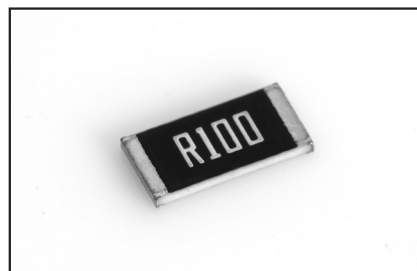


Current Sensing Thick Film Chip Resistors

- Low inductance
- Highly reliable multilayer electrode construction
- Higher component and equipment reliability
- Reduced size of final equipment
- Power management applications
- Switching power supply
- Over current protection in audio application
- Voltage regulation module (VRM)
- DC-DC converter, battery pack, charger, adaptor
- Automotive engine control, Disk driver



GENERAL SPECIFICATIONS

Model	Item	Power Rating at 70°C	Operating Temperature Range	Resistance Range(mΩ)		TCR(ppm/°C)
				±1%	±5%	
RS-02 (0402)		1/16W	-55°C ~ +155°C	50 - 99		±800
				100 - 499		±500
				500 - 976		±200
RS-03 (0603)		1/10W		20 - 47		±1200
				50 - 99		±800
				100 - 499		±500
				500 - 976		±200
RS-05 (0805)		1/8W		10 - 18		±1500
				20 - 47		±1200
RS-06 (1206)		1/4W		50 - 99		±800
				100 - 499		±500
				500 - 976		±200
RS-10 (1210)		1/3W		10 - 18		±1500
				20 - 47		±800
RS-0A (2010)		3/4W		50 - 99		±800
				100 - 499		±200
RS-12 (2512)		1W		500 - 976		±200

* Operating Voltage = $\sqrt{P \cdot R}$ / **Overload Voltage = $2.5 \cdot \sqrt{P \cdot R}$

HIGH POWER RATING SPECIFICATIONS

Model	Item	Power Rating at 70°C	Operating Temperature Range	Resistance Range(mΩ)		TCR(ppm/°C)
				±1%	±5%	
RS-02 (0402)		1/10W	-55°C ~ +155°C	50 - 99		±800
				100 - 499		±500
				500 - 976		±200
RS-03 (0603)		1/8W		20 - 47		±1200
				50 - 99		±800
				100 - 499		±500
				500 - 976		±200
RS-05 (0805)		1/4W		10 - 18		±1500
				20 - 47		±1200
RS-06 (1206)		1/3W		50 - 99		±800
				100 - 499		±500
				500 - 976		±200
RS-10 (1210)		1/2W		10 - 18		±1500
				20 - 47		±800
RS-0A (2010)		1W		50 - 99		±800
				100 - 499		±200
RS-12 (2512)		2W		500 - 976		±200

* Operating Voltage = $\sqrt{P \cdot R}$

**Overload Voltage = $2.5 \cdot \sqrt{P \cdot R}$

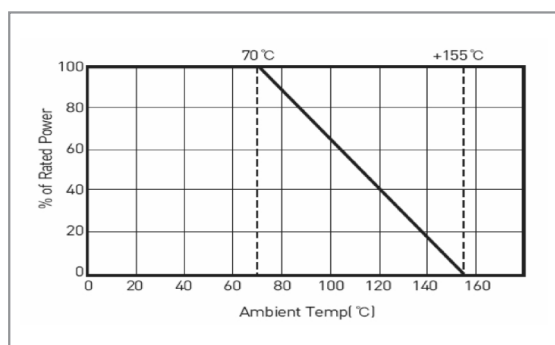
CHARACTERISTICS

Item	Requirement		Test Method
	±1%	±5%	
Temperature Coefficient	As Spec.		-55℃~+125℃, 25℃ is the reference temperature
Short Time Overload	±(1.0%+0.05Ω)	±(2.0%+0.05Ω)	RCWV*2.5 or maximum overload voltage for 5 seconds 2 seconds for high power series
Insulation Resistance	≥10GΩ		Maximum overload voltage for 1 minute
Endurance	±(2.0%+0.10Ω)	±(3.0%+0.10Ω)	70±2℃, maximum working voltage for 1000hours with 1.5 hours "ON" and 0.5 hour "OFF"
Damp Heat with Load	±(2.0%+0.10Ω)	±(3.0%+0.10Ω)	40±2℃, 90~95% RH maximum working voltage for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Dry Heat	±(1.0%+0.05Ω)	±(1.5%+0.05Ω)	At +155℃ for 1000hours
Bending Strength	±(1.0%+0.05Ω)	±(1.0%+0.05Ω)	Bending once for 5 seconds 2010, 2512 sizes: 2mm, Other sizes: 3mm
Solderability	95% minimum coverage		245±5℃ for 3 seconds
Resistance to Soldering Heat	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	260±5℃ for 10 seconds
Voltage Proof	No breakdown or flashover		1.42 times RCWV(RMS) for 1 minute
Leaching	Individual leaching area ≤ 5% Total leaching area ≤ 10%		260±5℃ for 30 seconds
Rapid Change of Temperature	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	-55℃ to +155℃, 5 cycles

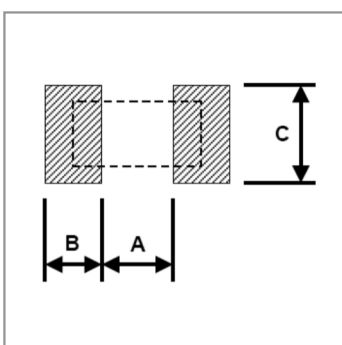
* Reference Standards : IEC 60115-1, 60068-2-58; JIS-C 5201-1

* Storage Temperature : 25±3℃; Humidity < 80%RH

DERATING CURVE

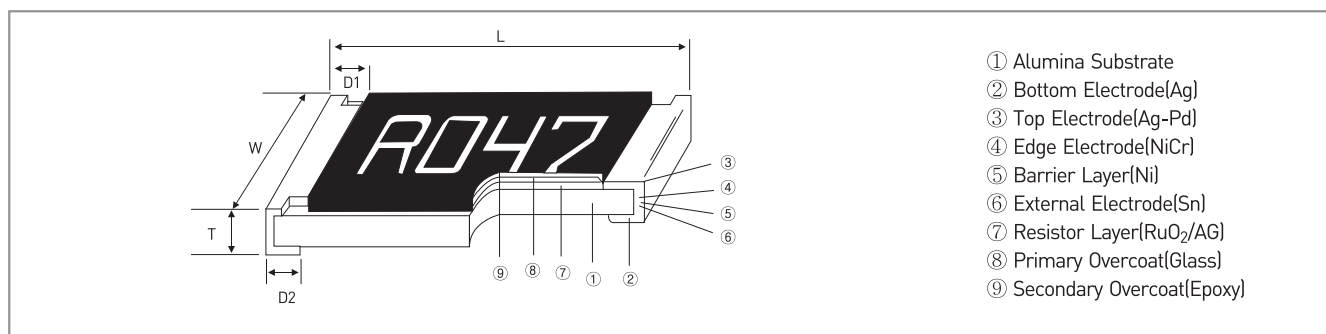


RECOMMENDED LAND PATTERN [mm]



Model	A	B	C
RS-02	0.50	0.45	0.60
RS-03	0.90	0.60	0.90
RS-05	1.20	0.70	1.30
RS-06	2.00	0.90	1.60
RS-10	2.00	0.90	2.80
RS-0A	3.80	0.90	2.80
RS-12	3.80	1.60	3.50

DIMENSIONS [mm]



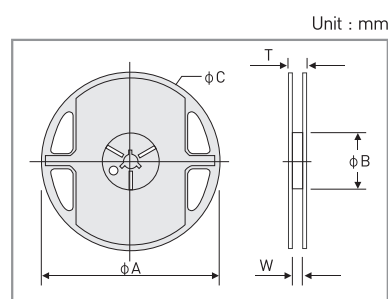
- ① Alumina Substrate
- ② Bottom Electrode(Ag)
- ③ Top Electrode(Ag-Pd)
- ④ Edge Electrode(NiCr)
- ⑤ Barrier Layer(Ni)
- ⑥ External Electrode(Sn)
- ⑦ Resistor Layer(RuO₂/AG)
- ⑧ Primary Overcoat(Glass)
- ⑨ Secondary Overcoat(Epoxy)

Model	Size(Inch)	L	W	T	D1	D2	Weight(g) (1000pcs)
RS-02	0402	1.00±0.05	0.50±0.05	0.35±0.05	0.20±0.10	0.20±0.10	0.620
RS-03	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	2.042
RS-05	0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.40±0.20	4.368
RS-06	1206	3.10±0.10	1.55±0.10	0.55±0.10	0.50±0.25	0.50±0.20	8.947
RS-10	1210	3.10±0.10	2.60±0.15	0.55±0.10	0.50±0.25	0.50±0.20	15.959
RS-0A	2010	5.00±0.10	2.50±0.15	0.55±0.10	0.60±0.25	0.50±0.20	24.241
RS-12	2512	6.35±0.10	3.10±0.15	0.55±0.10	0.60±0.25	0.50±0.20	39.448

PACKAGING

Reel Specifications & Packaging Quantity

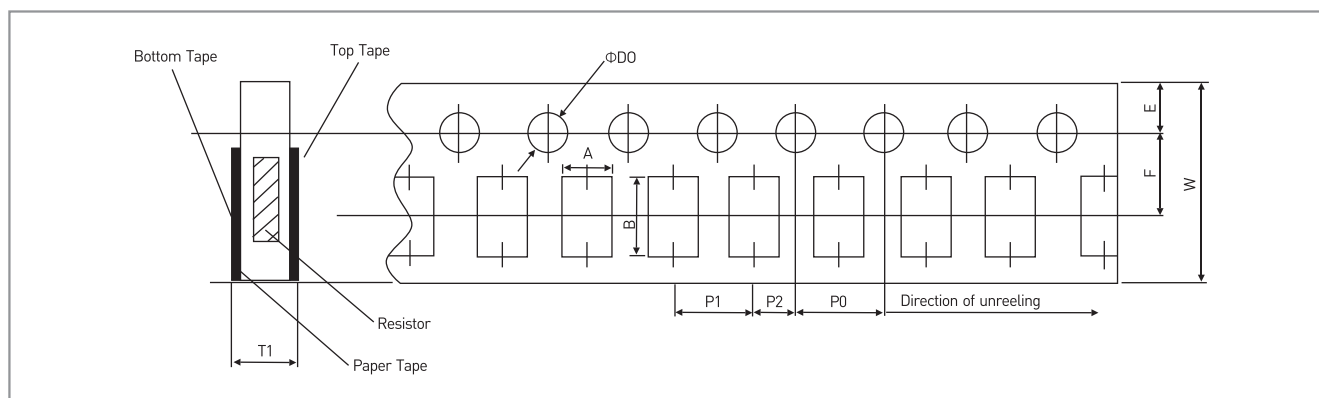
Model	Packaging Quantity	Tape Width	Reel Dia.	ΦA	ΦB	ΦC	W	T
RS-02	Paper	10K	7 inch	178.5±1.5	60 ^{+1/-0}	13±0.2	9±0.5	12.5±0.5
		20K						
		40K						
RS-03	Paper	5K	10 inch	254±1.0	100±0.5	13±0.2	9.5±0.5	13.5±0.5
RS-05		10K						
RS-06		20K						
RS-10	Embossed	4K	12mm	178.5±1.5	60 ^{+1/-0}	13±0.5	13±0.5	15.5±0.5
RS-0A		8K						
RS-12								



Unit : mm

PAPER TAPE SPECIFICATIONS

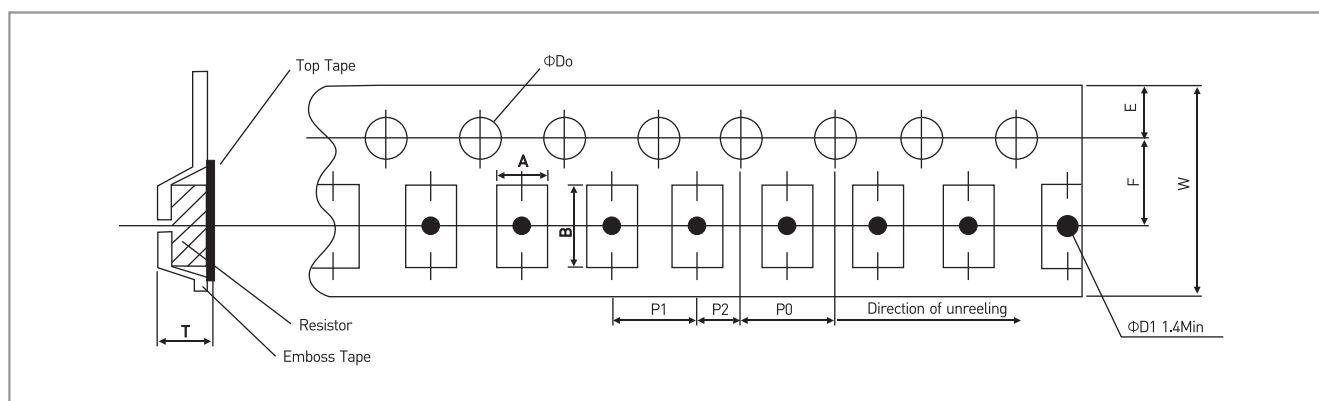
Unit : mm



Model	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	T
RS-02	0.65±0.1	1.15±0.1	8±0.2	1.75±0.1	3.5±0.05	4±0.1	2±0.05	2±0.05	1.5 ^{+0.1/-0}	0.45±0.1
RS-03	1.1±0.1	1.9±0.1	8±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.05	2±0.05	1.5 ^{+0.1/-0}	0.7±0.1
RS-06	1.9±0.1	3.5±0.2	8±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.05	2±0.05	1.5 ^{+0.1/-0}	0.85±0.1
RS-10	2.9±0.1	3.5±0.2	8±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.05	2±0.05	1.5 ^{+0.1/-0}	0.85±0.1

EMBOSSED PLASTIC TAPE SPECIFICATIONS

Unit : mm



Model	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	T
RS-0A	2.8±0.10	5.5±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.0±0.10	4.0±0.10	2.0±0.05	1.5 ^{+1/-0}	1.2±0
RS-12	3.5±0.10	6.7±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.0±0.10	4.0±0.10	2.0±0.05	1.5 ^{+1/-0}	1.2±0

ORDERING PROCEDURE EXAMPLE

Ordering Example	Model	Power Rating	Resistance	Tolerance	Code
RS-02 L0R05F4	RS-02	L(Standard)	50mΩ	F[±1%]	4(7"Reel 4Kpcs)
RS-03 P0R1J6	RS-03	P(High Power)	100mΩ	J[±5%]	6(7"Reel 10Kpcs)
RS-05 L0R02F7	RS-05	L(Standard)	20mΩ	F[±1%]	7(7"Reel 5Kpcs)
RS-06 P0R5J9	RS-06	P(High Power)	500mΩ	J[±5%]	9(10"Reel 8Kpcs)
RS-10 L0R01FA	RS-10	L(Standard)	10mΩ	F[±1%]	A(10"Reel 10Kpcs)
RS-0A P0R05JC	RS-0A	P(High Power)	50mΩ	J[±5%]	C(13"Reel 40Kpcs)
RS-12 L0R5FF	RS-12	L(Standard)	500mΩ	F[±1%]	F(Bulk)