

Preliminary

SPECIFICATION

Dip Type Chip Antenna

**Model No. : SENA_D02
(BT608210_2002)**

WRITTEN	CHECKED	APPROVED
Kangyeol, Kim	Kangyeol, Kim	Kangyeol, Kim

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Notes

The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

1. SPECIFICATIONS

1.1. Electrical Specifications

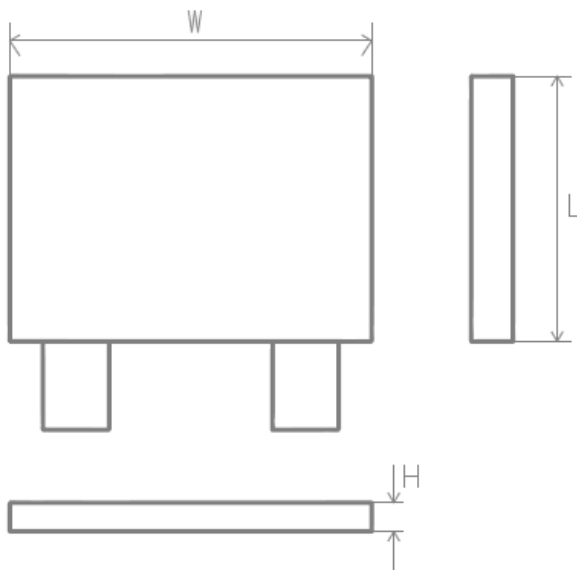
ITEM	SPEC.	Unit
Frequency	2400-2485	MHz
Bandwidth @ VSWR 2.5:1	100	MHz
Gain @ 2445MHz	3.72	dBi
Polarization	Linear	
Azimuth Beam Pattern	Omni-directional	
Impedance	50	Ω

※ These values are measured on the matched reference test board.

1.2. Mechanical Specifications

Electrode	Silver	
Dimensions (W x L x H)	8.2 x 6.0 x 1.0	mm
Operating Temperature	-35 ~ +85	°C

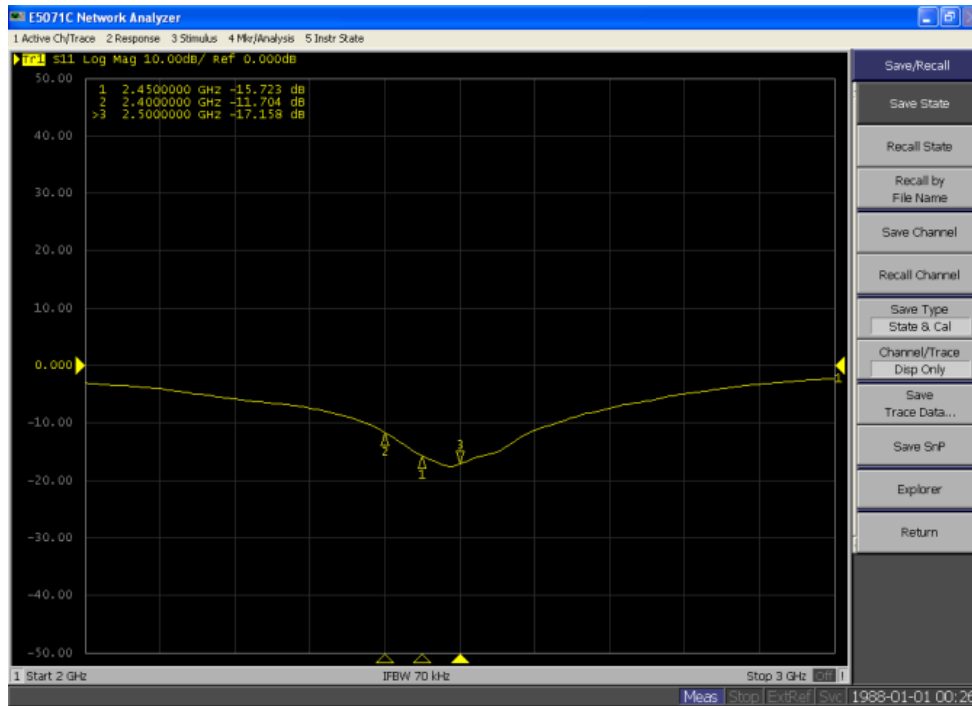
1.3. Appearance and Dimensions



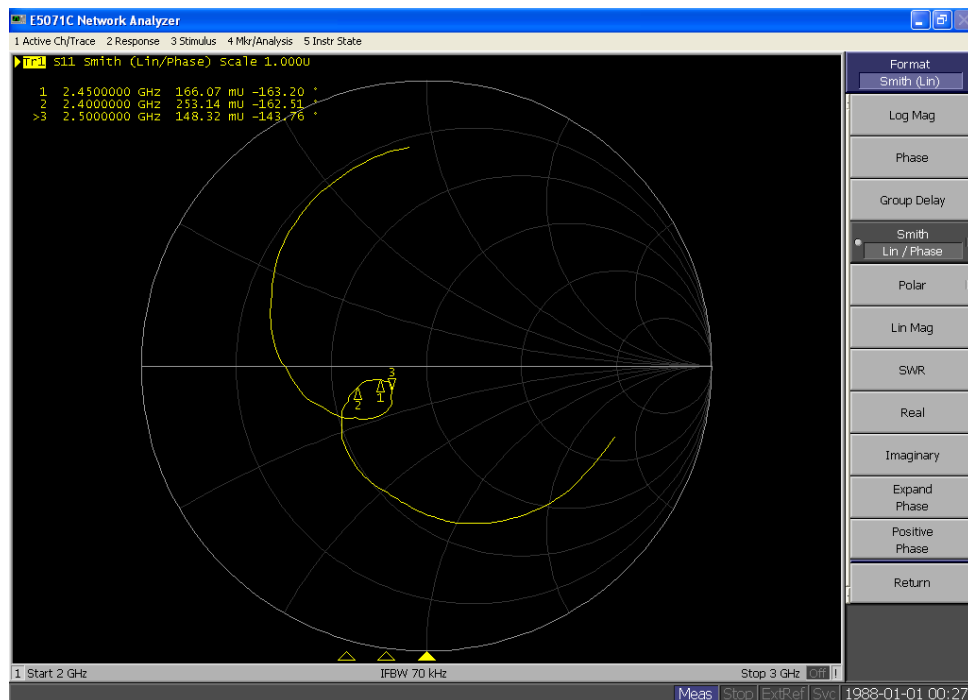
W	8.2
L	6.0
H	1.0

2. MEASUREMENT

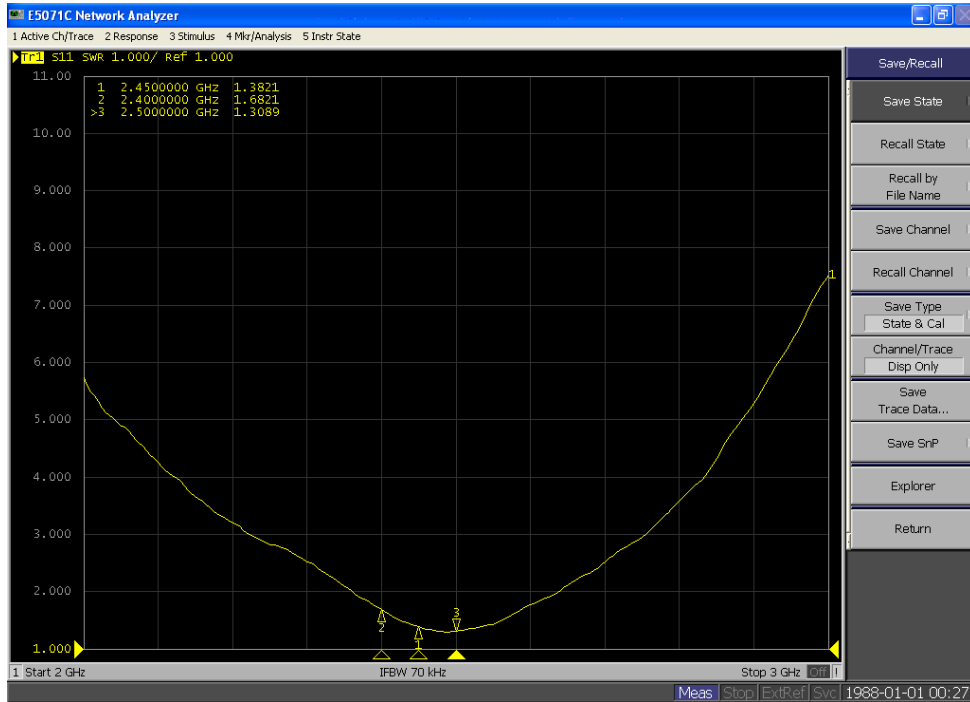
A. S_{11} (Return Loss)



B. Smith chart



C.VSWR



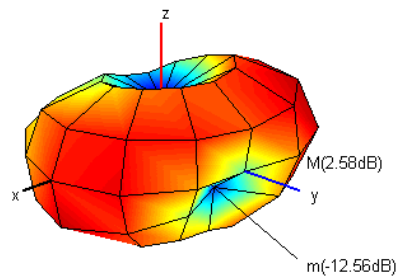
D. Radiation Data

	1	2	3	4	5	6	7	8	9	10
Frequency(MHz)	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445
Efficiency(dB)	-1.56	-1.65	-1.65	-1.54	-1.45	-1.30	-1.33	-1.29	-1.25	-1.21
Efficiency(%)	69.77	68.42	68.42	70.20	71.68	74.17	73.69	74.24	75.06	75.66
TRG(dB)	-1.56	-1.65	-1.65	-1.54	-1.45	-1.30	-1.33	-1.29	-1.25	-1.21
TRG _{Tmeta} (dB)	-5.75	-5.85	-5.84	-5.73	-5.66	-5.62	-5.54	-5.46	-5.48	-5.45
TRG _{PHI} (dB)	-3.65	-3.73	-3.73	-3.62	-3.51	-3.30	-3.39	-3.39	-3.30	-3.26
UHRG(dB)	-4.78	-4.85	-4.90	-4.77	-4.71	-4.57	-4.62	-4.58	-4.54	-4.52
UHRG/TRG(%)	47.65	47.84	47.32	47.50	47.16	47.11	46.85	46.94	46.87	46.73
H-Plane	-5.62	-5.75	-5.71	-5.68	-5.50	-5.52	-5.35	-5.24	-5.22	-5.13
E1-Plane, AVG(dB)	-8.24	-8.16	-8.10	-7.83	-7.77	-7.64	-7.47	-7.38	-7.18	-7.22
E2-Plane, AVG(dB)	-4.03	-4.15	-4.13	-4.11	-4.00	-3.92	-3.94	-3.87	-3.79	-3.84
Peak Gain(dB)	2.58	2.54	2.60	2.88	3.05	3.34	3.37	3.53	3.69	3.72
Directivity(dB)	4.14	4.19	4.25	4.42	4.50	4.64	4.70	4.83	4.94	4.93
Minimum Gain(dB)	-12.56	-13.39	-13.85	-13.62	-13.87	-14.55	-14.49	-14.72	-15.22	-14.95
Average Efficiency	-1.47 dB,		71.31 %							

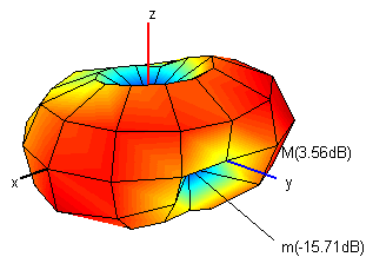
11	12	13	14	15	16	17	18	19	20
2450	2455	2460	2465	2470	2475	2480	2485	2490	2500
-1.33	-1.33	-1.34	-1.44	-1.49	-1.50	-1.64	-1.70	-1.66	-1.79
73.63	73.58	73.50	71.86	71.02	70.72	68.48	67.64	68.24	66.29
-1.33	-1.33	-1.34	-1.44	-1.49	-1.50	-1.64	-1.70	-1.66	-1.79
-5.54	-5.48	-5.48	-5.54	-5.58	-5.59	-5.72	-5.74	-5.69	-5.81
-3.40	-3.44	-3.45	-3.57	-3.63	-3.65	-3.80	-3.88	-3.84	-3.97
-4.64	-4.64	-4.66	-4.77	-4.83	-4.83	-5.02	-5.06	-5.00	-5.11
46.63	46.72	46.54	46.38	46.34	46.53	45.98	46.10	46.35	46.55
-4.98	-5.08	-4.84	-5.00	-4.85	-4.98	-4.94	-5.02	-4.95	-5.04
-7.31	-7.03	-7.03	-7.06	-7.25	-7.10	-7.29	-7.25	-7.21	-7.51
-3.89	-3.79	-3.90	-3.88	-3.88	-3.86	-4.08	-4.11	-4.06	-4.26
3.57	3.63	3.65	3.61	3.49	3.48	3.26	3.16	3.16	2.95
4.90	4.97	4.99	5.04	4.98	4.98	4.90	4.86	4.81	4.74
-15.71	-14.83	-15.54	-17.40	-17.10	-16.99	-18.19	-18.09	-19.01	-18.76

E. Radiation Pattern

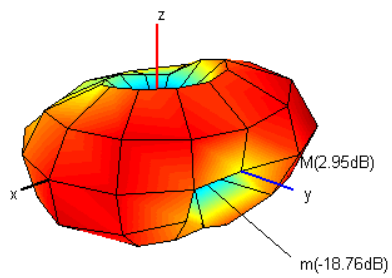
2.4 GHz



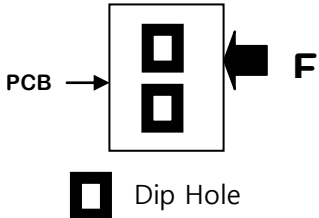
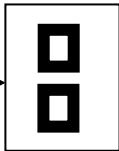

2.45 GHz



2.5 GHz



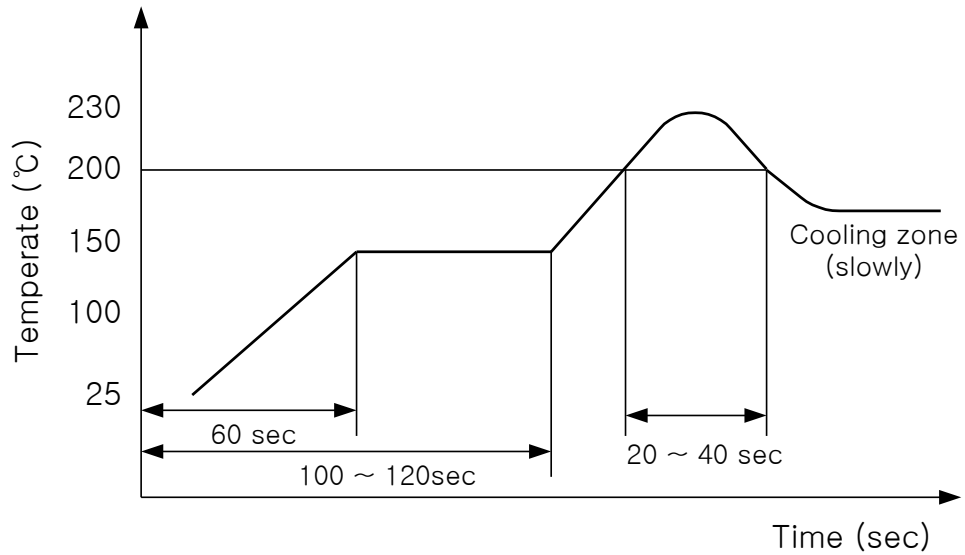
3. RELIABILITY TEST

No	Item	Test condition	Test Requirements
1	Adhesion strength	<p>. Applied force on Dip chip till detached point from PCB</p>  <p>PCB →  ← F</p> <p> Dip Hole</p>	<ol style="list-style-type: none"> 1. No mechanical damage by forces applied on the right 2. Strength (F) > 5 kgf
2	Thermal Shock (Temperature Cycle)	<ol style="list-style-type: none"> 1. 1 cycle / step 1 : $-40 \pm 3^{\circ}\text{C}$, 30 min step 2 : $+85 \pm 3^{\circ}\text{C}$, 30 min 2. Number of cycle : 10 3. Measure after left for 48 hrs min. at room temperature 	<ol style="list-style-type: none"> 1. No visual damage 2. VSWR satisfy
3	High Temperature Resistance	<ol style="list-style-type: none"> 1. Temperature : $+85 \pm 5^{\circ}\text{C}$ 2. Time : 96 hrs 3. Measure VSWR_C after left for 24 hrs min. at room temperature 	<ol style="list-style-type: none"> 1. No visual damage 2. VSWR satisfy
4	Low Temperature Resistance	<ol style="list-style-type: none"> 1. Temperature : $-40 \pm 5^{\circ}\text{C}$ 2. Time : 96 hrs 3. Measure VSWR_C after left for 48 hrs min. at room temperature 	<ol style="list-style-type: none"> 1. No visual damage 2. VSWR satisfy
5	Humidity (Steady Condition)	<ol style="list-style-type: none"> 1. Humidity : 85 % RH 1. Temperature : $+85 \pm 3^{\circ}\text{C}$ 2. Time : 96 hrs 3. Measure VSWR_C after left for 48 hrs min. at room temperature 	<ol style="list-style-type: none"> 1. No visual damage 2. VSWR satisfy
6	ESD	<ol style="list-style-type: none"> 1. ESD Level : 8KV 2. Mode : Contact discharge 3. Number of cycle : 100 <p>※ Used Ref test PCB.</p>	<ol style="list-style-type: none"> 1. No visual damage 2. VSWR satisfy

4. SOLDERING RECOMMENDATIONS

4.1. Reflow Soldering Profile

A. Non Pb free



B. Pb free

