 25) 50Ω±15%				
NO.	Before test	After test	Change	Change rat	OK/NG
1	48.980	49.030	0.05	0.10	OK
2	50.000	50.120	0.12	0.24	OK
3	47.630	47.920	0.29	0.61	OK
4	47.880	47.930	0.05	0.10	OK
5	47.510	47.640	0.13	0.27	OK
AVG	48.400	48.528	0.13	0.27	
Min	47.510	47.640	0.05	0.10	
Max	50.000	50.120	0.29	0.61	



6. Test Name: Low Temperature Resistance

– Test Condition : ①-40 ± 2℃ ②96Hr

Sec.	(R 25) 50Ω±15%				
NO.	Before test	After test	Change	Change rat	OK/NG
1	46.680	46.940	0.26	0.56	OK
2	48.920	48.980	0.06	0.12	OK
3	48.000	48.020	0.02	0.04	OK
4	47.570	50.860	3.29	6.92	OK
5	49.940	50.110	0.17	0.34	OK
AVG	48.222	48.982	0.76	1.60	
Min	46.680	46.940	0.02	0.04	
Max	49.940	50.860	3.29	6.92	



7. Test Name: Adhesion Strength of Solder

– Test Condition :①Used of pull push gauge ②Over 3.5Kg

Sec	Push Pull Strength	
NO.	Kg	OK/NG
1	4.23	OK
2	3.81	OK
3	4.04	OK
4	3.88	OK
5	3.82	OK
AVG	3.96	
Min	3.81	
Max	4.23	



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