ENGLISH

Datasheet

RS Pro RS Series Thick Film Surface Mount Resistor 0402 Case 90.9Ω ±1% 0.063W ±100ppm/°C

RS Stock No: **716-8535**

Product Details

RS Pro 0402 thick film surface mount resistor with ±1% tolerance, provides 90.9 Ω resistance and is power rated at 0.0625 W. The temperature coefficient of resistance is ±100 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

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH

Specifications:

Case Style	Ruthenium Oxide
Depth	0.5 mm
Dimensions	1 x 0.5 x 0.35 mm
Height	0.35 mm
Length	1 mm
Maximum Operating Temperature	+155°C
Maximum Temperature Coefficient	+100 ppm/°C
Minimum Operating Temperature	-55°C
Minimum Temperature Coefficient	-100 ppm/°C
Package/Case	0402
Power Rating	0.0625 W
Resistance	90.9 Ω
Technology	Thick Film
Temperature Coefficient	±100 ppm/°C
Termination Style	Solder Pad
Tolerance	±1%
Maximum Overload Voltage	100 V
Maximum Operating Voltage	50 V
Tape Width	8 mm

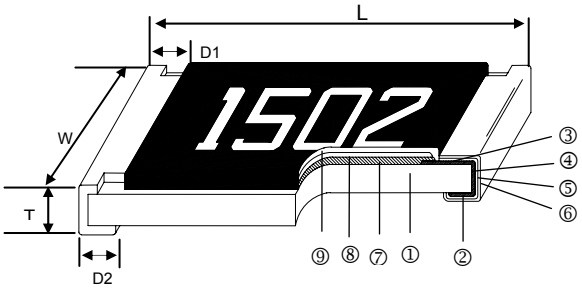
RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH

Thick Film Chip Resistor 1% - 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

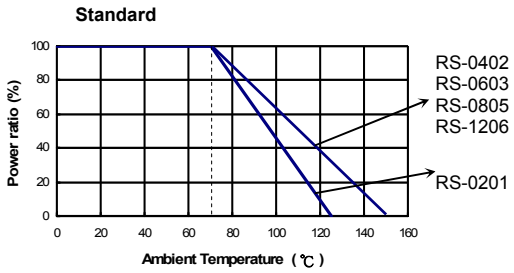
■Part Numbering

RS-	0402-	10R-	1%-	0.0625W
	Dimensions	Resistance	Tolerance	Power Rating @ 70 ℃
	0201 0402 0603 0805 1206	10R: 10Ω 100R: 100Ω 10K: 10KΩ 100K: 100KΩ	1%	0.0625W 0.1W 0.125W 0.25W

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH

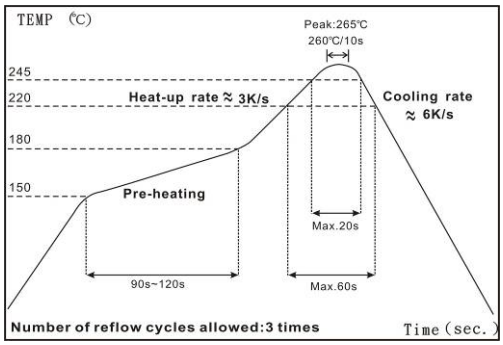
■Derating Curve

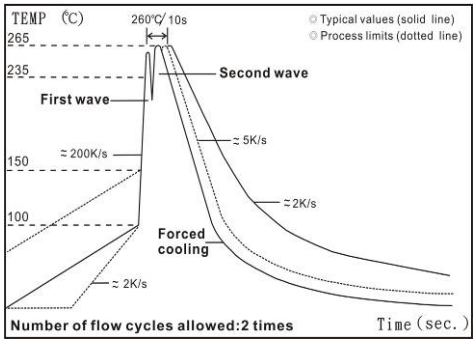


■Standard Electrical Specifications

Item / Type	Power Rating at 70°C Jumper Rated Current	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range ±1%	TCR (PPM/°C)
RS-0201	1/20W	-55 ~ +155°C	25V	50V	10Ω – 910KΩ	±200
RS-0402	1/16W	-55 ~ +155°C	50V	100V	10Ω – 910KΩ	±100
RS-0603	1/10W	-55 ~ +155°C	75V	150V	10Ω – 910KΩ	±100
RS-0805	1/8W	-55 ~ +155°C	150V	300V	10Ω – 910KΩ	±100
RS-1206	1/4W	-55 ~ +155°C	200V	400V	10Ω – 910KΩ	±100

■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

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH

■Environmental Characteristics

Item	Requirement ±1%	Test Method
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	±(1.0%+0.05Ω)	**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	±(2.0%+0.10Ω)	**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	±(2.0%+0.10Ω)	**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	±(1.0%+0.05Ω)	**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)	**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	±(0.5%+0.05Ω)	**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	±(0.5%+0.05Ω)	**JIS-C-5201-1 4.18** **IEC-60115-1 4.18** -55°C to +125/+155°C, 5 cycles

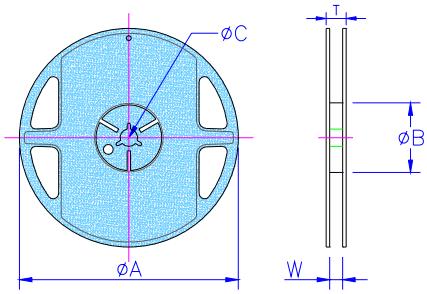
■ **Storage Temperature: 25±3°C; Humidity < 80%RH**

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH

■Packaging

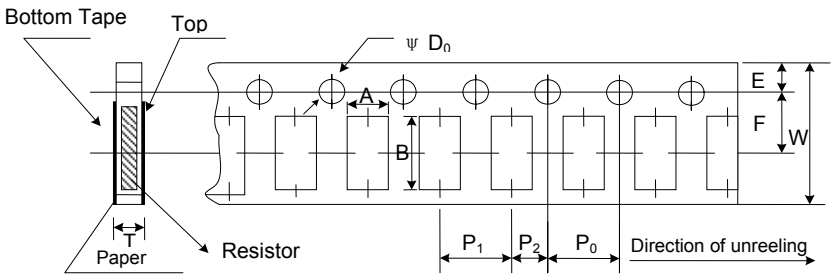
Reel Specifications & Packaging Quantity



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

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH

■Marking

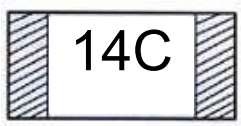
No Marking for 0201 and 0402

1% for 0805/1206: 4 digits marking

Example:

Resistance	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
Marking	1000	2201	1002	4992	1003

1% for 0603: 3 digits marking in E96



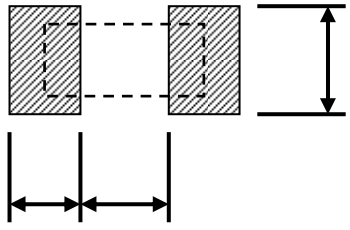
3 digits marking for Example: 14C=13K7Ω 13C=13K3Ω
68B=4K99Ω 68X=49.9Ω

Marking Table

Code	E96	Code	E96	Code	E96	Code	E96
01	100	**25**	178	**49**	316	**73**	562
02	102	**26**	182	**50**	324	**74**	576
03	105	**27**	187	**51**	332	**75**	590
04	107	**28**	191	**52**	340	**76**	604
05	110	**29**	196	**53**	348	**77**	619
06	113	**30**	200	**54**	357	**78**	634
07	115	**31**	205	**55**	365	**79**	649
08	118	**32**	210	**56**	374	**80**	665
09	121	**33**	215	**57**	383	**81**	681
10	124	**34**	221	**58**	392	**82**	698
11	127	**35**	226	**59**	402	**83**	715
12	130	**36**	232	**60**	412	**84**	732
13	133	**37**	237	**61**	422	**85**	750
14	137	**38**	243	**62**	432	**86**	768
15	140	**39**	249	**63**	442	**87**	787
16	143	**40**	255	**64**	453	**88**	806
17	147	**41**	261	**65**	464	**89**	825
18	150	**42**	267	**66**	475	**90**	845
19	154	**43**	274	**67**	487	**91**	866
20	158	**44**	280	**68**	499	**92**	887
21	162	**45**	287	**69**	511	**93**	909
22	165	**46**	294	**70**	523	**94**	931
23	169	**47**	301	**71**	536	**95**	953
24	174	**48**	309	**72**	549	**96**	976

Code	A	B	C	D	E	F	G	X	Y		
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^{-1}	10^{-2}		

■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

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.