

## FEATURE

- AEC-Q200 Qualified.
- High stability and reliability
- Low resistance value down to 0.1 mΩ
- Low inductance value down to 10nH
- Superior TCR performance narrow to ±25 PPM/°C
- RoHS complaint
- Applications:
  - Automotive electronics
  - Power supply
  - Industrial equipment
  - Measuring instrument
  - etc.

## MANUFACTURER PART NO.

For example: ST3920F0U2TF550-ST3920 ±1% 0.2mΩ T/R-2500 5W ±50PPM/°C

Series	Size	Tol.	Value	PKG	SPQ	Power	TCR
2 codes	4 codes	1 code	2~5 codes	1 code	1 code	1 code	2 codes
ST	3920	F	0R001	T	F	7	00
Shunt Chip Resistors	2512 3920 4527 5930	F=±1% G=±2% J=±5%	0U1 <sup>①</sup> =0.0001Ω, 0.1mΩ 0U75=0.00075Ω, 0.75mΩ 0R001 <sup>②</sup> =0.001Ω, 1mΩ 1U5=0.0015Ω, 1.5mΩ	T=T/R <sup>③</sup>	1=1,000 2=2,000 F=2,500 H=500	3=3W 5=5W 7=7W 8=8W	25=25PPM/°C 50=50PPM/°C 00=Refer to table as below.

Note: ① U=milli, 10<sup>-3</sup>, mΩ

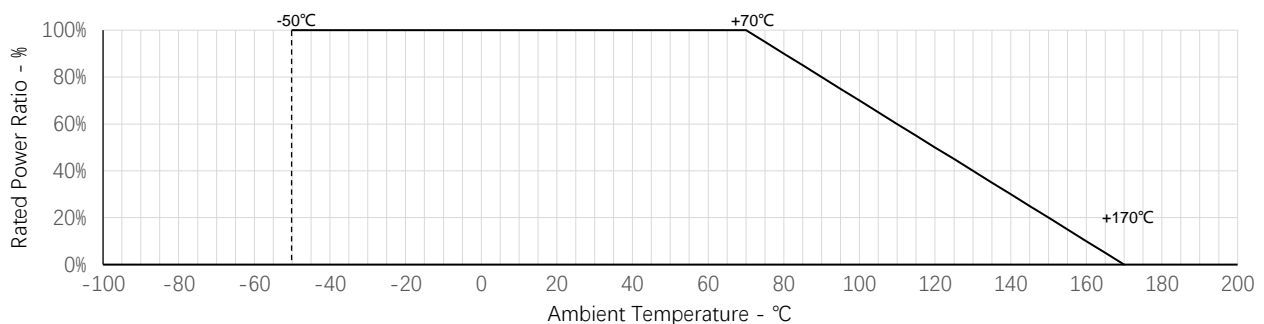
② R=Radix, 10<sup>0</sup>,Ω

③ T/R=Taping in Reel package type.

## CHARACTERISTICS

Type	Rated Power	Max. Rated Current	Tolerance	Value Range	TCR
ST2512	3W	122A	±1%, ±2%, ±5%	0.2mΩ~5mΩ	±25, ±50 PPM/°C
ST3920	5W	158A	±1%, ±2%, ±5%	0.2mΩ~5mΩ	±25, ±50 PPM/°C
ST4527	7W	118A	±1%, ±2%, ±5%	0.5mΩ~100mΩ	±25, ±50 PPM/°C
ST5930	7W	/	±1%, ±2%, ±5%	0.1mΩ~4mΩ	±25, ±50 PPM/°C
	8W	/	±1%, ±2%, ±5%	1mΩ, 2mΩ	±25, ±50 PPM/°C

## POWER DERATING CURVE



Note: Operating Temperature Range is from -50 to +170°C

**RATED CURRENT**

The resistor shall have a Rated Current which would be DC or AC corresponding to the Rated Power, and it can be calculated by formula as below.

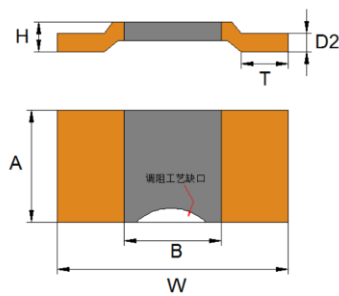
The Rated Current of certain resistance value should be the calculated result or Max. Working Current of product series whichever less.

Formula:

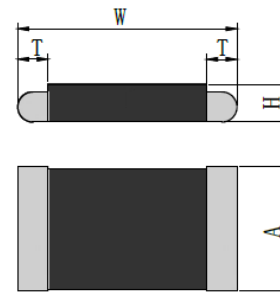
$$I = \sqrt{P/R}$$

I=Rated current (A)  
 P=Rated power (W)  
 R=Nominal resistance (Ω)

**DIMENSIONS**



ST2512, 3920, 5930



ST4527

Unit: mm

Type	Power	Res. Value	W	A	B	H	D2	T	SPQ	
ST2512	3W	0.2mΩ	6.4±0.3	3.2±0.3	3±0.5	/	1.7±0.3	1.65±0.5	1,000	
		0.25mΩ	6.4±0.3	3.2±0.3	3±0.5	/	1.6±0.3	1.65±0.5		
		0.3mΩ	6.4±0.3	3.2±0.3	3±0.5	1.5±0.3	1.0±0.1	1.5±0.5		
		0.5mΩ	6.4±0.3	3.2±0.3	3±0.5	1.3±0.3	0.8±0.1	1.5±0.5		
		1mΩ	6.4±0.3	3.2±0.3	3±0.5	0.9±0.3	0.36±0.1	1.5±0.5		
		2mΩ	6.4±0.3	3.2±0.3	3±0.5	1.2±0.3	0.65±0.1	1.5±0.5		
		3mΩ	6.4±0.3	3.2±0.3	3±0.5	0.9±0.3	0.4±0.1	1.5±0.5		
		4mΩ	6.4±0.3	3.2±0.3	3±0.5	0.7±0.3	0.3±0.1	1.5±0.5		
ST3920	5W	0.2mΩ	10±0.5	5.2±0.5	5±0.5	2.1±0.2	1.66±0.1	2.0±0.5	2,500	
		0.3mΩ	10±0.5	5.2±0.5	5±0.5	1.9±0.2	1.38±0.1	2.0±0.5		
		0.5mΩ	10±0.5	5.2±0.5	5±0.5	1.2±0.2	0.74±0.1	2.0±0.5		
		0.7mΩ	10±0.5	5.2±0.5	5±0.5	1.0±0.2	0.56±0.1	2.0±0.5		
		1mΩ	10±0.5	5.2±0.5	5±0.5	1.8±0.2	1.32±0.1	2.0±0.5		
		2mΩ	10±0.5	5.2±0.5	5±0.5	1.6±0.2	1.1±0.1	2.0±0.5		
		2.5mΩ	10±0.5	5.2±0.5	5±0.5	1.1±0.2	0.58±0.1	2.0±0.5		
		3mΩ	10±0.5	5.2±0.5	5±0.5	1.1±0.2	0.54±0.1	2.0±0.5		
ST4527	7W	0.5mΩ~100mΩ	11.6±0.5	6.6±0.5	/	2±0.35	/	1.6±0.5	500	
		0.1mΩ	15.2±0.5	7.6±0.5	5±0.5	2.5±0.2	2.0±0.1	4.2±0.5		
		0.2mΩ	15.2±0.5	7.6±0.5	5±0.5	2.0±0.2	1.50±0.1	4.2±0.5		
		0.3mΩ	15.2±0.5	7.6±0.5	5±0.5	1.46±0.2	0.92±0.1	4.2±0.5		
		0.5mΩ	15.2±0.5	7.6±0.5	5±0.5	1.7±0.2	1.15±0.1	4.2±0.5		
			15.2±0.5	7.6±0.5	5±0.5	1.1±0.2	0.56±0.1	4.2±0.5		
		0.75mΩ	15.2±0.5	7.6±0.5	5±0.5	0.9±0.2	0.40±0.1	4.2±0.5		
		1mΩ	15.2±0.5	7.6±0.5	5±0.5	1.4±0.2	0.90±0.1	4.2±0.5		
ST5930	7W	1.5mΩ	15.2±0.5	7.6±0.5	5±0.5	1.1±0.2	0.64±0.1	4.2±0.5	2,000	
		2mΩ	15.2±0.5	7.6±0.5	5±0.5	1.0±0.2	0.48±0.1	4.2±0.5		
		2.5mΩ	15.2±0.5	7.6±0.5	5±0.5	0.9±0.2	0.40±0.1	4.2±0.5		
		3mΩ	15.2±0.5	7.6±0.5	5±0.5	0.8±0.2	0.30±0.1	4.2±0.5		
		4mΩ	15.2±0.5	7.6±0.5	5±0.5	0.5±0.2	0.24±0.1	4.2±0.5		
		8W	1mΩ	15.2±0.5	7.6±0.5	9±0.5	/	2.0±0.2		4.2±0.5
			2mΩ	15.2±0.5	7.6±0.5	6±0.5	/	1.2±0.2		4.2±0.5

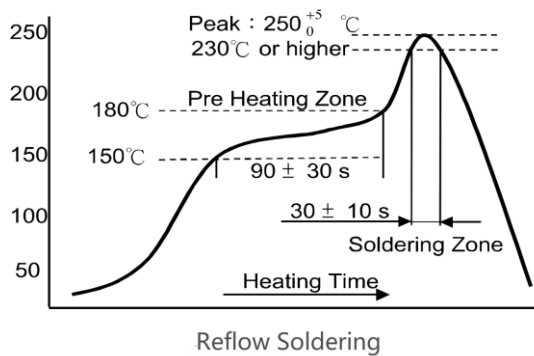
This document is subject to change without notice. The products described herein, and this document are subject to specific disclaimers, set forth at GiantOhm official website, <http://www.giantohm.com/download/cid/22.html>

**RELIABILITY**

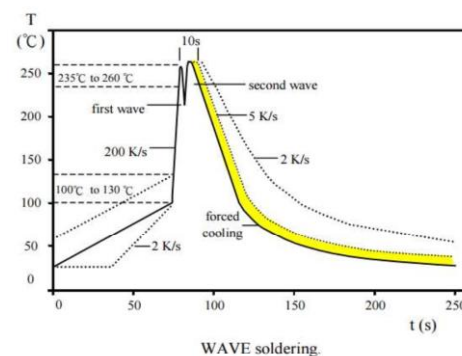
Test Item	Test method	Acceptable Criterion
Temperature Cycling	2000 cycles (-55°C to +150°C)	±0.5%
Low Temperature Storage and Operation	-65°C for 24 hrs.	±0.1%
Resistance to Soldering Heat	260°C for 10 sec/8h steam aging	No mechanical damage. ΔR/R=±1.0%
Moisture Resistance	MIL-STD-202 method 106	±0.1%
Mechanical Shock	100 g, 6 ms half sine	±0.2%
Vibration, High Frequency	20 g, 10-2000 Hz	±0.2%
Operational Life	2000 h, TK max at nominal load	±1.0%, TK = 130°C
High Temperature Exposure	2000 h/170°C	±1.0% (in covered condition)
Bias Humidity	+85°C, 85 r.F., 1000 h	±0.5%

**SOLDERING**

Lead Free IR Reflow Soldering Profile



Lead Free Double-Wave Soldering Profile

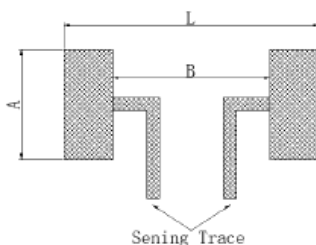


- Reference: J-STD-020D

- 350±10°C within 3 Sec. if soldering iron.

**SOLDERING PAD**

单位: 毫米



Size	L	A	B
ST2512	7	3.4	3.4
ST3920	5.6	6.2	2.7
ST4527	14.8	8.7	8
ST5930	16	5.6	8.75

---

## WORKING ENVIRONMENT

---

If user intends to use products in special environments or states (including but not limited to the following), it is necessary to approve special characteristics and reliability for the following or other application environments.

- A. High temperature.
- B. Near the sea, or corrosive gas, such as Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub> and NO<sub>2</sub>, etc.
- C. Unverified liquids, such as water, oil, chemical or organic solvent.
- D. Unverified resin or paint to cover products.
- E. Products should be washed with water soluble cleaner even if non cleaning flux.

---

## STORAGE / CARRY CONDITION

---

- A. Temperature: 20±15°C
- B. Humidity: 60±15%RH
- C. Storage life: 2 years, FIFO
- D. Please hold box correct orientation when storing and carrying. It is strictly prohibited to fall or squeeze the box, otherwise the product electrode or body may be damaged.

---

## LEGAL DISCLAIMER

---

GiantOhm and its distributors or agents (hereinafter referred to as GiantOhm) shall not bear any responsibility for any error, inaccuracy or incompleteness contained in any product related information (including but not limited to product specifications, data, pictures, and charts). GiantOhm may change, revise, or improve product related information at any time without prior notice.

GiantOhm makes no commitment, guarantee for the suitability of its products for special purposes or the continuous production of any of its products. To the maximum extent permitted by law, GiantOhm does not assume any of the following responsibilities:

- A. All liabilities arising from the application or use of any GiantOhm's products.
- B. All liabilities, including but not limited to the loss of profits or direct damage, indirect damage, special damage, punitive damage, derivative damage, or incidental damage caused by or related to GiantOhm's products.
- C. All implied warranties, including fitness for a particular purpose, non-infringement, and merchantability.

GiantOhm defines this product as a general consumer electronic purpose, which is not applicable to any medical lifesaving or life-sustaining equipment, nor to any application that may cause casualties in case of failure of GiantOhm's products.

All technical suggestions on product application provided by GiantOhm are provided free of charge. GiantOhm assumes no obligation and responsibility for adopting such technical suggestions and available results, and all risks of adopting such suggestions shall be borne by the buyer. All risks and responsibilities arising from the buyer's use of GiantOhm's products in combination with other materials or raw materials, or in any combination in its manufacturing process, shall be borne by the buyer, regardless of any oral or written technical instructions, suggestions or other requirements given by GiantOhm for the use of the products.

The information provided above is only to explain the product specifications. If the product is not changed, GiantOhm has all the rights to modify the above contents without prior notice, and the product change will be notified to the customer by ECN.

