

Datasheet

RS Pro RS Series Thick Film Surface Mount Resistor 0603 **Case 205k Ω $\pm$ 1% 0.1W $\pm$ 100ppm/ $^{\circ}$ C**

RS Stock No: **717-1358**



Product Details

RS Pro 0603 thick film surface mount resistor with $\pm$ 1% tolerance, provides 205 k Ω resistance and is power rated at 0.1 W. The temperature coefficient of resistance is $\pm$ 100 ppm/ $^{\circ}$ 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

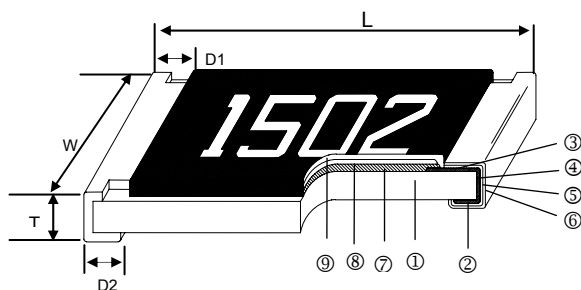
Specifications:

Case Style	Ruthenium Oxide
Depth	0.8 mm
Dimensions	1.6 x 0.8 x 0.45 mm
Height	0.45 mm
Length	1.6 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	0603
Power Rating	0.1 W
Resistance	205 kΩ
Technology	Thick Film
Temperature Coefficient	±100 ppm/°C
Termination Style	Solder Pad
Tolerance	±1%
Maximum Overload Voltage	150 V
Maximum Operating Voltage	75 V
Tape Width	8 mm

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 °C
	0201 0402 0603 0805 1206	10R: 10Ω 100R: 100Ω 10K: 10KΩ 100K: 100KΩ	1%	0.0625W 0.1W 0.125W 0.25W

■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	TCR (PPM/°C)
					±1%	
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

- (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



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

■ Environmental Characteristics

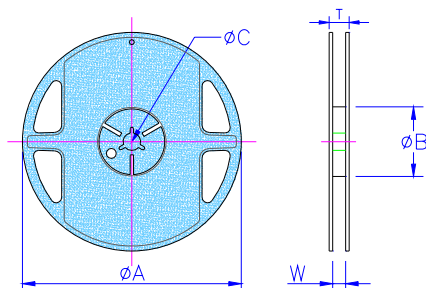
Item	Requirement	Test Method
	±1%	
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	JIS-C-5201-1 4.8 IEC-60115-1 4.8 -55°C~+125/+155°C, 25°C is the reference temperature
Short Time Overload	±(1.0%+0.05Ω)	JIS-C-5201-1 4.13 IEC-60115-1 4.13 RCWV*2.5 or Max. overload voltage for 5 seconds, 2 seconds 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

■ Packaging

Reel Specifications & Packaging Quantity

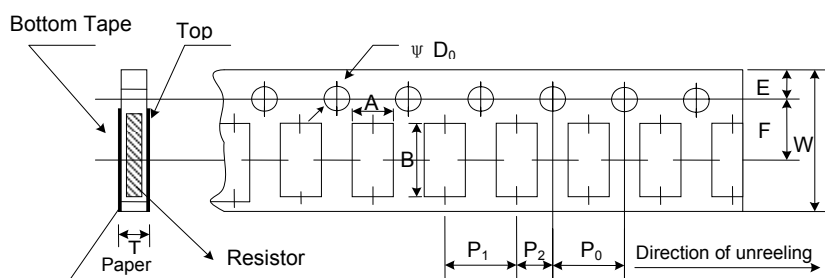
ENGLISH



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
RS-0603 RS-0805 RS-1206			10 inch	254±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5
			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

■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

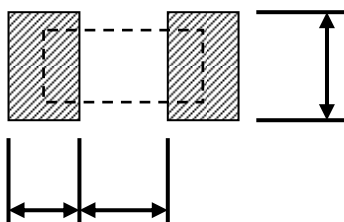


3 digits marking for Example: 14C=13K7Ω 13C=13K3Ω
68B=4K99Ω 68X=49.9Ω

Marking Table

Multiplying Tables																					
Code		E96		Code		E96		Code		E96											
01		100		25		178		49		316											
02		102		26		182		50		324											
03		105		27		187		51		332											
04		107		28		191		52		340											
05		110		29		196		53		348											
06		113		30		200		54		357											
07		115		31		205		55		365											
08		118		32		210		56		374											
09		121		33		215		57		383											
10		124		34		221		58		392											
11		127		35		226		59		402											
12		130		36		232		60		412											
13		133		37		237		61		422											
14		137		38		243		62		432											
15		140		39		249		63		442											
16		143		40		255		64		453											
17		147		41		261		65		464											
18		150		42		267		66		475											
19		154		43		274		67		487											
20		158		44		280		68		499											
21		162		45		287		69		511											
22		165		46		294		70		523											
23		169		47		301		71		536											
24		174		48		309		72		549											
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