炬鹿科技有限公司
RIDEE TECH COMPANY LIMITED

Revision Date : 2023 / 08 / 28

APPROVAL SHEET

Product Name : Fusible Chip Resistor

Part No. : TFS Series

Description : Size 0603~2512

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For more contact information, please refer to our website: www.rideetech.com

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Fusible Chip Resistor – TFS Series

Applications

— Household Appliances

— Professional Electronics

— Industrial Equipments

Features

— Fast Fuse Design to Protect Circuits from excessive overload

— All case sizes are available from 0603 to 2512

— Compatible with flow and reflowing soldering

— Meet RoHS and Halogen Free

Part Number Explanation

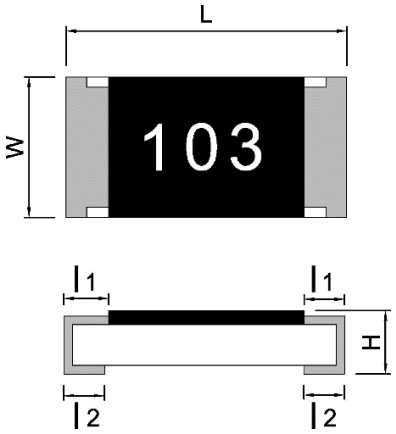
TFS	0603	F	1001	T	S
Product	Size (Inch)	Tolerance	Resistance	Packaging	Functional
Fusible Chip Resistor	0603 0805 1206 2010 2512	F：±1.0% J：±5.0%	1Ω=1R00 10Ω=10R0 100Ω=100R	T= Tape & Reel	S= Standard

Standard Electrical Specifications

Item / Type	Rated Power at 70℃	Max Working Voltage	Max Overload Voltage	Fusing Times @Power	T.C.R. (PPM/℃)	Resistance Range	
	Standard					F(± 1%)	J(± 5%)
TFS 0603	0.1 W	75V	150V	<30 Sec @3W	±600	1Ω<R≦47Ω	
					±400	51Ω<R≦471Ω	
					±200	510Ω≦R≦1.8KΩ	
TFS 0805	0.125 W	150V	300V	<30 Sec @3.3W	±600	1Ω<R≦47Ω	
					±400	51Ω<R≦471Ω	
					±200	510Ω≦R≦1.8KΩ	
TFS 1206	0.25 W	200V	400V	<30 Sec @5W	±600	1Ω<R≦47Ω	
					±400	51Ω<R≦471Ω	
					±200	510Ω≦R≦1.8KΩ	
TFS 2010	0.5 W	200V	400V	<30 Sec @11W	±600	1Ω<R≦47Ω	
					±400	51Ω<R≦471Ω	
					±200	510Ω≦R≦1.8KΩ	
TFS 2512	1 W	250V	500V	<30 Sec @15W	±600	1Ω<R≦47Ω	
					±400	51Ω<R≦471Ω	
					±200	510Ω≦R≦1.8KΩ	

- Functional code: S
- Beyond the above specification also can meet the special requirements. For detail questions, please contact us freely.

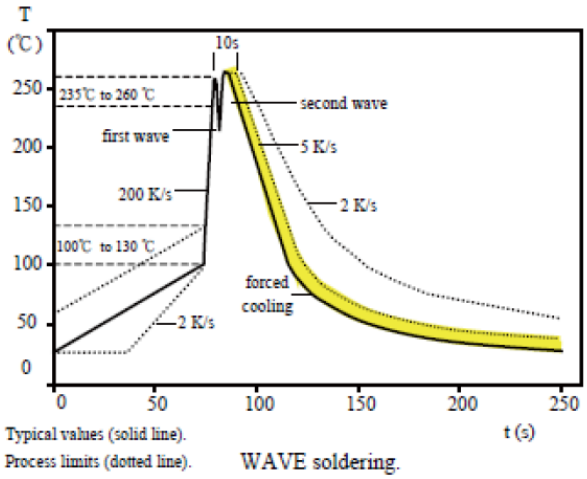
Dimension



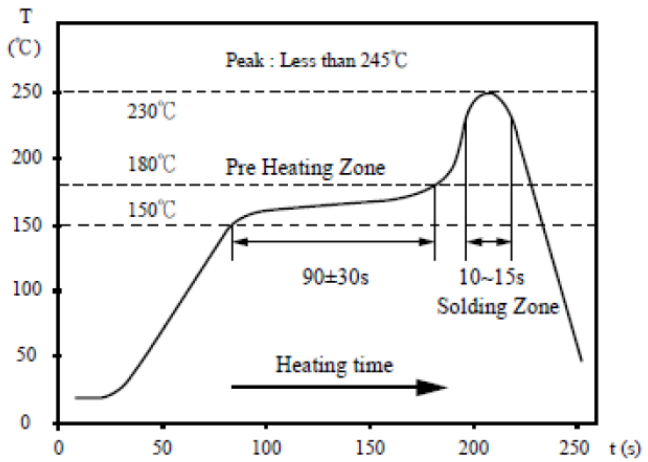
Unit：mm

Size	L	W	H	l1	l 2
0603	1.60 ± 0.10	0.80 ± 0.10	0.40 ± 0.10	0.30 ± 0.20	0.30 ± 0.10
0805	2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.15	0.30 ± 0.15	0.40 ± 0.15
1206	3.05 ± 0.10	1.60 ± 0.10	0.55 ± 0.15	0.40 ± 0.20	0.50 ± 0.20
2010	5.00 ± 0.20	2.50 ± 0.15	0.55 ± 0.10	0.60 ± 0.20	0.60 ± 0.20
2512	6.30 ± 0.20	3.20 ± 0.15	0.55 ± 0.10	0.60 ± 0.20	0.60 ± 0.20

■ Soldering Conditions



Typical values (solid line).
Process limits (dotted line).
WAVE soldering.

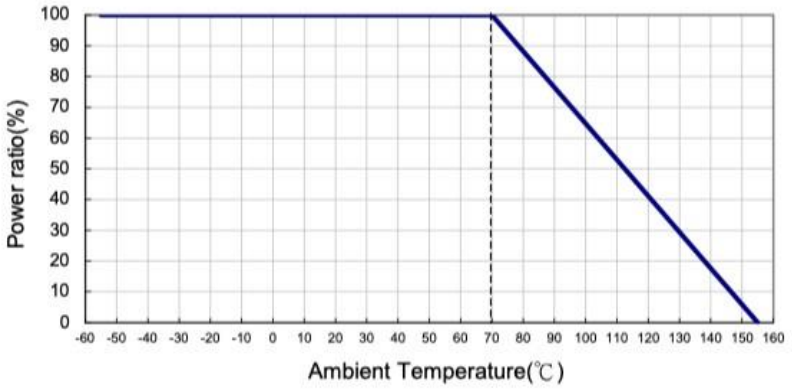


IR Reflow soldering.

■ Performance Characteristics

■ Power Derating Curve

Operating Temperature Range: -55 to +155℃



■ Voltage Rating or Current Rating

Resistance Range: ≧1Ω

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as following:

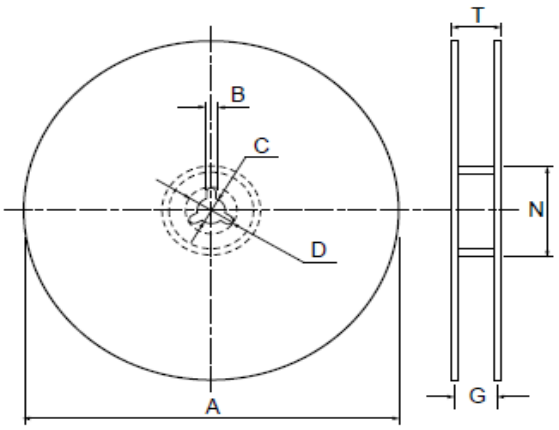
E(RCWV)=√P×R

E=Rated voltage(V)
P=Power rating(W)
R=Nominal resistance(Ω)

Reliability Test and Requirement

Test Item	Test Method	Procedure	Requirements
			TYPE
Temperature Coefficient of Resistance (T.C.R)	IEC-60115-1 4.8 JIS C 5201-1 4.8	At 25 / -55℃ and 25℃ /+155℃, 25℃ is the reference temperature	As Spec
Short Time Overload	IEC 60115-1 4.13 JIS C 5201-1 4.13	2.5×Rated voltage or Max. Overload Voltage for 5 sec.	J: △R ≦ ± (2% + 0.1Ω) F: △R ≦ ± (1% + 0.05Ω)
Leaching	JIS C 5201-1 4.18	260±5"C for 30 seconds.	Individual leaching area≦5% Total leaching area≦10%
Resistance to Soldering Heat	IEC 60115-1 4.18 JIS C 5201-1 4.18	Solder dipping 260±5℃ for 10 sec. ±1sec.	J: △R ≦ ± (1% + 0.1Ω) F: △R ≦ ± (0.5% + 0.05Ω) No mechanical damage
Rapid Change of Temperature	IEC 60115-1 4.19 JIS C 5201-1 4.19	Repeat 5 cycles as follows -55℃(30 min.) + 25℃(2 ~ 3 min.) +155℃(30 min.) + 25℃(2 ~ 3 min.)	J: △R ≦ ± (1% + 0.1Ω) F: △R ≦ ± (0.5% + 0.05Ω) No mechanical damage
Damp Heat With Load	IEC 60115-1 4.24 JIS C 5201-1 4.24	Maintain the temperature of the resistor at 40±2℃ and 90 ~ 95% R.H. with the rated voltage applied. Cycle ON for 1.5 hours and OFF for 0.5 hour for 1000+48/-0 hours. After 1 ~ 4 hour, measure the resistance value.	J: △R ≦ ± (2% + 0.05Ω) F: △R ≦ ± (1% + 0.05Ω) Value < 1Ω: ± (2% + 0.05Ω)
Load Life	IEC 60115-1 4.25 JIS C 5201-1 4.25	Permanent resistance change after 1000 hours (1.5 hours ON , 0.5 hour OFF) at RCWV or Max. Keep the resistor at 70±2℃ ambient	J: △R ≦ ± (3% + 0.1Ω) F: △R ≦ ± (1% + 0.05Ω) Value < 1Ω: ± (3% + 0.1Ω)
Insulation Resistance	IEC 60115-1 4.6 JIS C 5201-1 4.6	Test voltage：100VDC for 1 minute	Between termination and coating must over 1000MΩ
Bending Strength	IEC 60115-1 4.33 JIS C 5201-1 4.33	Resistance change after bended on the 5mm for 0402, 0603,0805, 3mm for 1206 2mm for 2010, 2512	J: △R ≦ ± (1% + 0.05Ω) F: △R ≦ ± (1% + 0.05Ω) No mechanical damage

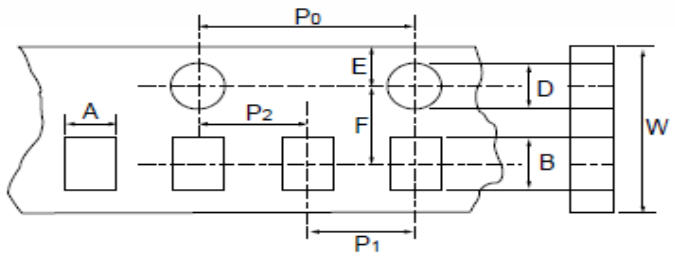
Packaging Information



Unit:mm

Size	Packaging Q'ty	A	N	C	D	B	G	T
0603 0805 1206	5kpcs/Reel	178.0±2.0	60.0±0.5	13.0±1.0	20(Min.)	2.0±0.5	10.0±1.5	14.9max.
	10kpcs/Reel	254.0±2.0	100.0±1.0	13.0±1.0	20(Min.)	2.0±0.5	10.0±1.5	14.9max.
	20kpcs/Reel	330.0±2.0	100.0±1.0	13.0±1.0	20(Min.)	2.0±0.5	10.0±1.5	14.9max.
2010/ 2512	4kpcs/Reel	178.0±2.0	60.0±0.5	13.0±1.0	20(Min.)	2.0±0.5	13.8±1.5	16.7max.

Tapping Specification



- Accumulated dimensional tolerance 40±0.2mm

Unit:mm

Size	A	B	W	F	E	P1	P2	P0	D
0603	1.10±0.20	1.90±0.20	8.00±0.30	3.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
0805	1.65±0.20	2.40±0.20	8.00±0.30	3.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
1206	2.00±0.20	3.60±0.20	8.00±0.30	3.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
2010	2.80±0.20	5.50±0.20	12.00±0.30	5.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0
2512	3.50±0.20	6.70±0.20	12.00±0.30	5.50±0.05	1.75±0.10	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0

■ Marking

■ E24 / E96 ±1%: 4 digits marking

Resistance	120KΩ	121KΩ
4 digits code	1203	1213

■ E24 5% : 3 digits marking

Resistance	120KΩ
3 digits code	124