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Datasheet

RS Pro RS Series Thick Film Surface Mount Resistor 1206 Case 6.8Ω ±5% 0.25W ±200ppm/°C

RS Stock No: **713-1211**

Product Details

RS Pro 1206 thick film surface mount resistor with ±5% tolerance, provides 6.8 Ω resistance and is power rated at 0.25 W. The temperature coefficient of resistance is ±200 ppm/°C. Applications include telecommunication equipment, radio and tape recorders, TV tuners, video cameras, watches, pocket calculators, automotive industry, computers, instruments, medical and military equipment.

Features and Benefits

- Small size and lightweight
- Highly reliable multilayer electrode construction
- Compatible with all soldering process

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Specifications:

Case Style	Ruthenium Oxide
Depth	1.55 mm
Dimensions	3.1 x 1.55 x 0.55 mm
Height	0.55 mm
Length	3.1 mm
Maximum Operating Temperature	+155°C
Maximum Temperature Coefficient	+200 ppm/°C
Minimum Operating Temperature	-55°C
Minimum Temperature Coefficient	-200 ppm/°C
Package/Case	1206
Power Rating	0.25 W
Resistance	6.8 Ω
Technology	Thick Film
Temperature Coefficient	±200 ppm/°C
Termination Style	Solder Pad
Tolerance	±5%
Maximum Operating Voltage	200 V
Maximum Overload Voltage	400 V
Tape Width	8 mm

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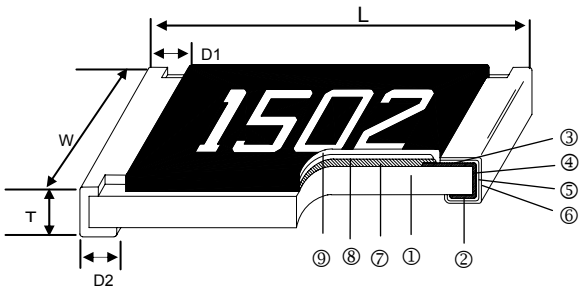
Thick Film Chip Resistor 5% - RS Series

0201/0402/0603/0805/1206

■Construction



①	Alumina Substrate	④	Edge Electrode (NiCr)	⑦	Resistor Layer (RuO_2/Ag)
②	Bottom Electrode (Ag)	⑤	Barrier Layer (Ni)	⑧	Primary Overcoat (Glass)
③	Top Electrode (Ag-Pd)	⑥	External Electrode (Sn)	⑨	Secondary Overcoat (Epoxy)

■Dimensions

Unit: mm

Type	Size (Inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
RS-0201	0201	0.60±0.03	0.30±0.03	0.23±0.03	0.15±0.05	0.15±0.05	0.150
RS-0402	0402	1.00±0.05	0.50±0.05	0.35±0.05	0.20±0.10	0.20±0.10	0.620
RS-0603	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	2.042
RS-0805	0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.40±0.20	4.368
RS-1206	1206	3.10±0.10	1.55±0.10	0.55±0.10	0.50±0.25	0.50±0.20	8.947

■Part Numbering

RS-	0402-	10R-	5%-	0.0625W
	Dimensions	Resistance	Tolerance	Power Rating @ 70 ℃
	0201 0402 0603 0805 1206	10R: 10Ω 100R: 100Ω 10K: 10KΩ 100K: 100KΩ	5%	0.0625W 0.1W 0.125W 0.25W

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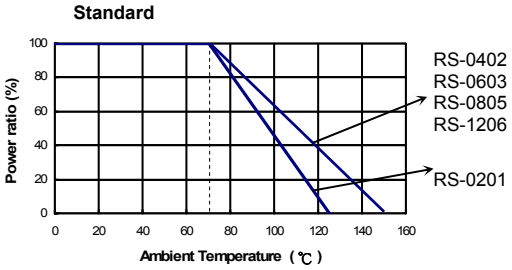
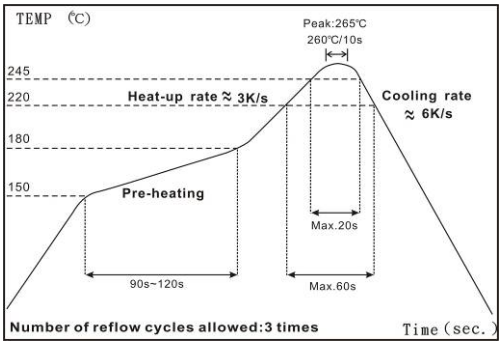
■Derating Curve

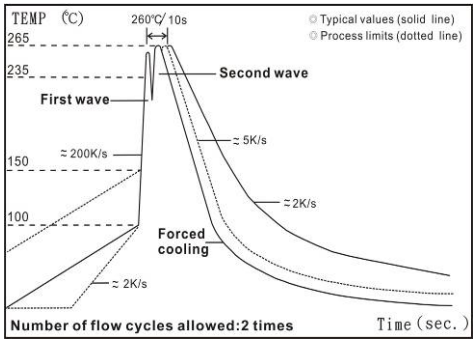


■Standard Electrical Specifications

Item / Type	Power Rating at 70°C Jumper Rated Current	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range ±5%	TCR (PPM/°C)
RS-0201	1/20W	-55 ~ +155°C	25V	50V	1Ω – 9.76MΩ	±200
Jumper	1A				0Ω (<50mΩ)	-
RS-0402	1/16W	-55 ~ +155°C	50V	100V	1Ω – 9.76MΩ	±200
Jumper	1A				0Ω (<50mΩ)	-
RS-0603	1/10W	-55 ~ +155°C	75V	150V	1Ω – 9.76MΩ	±200
Jumper	1A				0Ω (<50mΩ)	-
RS-0805	1/8W	-55 ~ +155°C	150V	300V	1Ω – 9.76MΩ	±200
Jumper	2A				0Ω (<50mΩ)	-
RS-1206	1/4W	-55 ~ +155°C	200V	400V	1Ω – 9.76MΩ	±200
Jumper	2A				0Ω (<50mΩ)	-

■Soldering Condition





IR Reflow Soldering　　Wave Soldering (Flow Soldering)

(1) Time of IR reflow soldering at maximum temperature point 260°C：10s

(2) Time of wave soldering at maximum temperature point 260°C：10s

(3) Time of soldering iron at maximum temperature point 410°C：5s

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■Environmental Characteristics

Item	Requirement		Test Method
	±5%	Jumper	
Temperature Coefficient of Resistance (T.C.R.)	As Spec.		**JIS-C-5201-1 4.8** **IEC-60115-1 4.8** -55°C~+125/+155°C, 25°C is the reference temperature
Short Time Overload	±(2.0%+0.05Ω)	<50mΩ	**JIS-C-5201-1 4.13** **IEC-60115-1 4.13** RCWV*2.5 or Max. overload voltage for 5 seconds, 2 seconds for high power series
Insulation Resistance	≥10G		**JIS-C-5201-1 4.6** **IEC-60115-1 4.6** Max. overload voltage for 1 minute
Endurance	±(3.0%+0.10Ω)	<100mΩ	**JIS-C-5201-1 4.25** **IEC-60115-1 4.25.1** 70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(3.0%+0.10Ω)	<100mΩ	**JIS-C-5201-1 4.24** 40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	±(1.5%+0.10Ω)	<50mΩ	**JIS-C-5201-1 4.23** **IEC-60115-1 2.23.2** at +125/+155°C for 1000 hrs
Bending Strength	±(1.0%+0.05Ω)	<50mΩ	**JIS-C-5201-1 4.33** **IEC-60115-1 4.33** Bending once for 5 seconds 2010, 2512 sizes: 2mm Other sizes: 3mm
Solderability	95% min. coverage		**JIS-C-5201-1 4.17** **IEC-60115-1 4.17** 245±5°C for 3 seconds
Resistance to Soldering Heat	±(1.0%+0.05Ω)	<50mΩ	**JIS-C-5201-1 4.18** **IEC-60115-1 4.18** 260±5°C for 10 seconds
Voltage Proof	No breakdown or flashover		**JIS-C-5201-1 4.7** **IEC-60115-1 4.7** 1.42 times RCWV (RMS) for 1 minute
Leaching	Individual leaching area □5% Total leaching area □ 10%		**JIS-C-5201-1 4.18** **IEC-60068-2-58 8.2.1** 260±5°C for 30 seconds
Rapid Change of Temperature	±(1.0%+0.05Ω)	<50mΩ	**JIS-C-5201-1 4.18** **IEC-60115-1 4.18** -55°C to +125/+155°C, 5 cycles

■ **Storage Temperature: 25±3°C; Humidity < 80%RH**

Packaging

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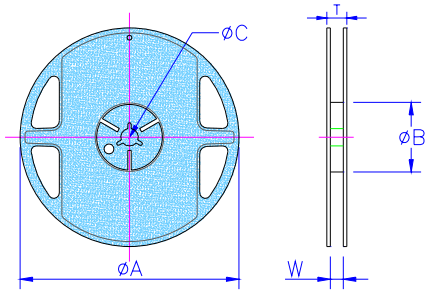
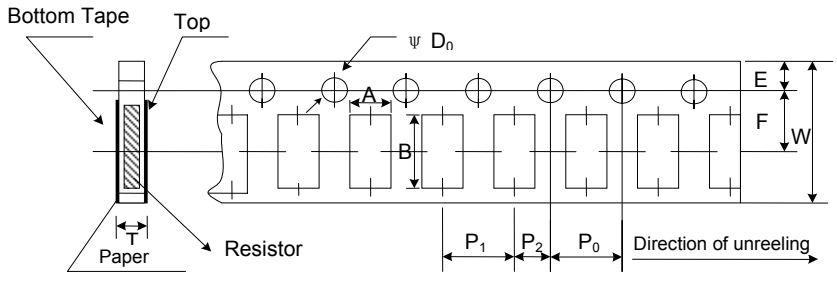
Reel Specifications & Packaging Quantity



Unit: mm

Type	Packaging Quantity	Tape Width	Reel Diameter	ΦA	ΦB	ΦC	W	T
RS-0201 RS-0402	Paper	8mm	7 inch	178.5±1.5	$60^{+1/-0}$	13.0±0.2	9.0±0.5	12.5±0.5
			10 inch	254±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5
RS-0603 RS-0805 RS-1206			13 inch	330±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5

Paper Tape Specifications



Unit: mm

Type	A	B	W	E	F	P_0	P_1	P_2	ΦD_0	T
RS-0201	0.38±0.05	0.68±0.05	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.50+0.1,-0	0.42±0.1
RS-0402	0.65±0.10	1.15±0.1	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.50+0.1,-0	0.45±0.1
RS-0603	1.10±0.10	1.90±0.1	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.70±0.1
RS-0805	1.60±0.10	2.40±0.2	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.1
RS-1206	1.90±0.10	3.50±0.2	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.1

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■Marking

No Marking for 0201 and 0402

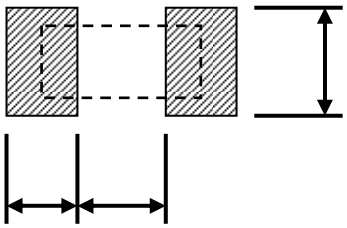
Jumper for all: Letter “0”

5% for 0603/0805/1206: 3 digits marking in E24

Example: 101=100Ω 102=1KΩ (1st and 2nd are E24 code and 3rd code is multiplier)

E24 code	10	11	12	13	15	16	18	20	22	24	27	30	33	36	39	43	47	51	56	62	68	75	82	91

■Recommend Land Pattern



Unit: mm

Type	A	B	C
RS-0201	0.30	0.25	0.30
RS-0402	0.50	0.45	0.60
RS-0603	0.90	0.60	0.90
RS-0805	1.20	0.70	1.30
RS-1206	2.00	0.90	1.60