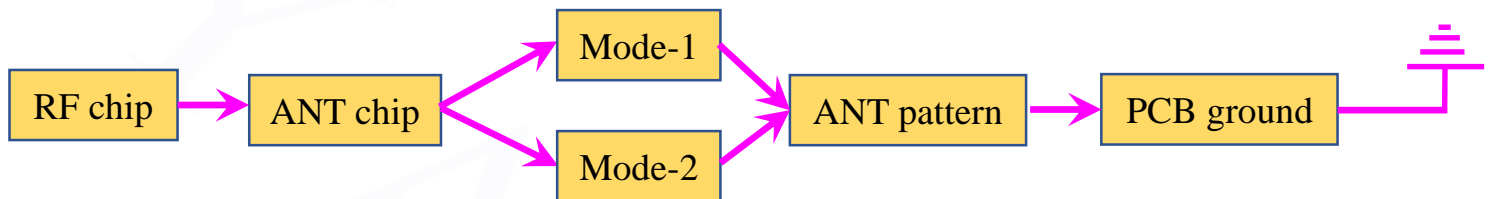




P/N: HY160808 SRF09

✓ Features:

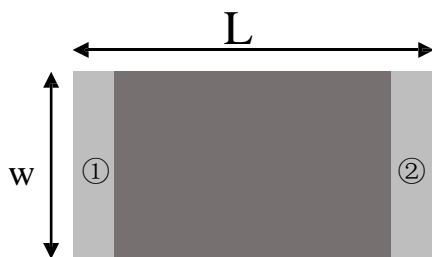
1. Surface mounted element with a small dimension of $1.6 \times 0.8 \times 0.8$ mm meet future miniaturization trend.
2. Embedded and LTCC (low temperature co-fired ceramic) technology is able to integrate with system design as well as beatifying the housing of final product.
3. Miniaturization, wideband, high stability, low ESR, and low tolerance.
4. Dual-band resonances in the dominant and harmonic modes enables multiband operations.
5. Novel ground-radiation technique enables radiation from both the antenna and the ground plane.



✓ Applications:

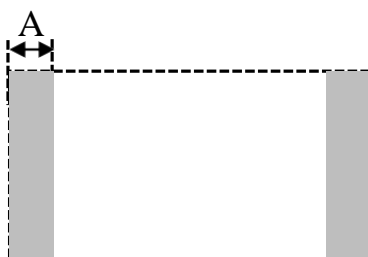
1. Bluetooth
2. Dual-band WLAN
3. ISM and UWB

✓ Dimensions (Unit: mm)



(Top View)

Number	Terminal Name
①	INPUT
②	NC



(Bottom View)



(Side View)

Symbols	L	W	T	A
Dimensions	1.60 ± 0.20	0.80 ± 0.20	0.80 ± 0.20	0.30 ± 0.10

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P/N: HY160808 SRF09

0201 footprint (E2) 0603 footprint (ANT)

The diagram illustrates the RF layout of the 0201 footprint (E1). The overall dimensions are 6.5 units in width and 3.5 units in height. The layout includes a central horizontal strip with a width of 1 unit and a height of 0.5 units, flanked by two 0.5-unit wide sections. A vertical section on the right has a width of 2.5 units and a height of 0.5 units. The layout is divided into three main sections: a top section (yellow), a middle section (gray), and a bottom section (yellow). The top section contains a blue rectangular area with a width of 1 unit and a height of 0.5 units. The middle section contains a blue rectangular area with a width of 1 unit and a height of 0.5 units. The bottom section contains a blue rectangular area with a width of 1 unit and a height of 0.5 units. The layout is labeled with dimensions and component names: 0201 footprint (E1), RF Input/Output, and various dimensions (1, 0.5, 2.5, 3.5, 6.5).

0201 footprint (E3)

6.5

3.5

1.5

2.5

0.5

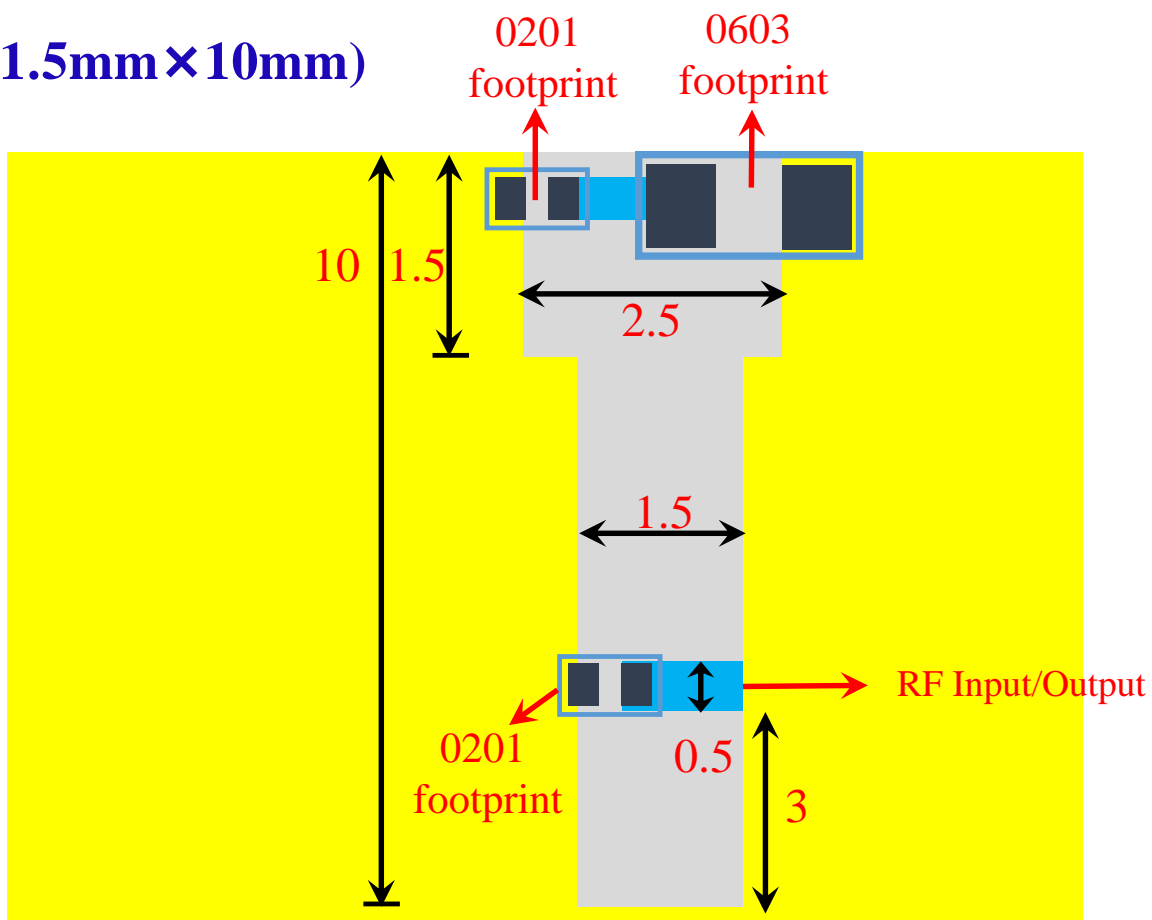
0.5



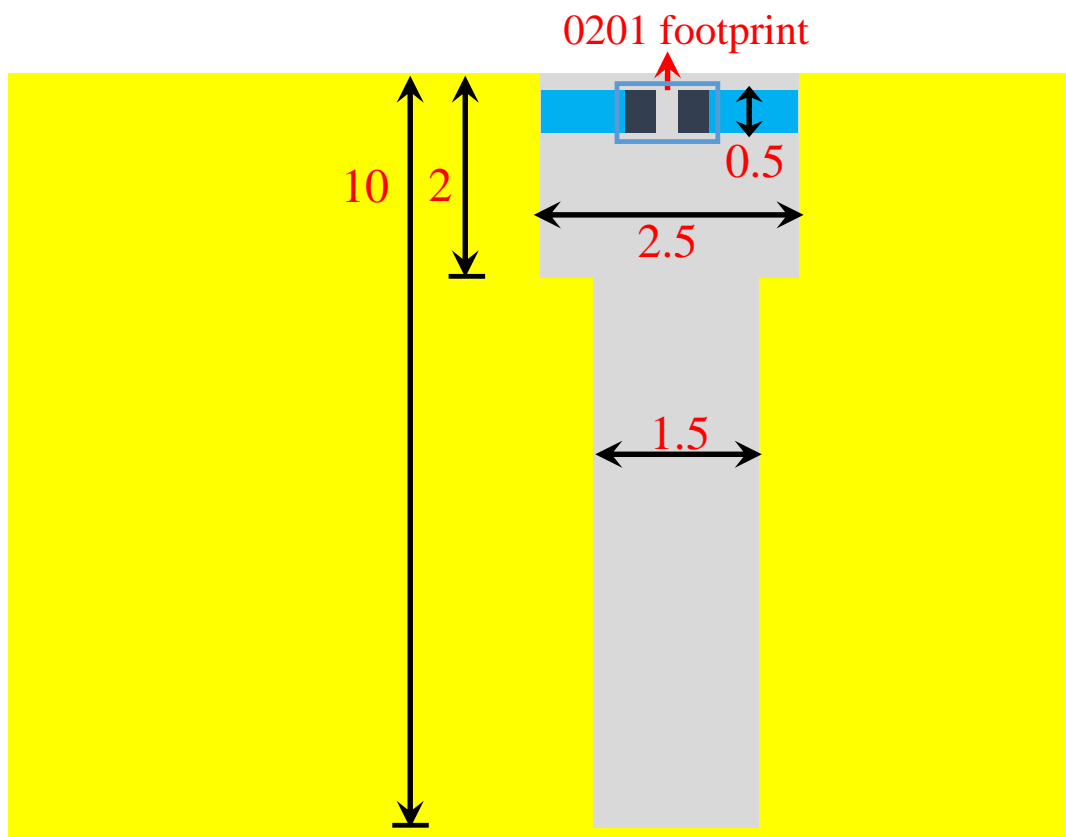
P/N: HY160808 SRF09

✓ Layout-2 (1.5mm×10mm)

Top layer:



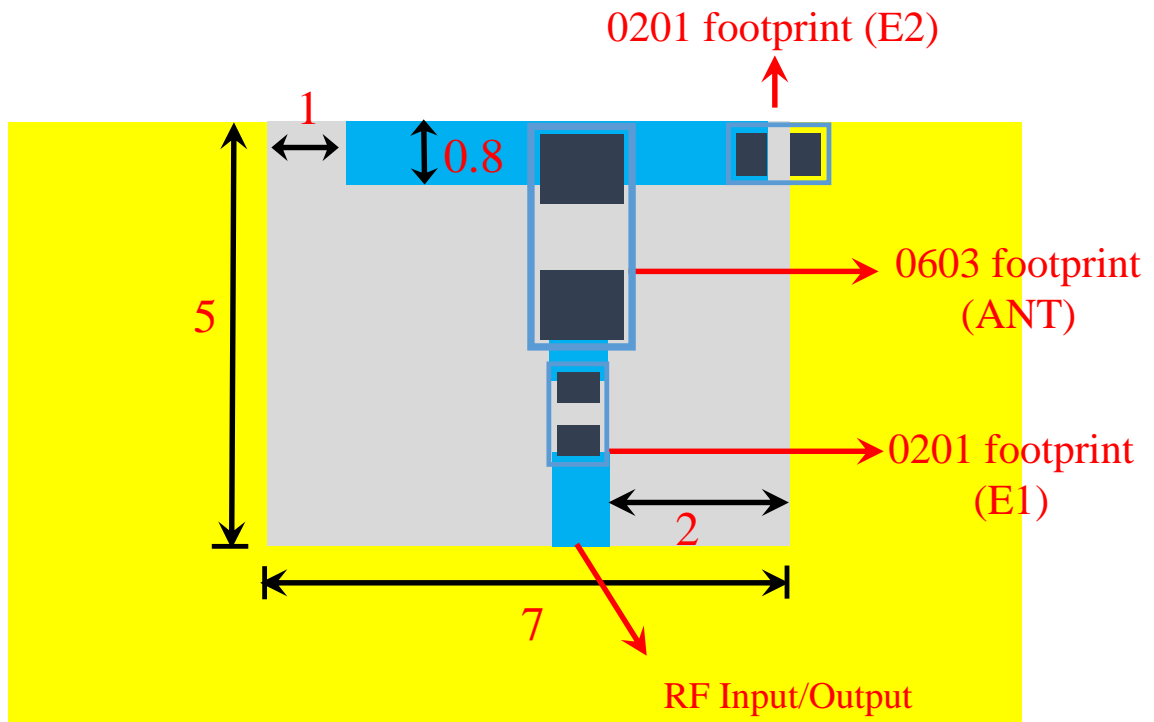
Bottom layer:



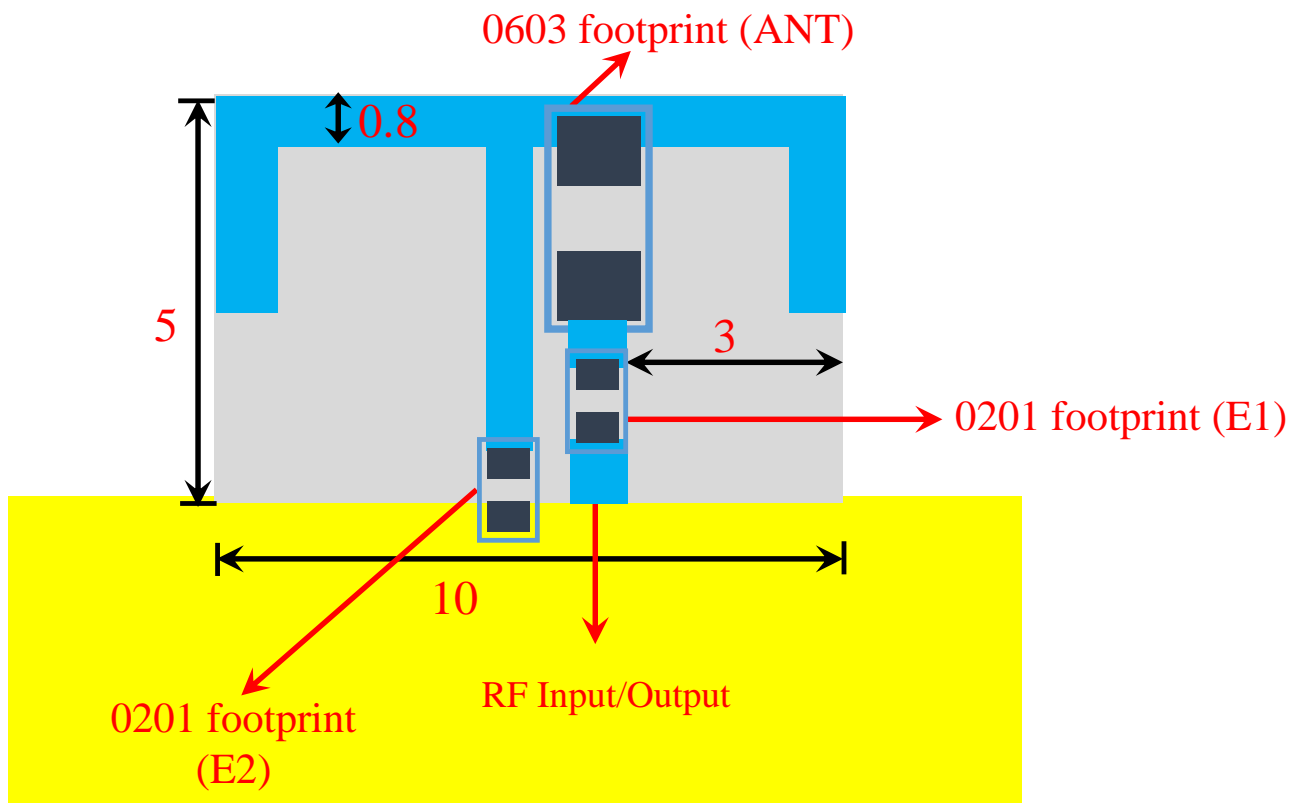


P/N: HY160808 SRF09

✓ Layout-3 (5mm×7mm)



✓ Layout-4 (5mm×10mm)



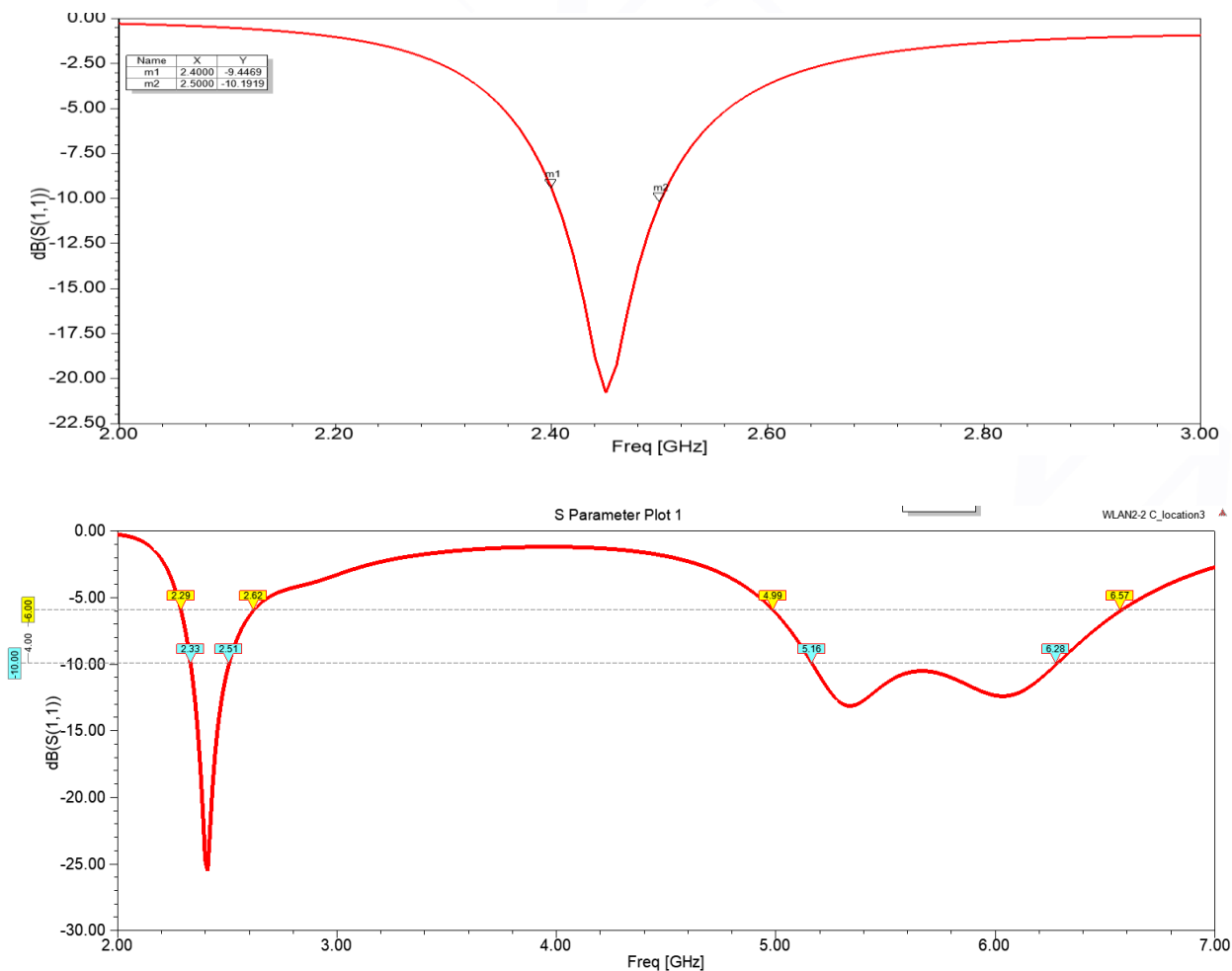


P/N: HY160808 SRF09

✓ Electrical Characteristics:

	Feature	Specification
1	Central frequency	2.45GHz
2	Bandwidth	>150MHz
3	Peak gain	2.78 dBi
4	VSWR	<2
5	Polarization	Linear
6	Azimuth beamwidth	Omnidirectional
7	Impedance	50 Ω

✓ Characteristic Curves:

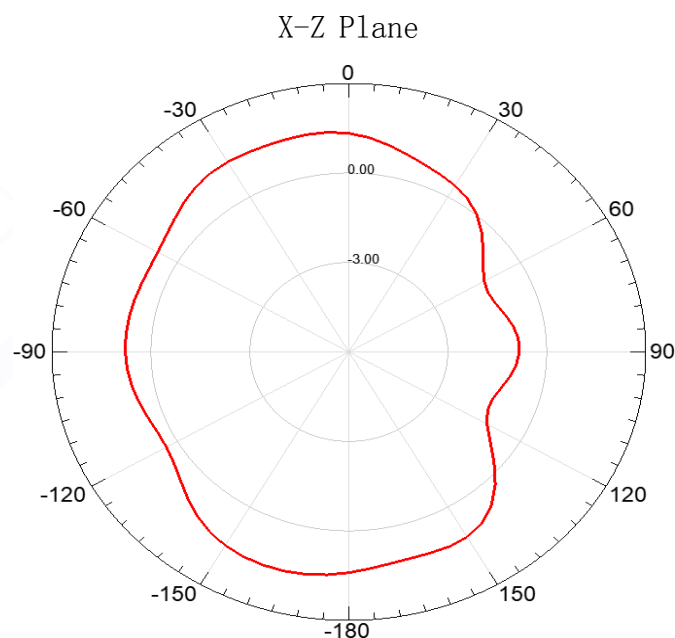
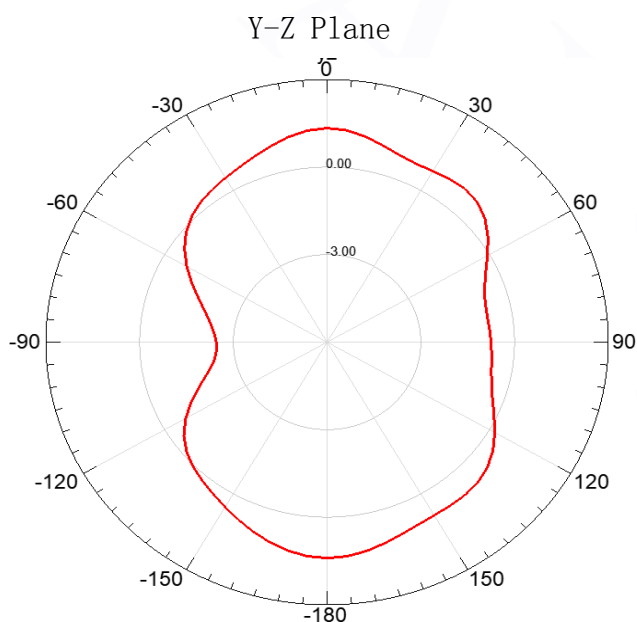
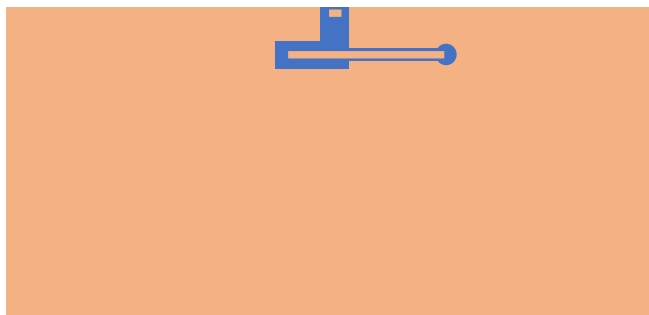
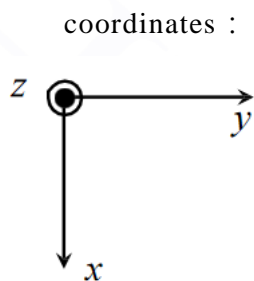


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P/N: HY160808 SRF09

✓ Radiation Pattern:



✓ Radiation Performance:

Frequency	2400MHz	2450MHz	2500MHz
Avg. gain	-1.92	-1.35	-1.56
Peak gain	1.79	2.78	2.66
Efficiency	74.55	80.25	76.98



P/N: HY160808 SRF09

✓ Dependability Test

Test Temperature	$25^{\circ}\text{C} \pm 5^{\circ}\text{C}$
Operating Temperature	$-25^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Temperature	$5 \sim 40^{\circ}\text{C}$
Relative Humidity	20~70%

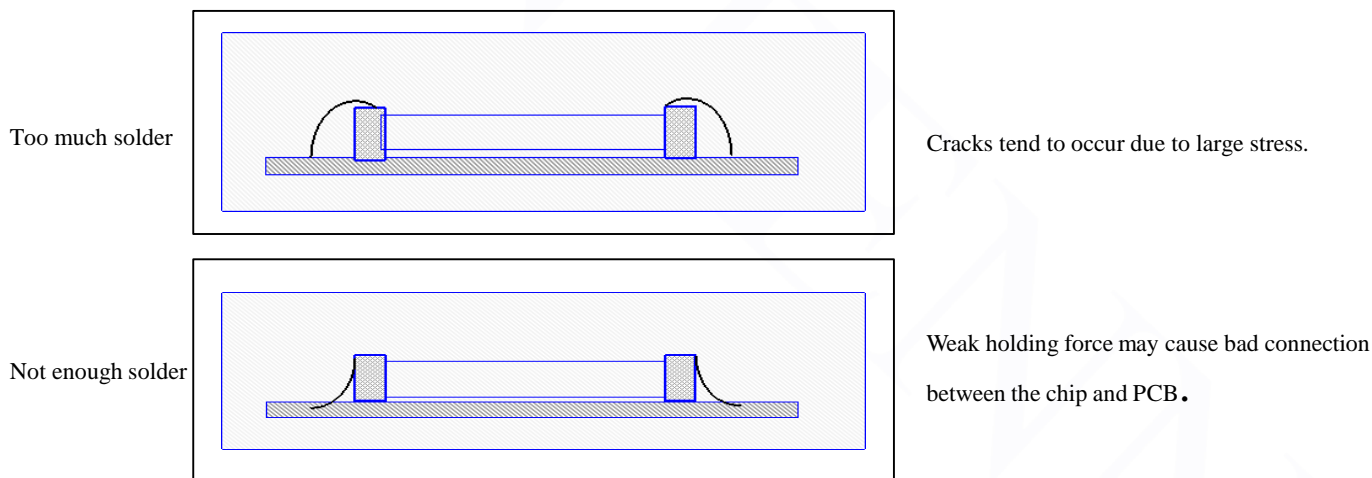
✓ Moisture Proof

Temperature: $40 \pm 2^{\circ}\text{C}$ Humidity: 90~95%RH
Duration: 500h
Recovery conditions: Room temperature Recovery Time: 24h (Class1) or 48h (Class2)

✓ Solderability

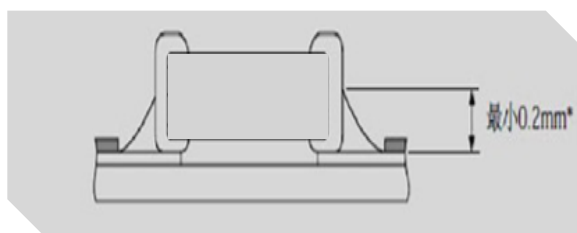
At least 95% of the terminal electrode is covered by new solder.
Preheating conditions: 80 to 120°C ; 10~30s.
Solder Temperature: $235 \pm 5^{\circ}\text{C}$ Duration: $2 \pm 0.5\text{s}$, Solder Temperature: $245 \pm 5^{\circ}\text{C}$ Duration: $2 \pm 0.5\text{s}$

✓ Optimum Solder Amount for Reflow Soldering

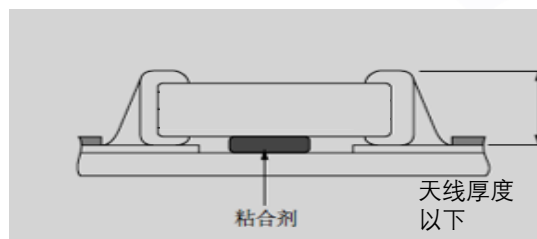


✓ Recommended Soldering Amounts

The optimal solder fillet amounts for re-flow soldering



The optimal solder fillet amounts for wave soldering





P/N: HY160808 SRF09

✓ Temperature Cycle Test

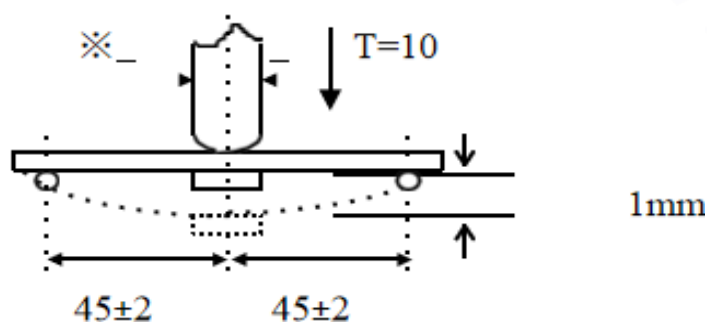
$10 \pm 1S$ Applied Force: 5N Duration: $10 \pm 1S$
Preheating conditions: up-category temperature, 1h
Recovery time: $24 \pm 1h$
Initial Measurement
Cycling Times: 5 times, 1 cycle, 4 steps:

Stage	Temperature(°C)	Time (minutes)
Step 1	Lower temperature limit (NPO/X7R/X7S/X6S/X5R:-55 Y5V:-25 Z5U:-10)	30
Step 2	normal atmospheric temperature(+20)	2-3
Step 3	Upper line temperature (NPO/X7R/X7S: +125 Y5V/Z5U/X5R:-85 X6S:-105)	30
Step 4	normal atmospheric temperature(+20)	2-3

✓ Resistance to Soldering Heat

Preheating 80 to 120°C; 10~30s.Solder Temperature: $235 \pm 5^\circ\text{C}$; Duration: $2 \pm 0.5s$; Solder Temperature: $245 \pm 5^\circ\text{C}$
Duration: $2 \pm 0.5s$; Preheating 100 to 200°C; $10 \pm 2\text{min}$.
Solder Temperature: $265 \pm 5^\circ\text{C}$; Duration: $10 \pm 1s$
Clean the capacitor with solvent and examine it with a 10X(min.) microscope.
Recovery Time: $24 \pm 2h$
Recovery condition: Room temperature

✓ Resistance to Flexure of Substrate



Test Board: Al_2O_3 or PCB Warp: 1mm Speed: 0.5mm/sec.
Unit: mm

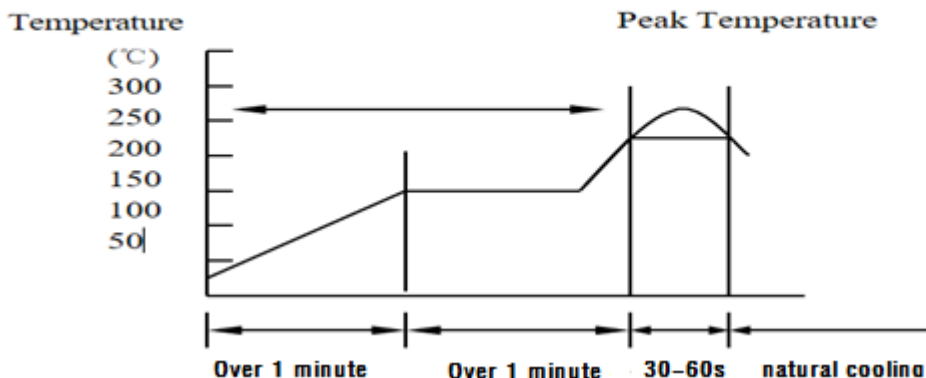
The measurement should be made with the board in the bending position.



P/N: HY160808 SRF09

The temperature profile for soldering

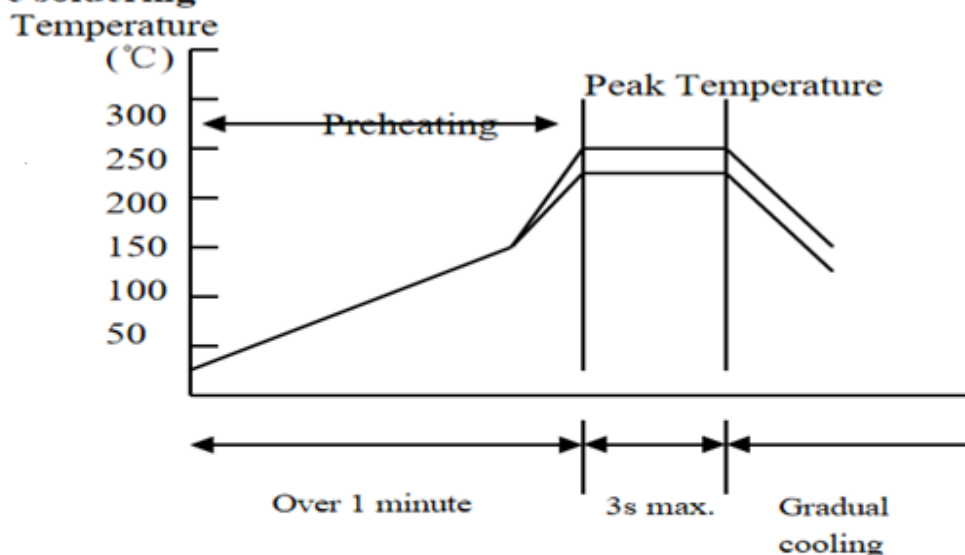
Re-flow soldering



	Pb-Sn soldering	Lead-free soldering
Peak temperature	230°C~250°C	240°C ~ 260°C

While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as: $T \leq 150^{\circ}\text{C}$.

Wave soldering

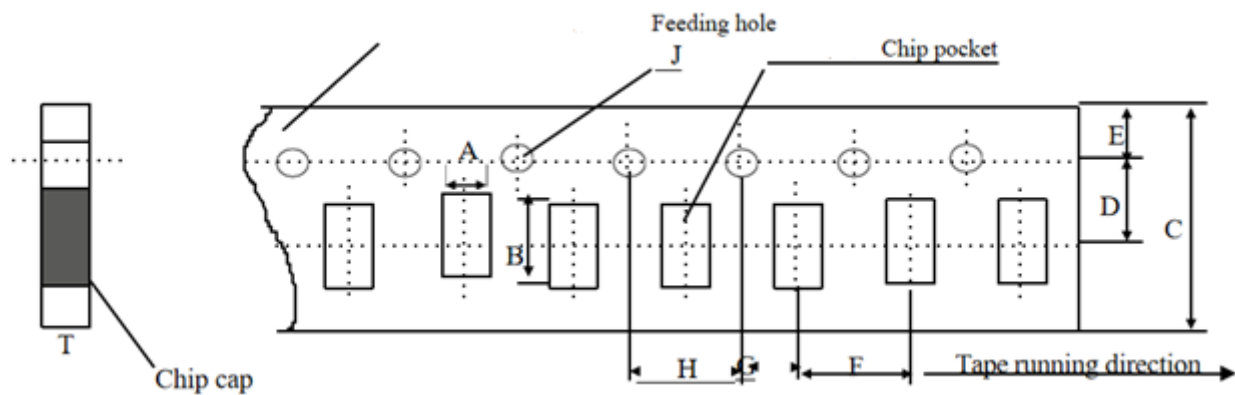


	Pb-Sn soldering	Lead-free soldering
Peak temperature	230°C~260°C	240°C~270°C



P/N: HY160808 SRF09

✓ Dimensions of paper taping

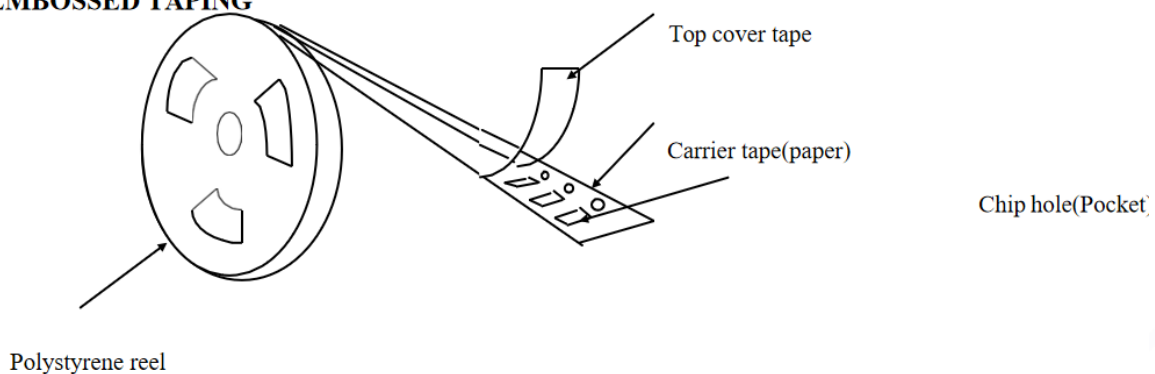


Unit: mm

Code	A	B	C	D*	E	F	G*	H	J	T
papersize										
Size	1.10 ±0.10	1.90 ±0.10	8.00 ±0.10	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.10	4.00 ±0.10	1.50 -0/+0.10	1.10 Max

Reel (4000 pcs/Reel)

EMBOSED TAPING



✓ Storage Period

The guaranteed period for solderability is 6 months (Under deliver package condition).
Temperature:5~40℃ /Relative Humidity:20~70%