

SMD CERAMIC ANTENNA

Data Sheet

KH-3216-31-F

For 1555-1580MHz 3.2x1.6x1.0mm

[EIA3216]

Feature

- Light weight, compact
- Wide bandwidth, low cost
- Built-in antenna with high gain
- Operating Temp. : -40°C~+85°C

Application

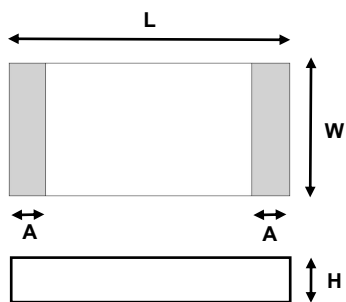
- GPS&BD&GLONASS

Electrical Characteristics per line(TA=25°C)

Parameter	Specification	Units
Frequency Band	1555-1580	MHz
Polarization	Linear	
*Peak Gain	2.58	dBi
Impedance	50	Ω

Test condition: Test board size 70*60 mm;
Matching circuit: Pi matching circuit will be required.

Product Dimension

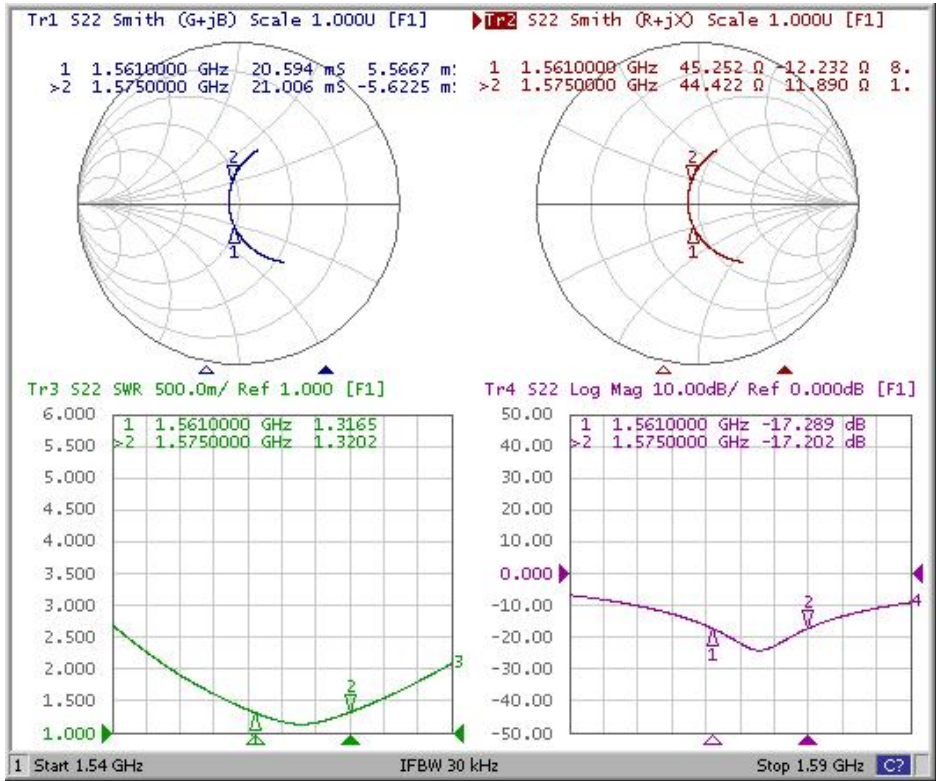


Units:mm

L	W	A	H
3.20±0.10	1.60±0.10	0.40±0.20	0.50±0.10

Typical Characteristics

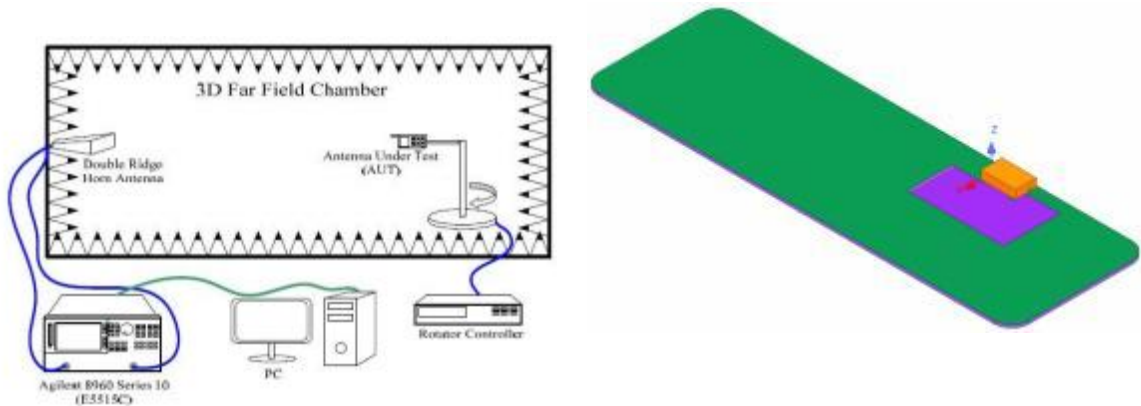
Fig. 1 Return Loss&SWR



Radiation Pattern

The Gain pattern is measured in FAR -field chamber. DUT is placed on the table of rotator , a standard horn antenna and Vector Network Analyzer is used to collect data.

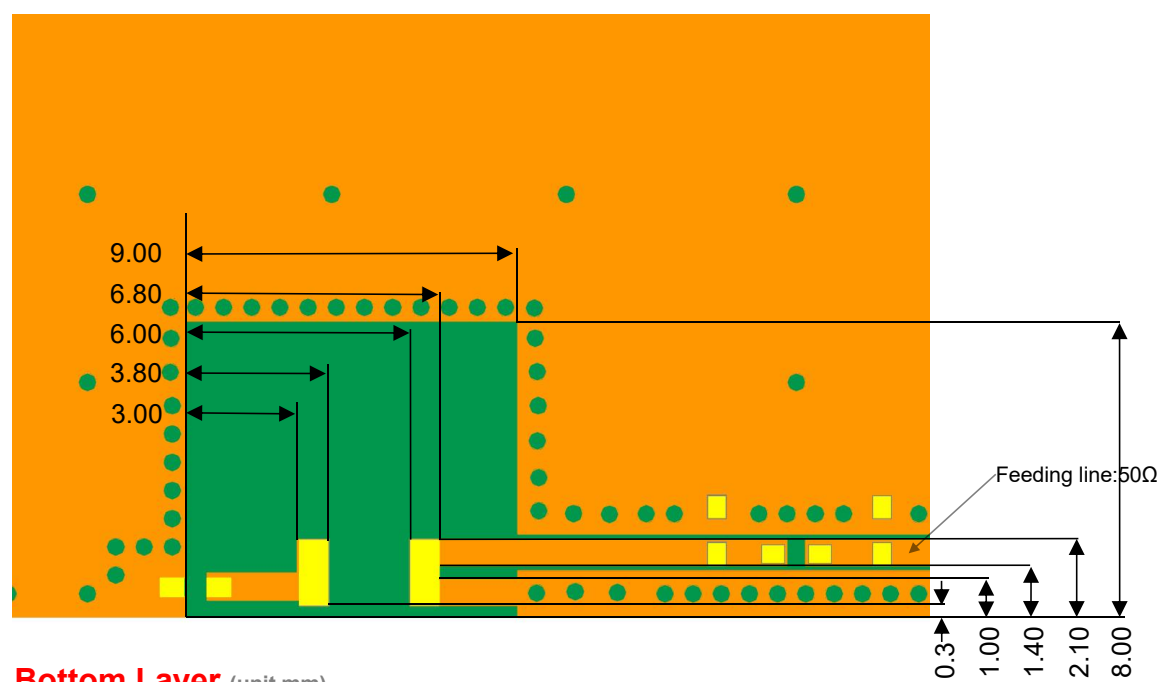
Fig. 2 FAR-field Chamber



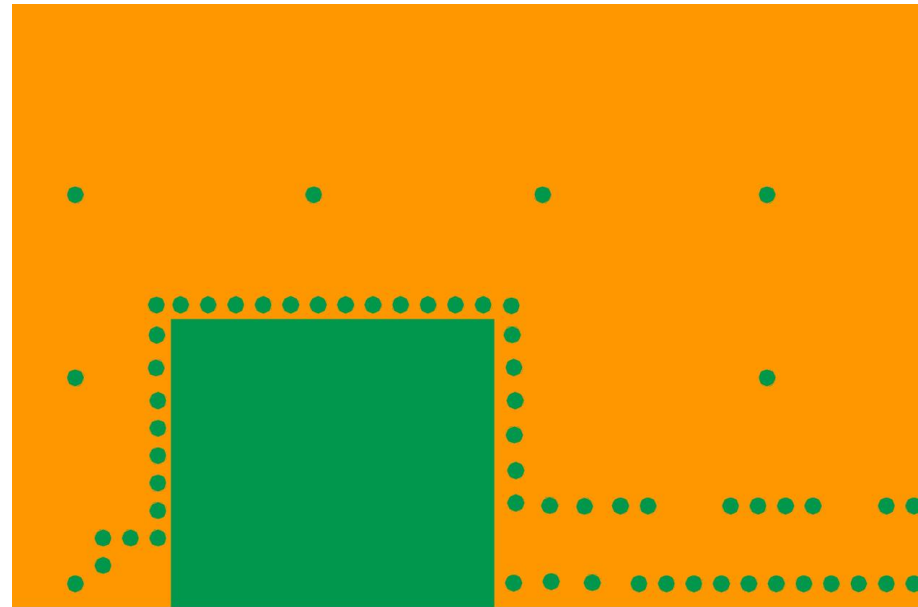
Recommend PCB Layout

Test condition: Test board size 30*60 mm;

Top Layer (unit mm)



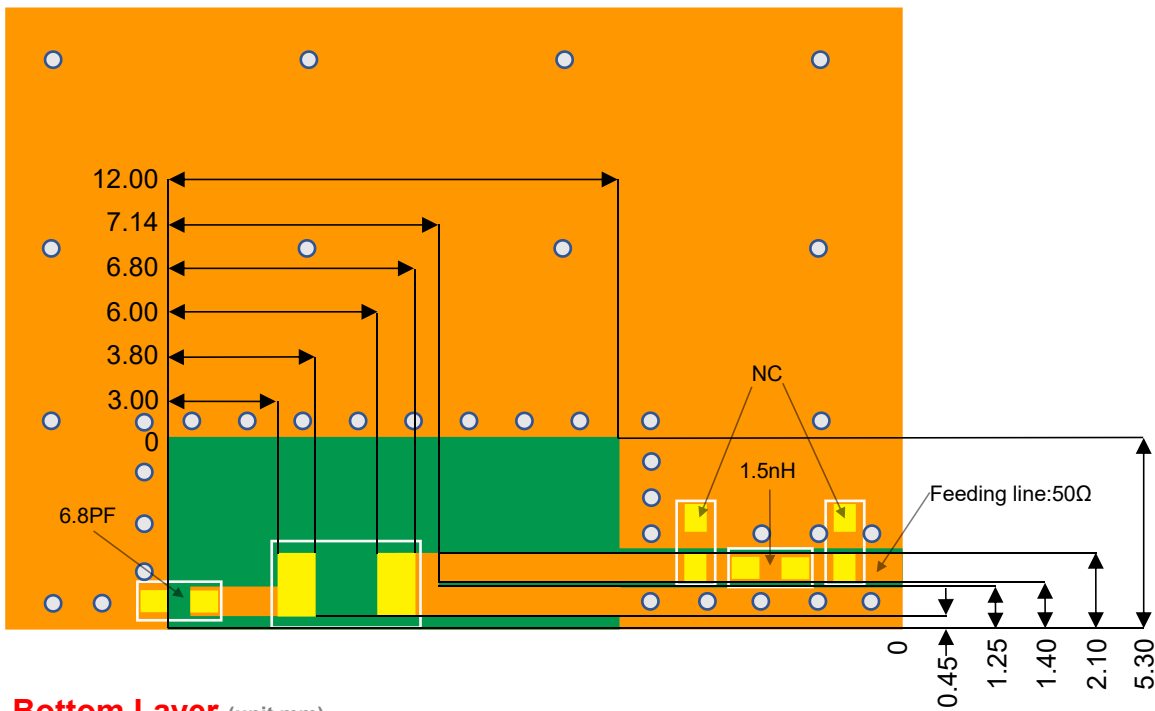
Bottom Layer (unit mm)



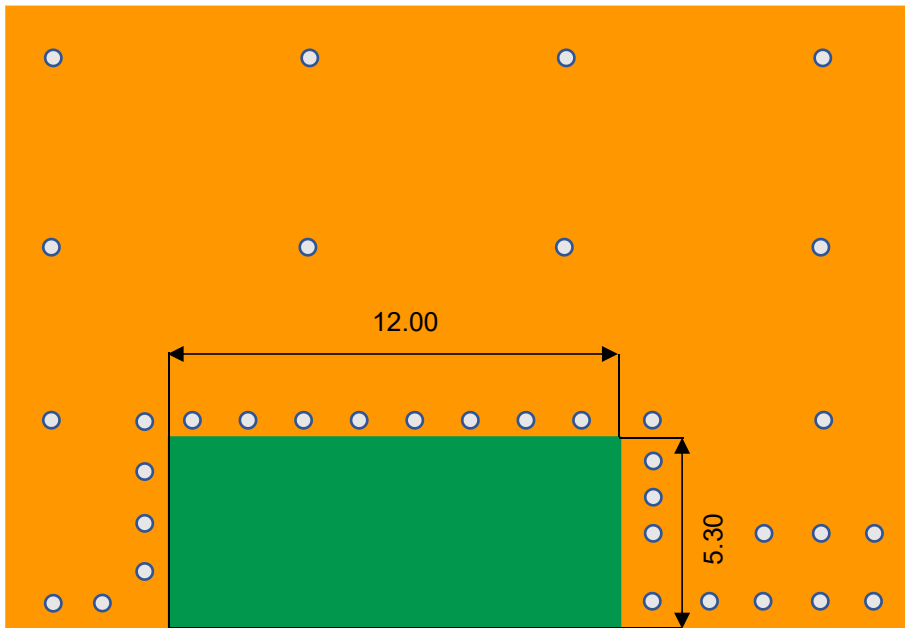
Recommend PCB Layout

Test condition: Test board size 30*60 mm;

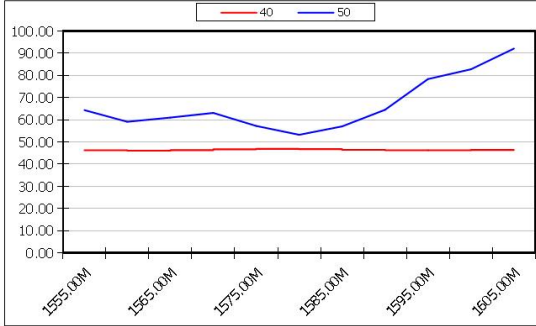
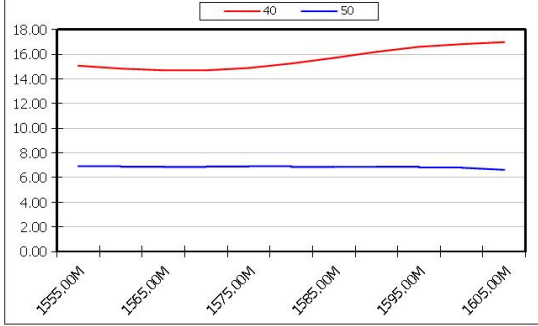
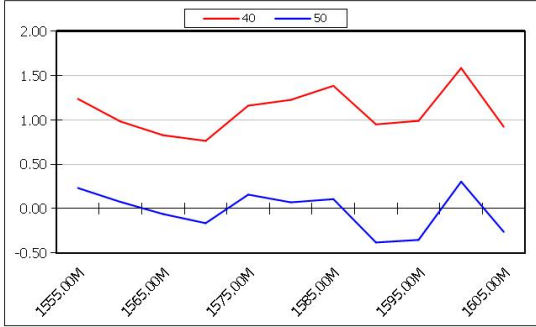
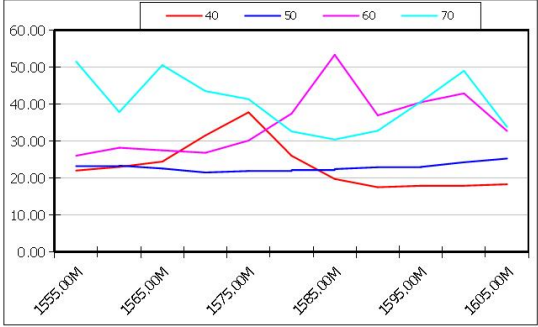
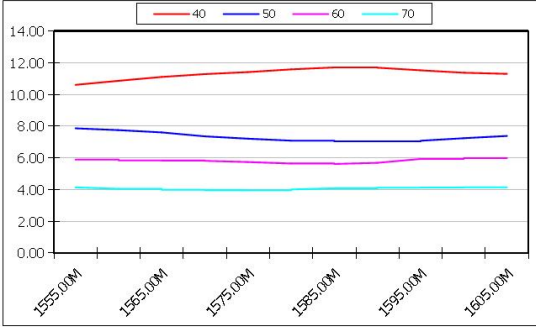
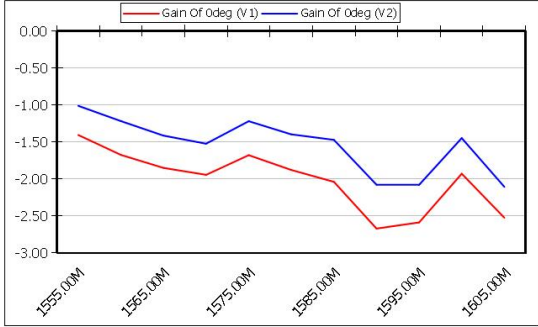
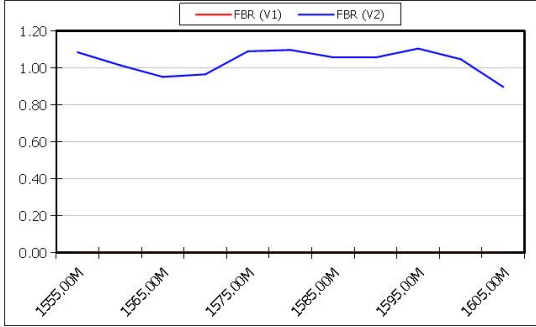
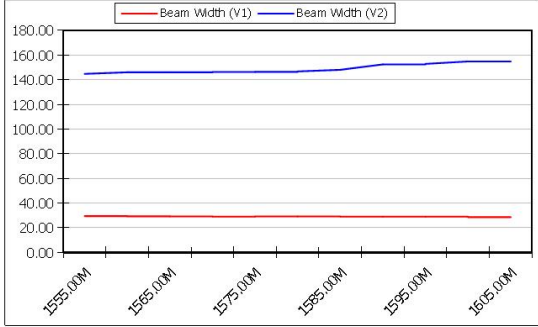
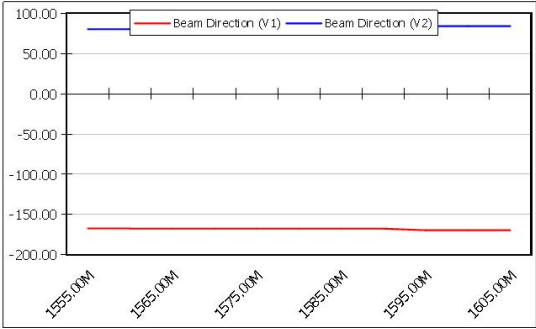
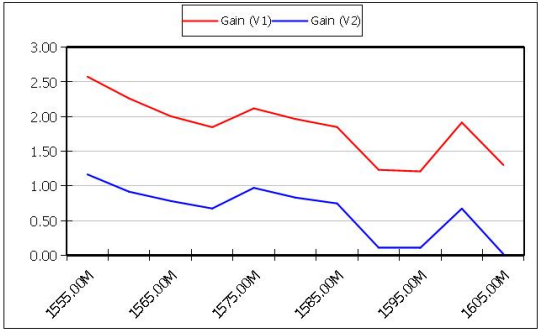
Top Layer (unit mm)



Bottom Layer (unit mm)

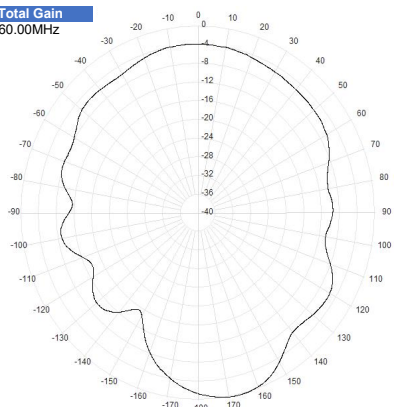


导航天线方向图测试报告 - 图表
GNSS Antenna Radiation Pattern Test Report - Charts

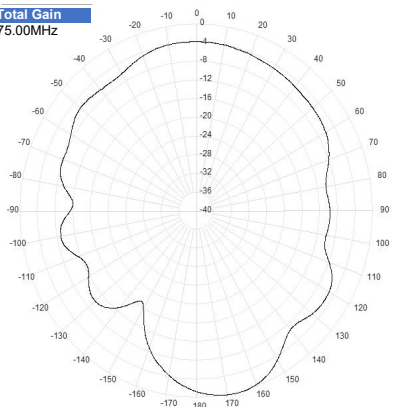


2D Gain Pattern

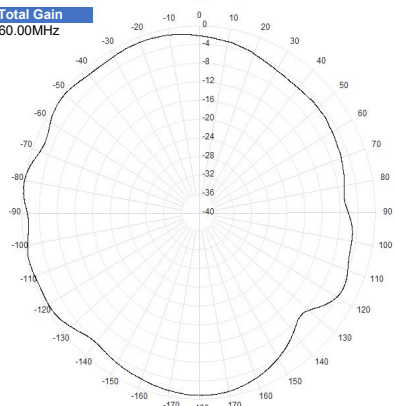
V1 CUT. Total Gain
FREQ:1560.00MHz



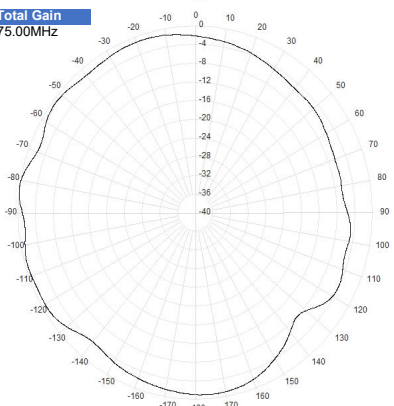
V1 CUT. Total Gain
FREQ:1575.00MHz



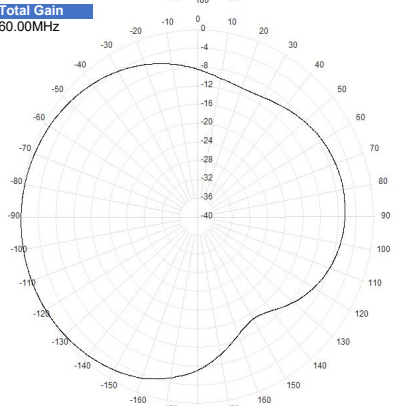
V2 CUT. Total Gain
FREQ:1560.00MHz



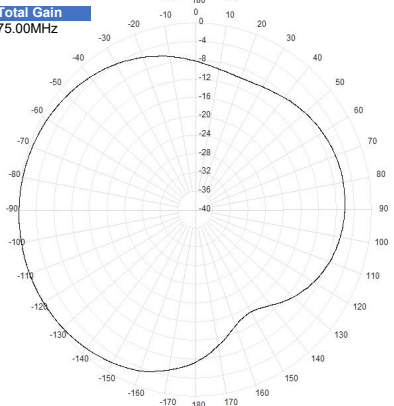
V2 CUT. Total Gain
FREQ:1575.00MHz



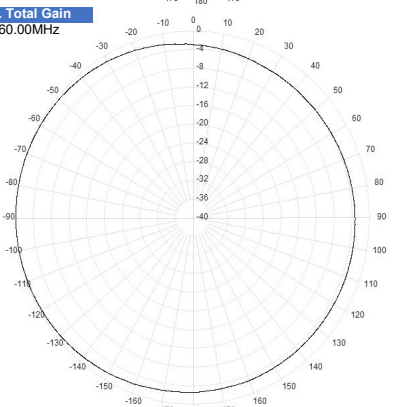
H0 CUT. Total Gain
FREQ:1560.00MHz



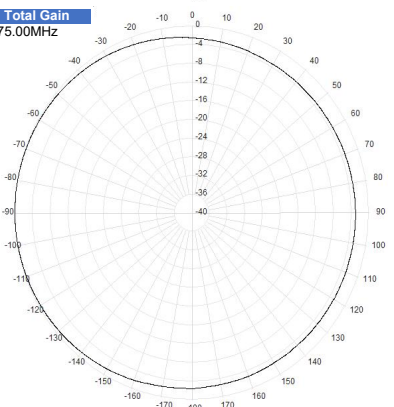
H0 CUT. Total Gain
FREQ:1575.00MHz



H60 CUT. Total Gain
FREQ:1560.00MHz



H60 CUT. Total Gain
FREQ:1575.00MHz



Item	Condition	Specification
Thermal shock	1. 30±3 minutes at -40°C±5°C, 2. Convert to +105°C (5 minutes) 3. 30±3 minutes at +105°C±5°C, 4. Convert to -40°C (5 minutes) 5. Total 100 continuous cycles	No apparent damage Fulfill the electrical spec. after test.
Humidity resistance	1. Humidity: 85% R.H. 2. Temperature: 85±5°C 3. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
High temperature resistance	No apparent damage Fulfill the electrical spec. after test.	1. Temperature: 150°C±5°C 2. Time: 1000 hours.
Low temperature resistance	1. Temperature: -40°C±5°C 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Soldering heat resistance	1. Solder bath temperature : 260±5°C 2. Bathing time: 10±1 seconds	No apparent damage
Solderability	The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of 245±5°C for 3±1 seconds.	No apparent damage

(2) Storage Condition

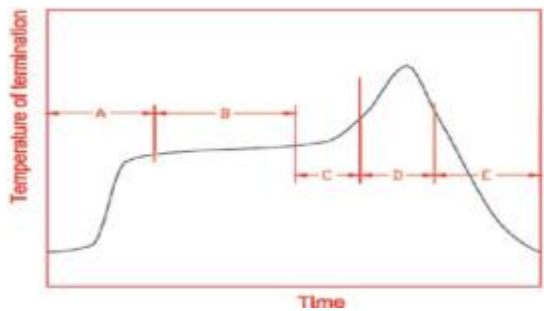
(a)At warehouse: The temperature should be within 0 ~ 30°C and humidity should be less than 60% RH.The product should be used within 1 year from the time of elivery.

(b)On board: The temperature should be within -40 ~ 85°C and humidity should be less than 85% RH.

(3) Operating Temperature Range

Operating temperature range : -40°C to +85°C.

Recommended Reflow Solder curve



A	1 st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140℃ to 160℃	60s to 120s
C	2 nd rising temperature	Preheating to 200℃	20s to 40s
D	Main heating	if 220℃	50s~60s
		if 230℃	40s~50s
		if 240℃	30s~40s
		if 250℃	20s~40s
E	Regular cooling	if 260℃	20s~40s
		200℃ to 100℃	1℃/s ~ 4℃/s

*reference: J-STD-020C

(1) Soldering Gun Procedure

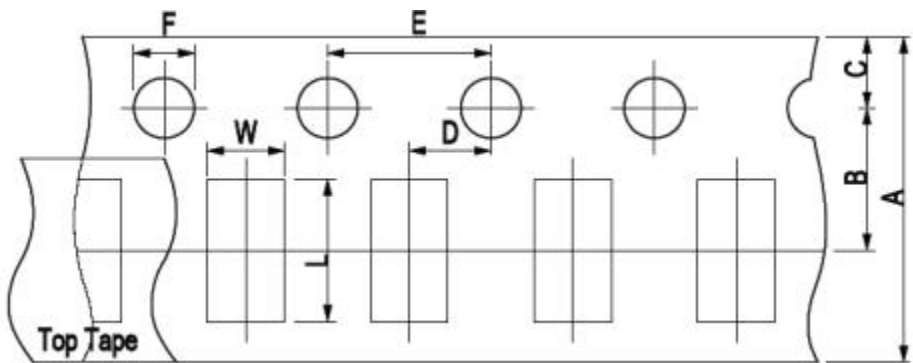
Note the follows, in case of using solder gun for replacement.

- (a) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.
- (b) The soldering gun tip shall not touch this product directly.

(2) Soldering Volume

Note that excess of soldering volume will easily get crack the body of this product.

Package Information



A	B	C	D	E	F	L	W
8.00±0.3	3.50± 0.05	1.75±0.1	2.00±0.05	4.00±0.1	1.50±0.1	2.30± 0.1	1.55± 0.1

Order Information

Device	Package	Net Weight	Carrier	Quantity	HSF Status
KH-3216-31-F	3216	0.0089g	Tape&Reel	5000pcs	RoHS compliant

Revision history

Date	Revision	Description of changes
2023-03-06	1.0	First Version
2023-11-15	1.1	Add chart
2026-03-24	1.2	Add PCB Layout