

SMD - Resistors

Product : Wire Bondable Chip Resistors – SMDW Series

Size : 0201/0402/0603



official distributor of



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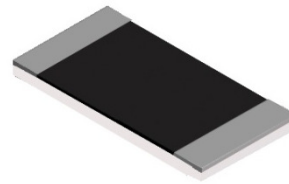
Wire Bondable Chip Resistor (SMDW Series)

► 1. Features

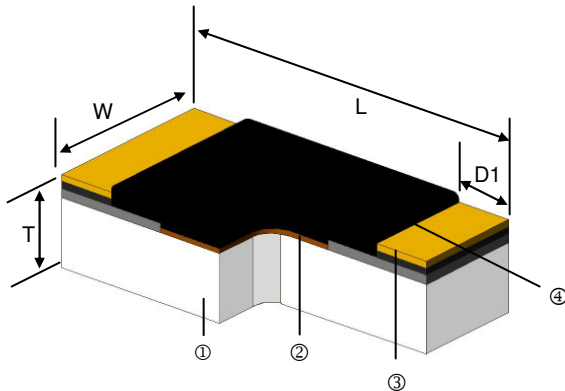
- Thin film passivated NiCr resistive element
- Tolerance of $\pm 0.1\%$
- Extremely low TCR down to $\pm 25\text{PPM}/^\circ\text{C}$
- Wide resistance range
- Customized bonding pattern design

► 2. Applications

- LED Constant Current Application
- Medical Equipment
- Testing / Measurement Equipment
- Hybrid Chip on Board Circuits
- Multi Chip Module(MCM) Package
- Integrated MMIC



► 3. Construction



① Alumina Substrate	③ Ni/Au Plating (Bonding Pad)
② Passivated NiCr Resistive Element	④ Overcoat

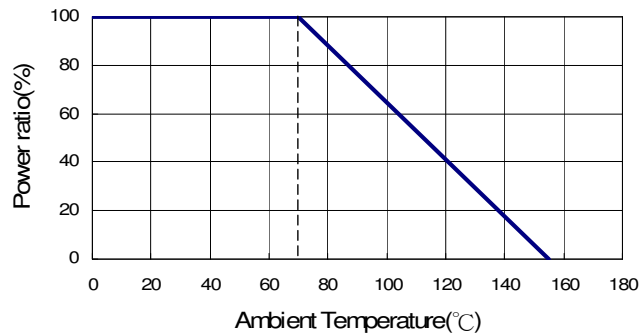
► 4. Dimensions

Unit : mm

Type	Size (Inch)	L	W	T	D1	Weight (g) (1000pcs)
SMDW0201	0201	0.58 \pm 0.05	0.29 \pm 0.05	0.23 \pm 0.05	0.12 \pm 0.05	1
SMDW0402	0402	1.00 \pm 0.05	0.50 \pm 0.05	0.30 \pm 0.05	0.20 \pm 0.10	1.8
SMDW0603	0603	1.55 \pm 0.10	0.80 \pm 0.10	0.45 \pm 0.10	0.30 \pm 0.20	2.7

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5. Derating Curve



6. Part Numbering

SMDW	0402	D	T	E	1000	A	N
Product Type	Dimensions (LxW)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Resistance	Construction	Electrode
	0201 0402 0603	B: ±0.1% D: ±0.5% F: ±1% J: ±5% K: ±10%	T: Taping Reel B: Bulk	C: ±25 D: ±50 E: ±100	0100: 10Ω 1000: 100Ω 2201: 2200Ω 1002: 10000Ω	A: Two Bonding Pads	N: Ni / Au

7. Standard Electrical Specifications

Type	Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range					TCR (PPM/°C)
						±0.1%	±0.5%	±1%	±5%	±10%	
SMDW0201		1/32W	-55 ~ +155°C	15V	30V	—	50Ω - 33KΩ				±50 ±100
SMDW0402		1/16W		25V	50V	10Ω - 100KΩ					±25 ±50 ±100
SMDW0603		1/16W		50V	100V	10Ω - 332KΩ					±25 ±50 ±100

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

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► 8. Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	MIL-STD-202F Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	$\Delta R \pm 0.5\%$	JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	>1000M Ω	MIL-STD-202F Method 302 Apply 100V _{DC} for 1 minute
Endurance	$\Delta R \pm 0.2\%$	MIL-STD-202F Method 108A 70 \pm 2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	>7k Ω $\Delta R \pm 0.5\%$	
Damp Heat with Load	$\Delta R \pm 0.3\%$	MIL-STD-202F Method 103B 40 \pm 2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	$\Delta R \pm 0.2\%$	JIS-C-5201-1 7.2 at +155°C for 1000 hrs
Bending Strength	$\Delta R \pm 0.2\%$	JIS-C-5201-1 6.1.4 Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage	MIL-STD-202F Method 208H 245 \pm 5°C for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.2\%$	MIL-STD-202F Method 210E 260 \pm 5°C for 10 seconds
Dielectric Withstand Voltage	By Type	MIL-STD-202F Method 301 Apply Max. overload voltage for 1 minute
Thermal Shock	$\Delta R \pm 0.25\%$	MIL-STD-202F Method 107G -55°C ~150°C, 100 cycles
Low Temperature Operation	$\Delta R \pm 0.2\%$	JIS-C-5201-1 7.1 1 hour, -65°C, followed by 45 minutes of RCWV

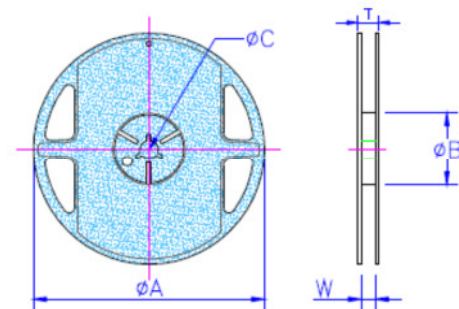
■ Storage Temperature: 25 \pm 3°C; Humidity < 80%RH

► 9. Packaging

Reel Specifications & Package Quantity

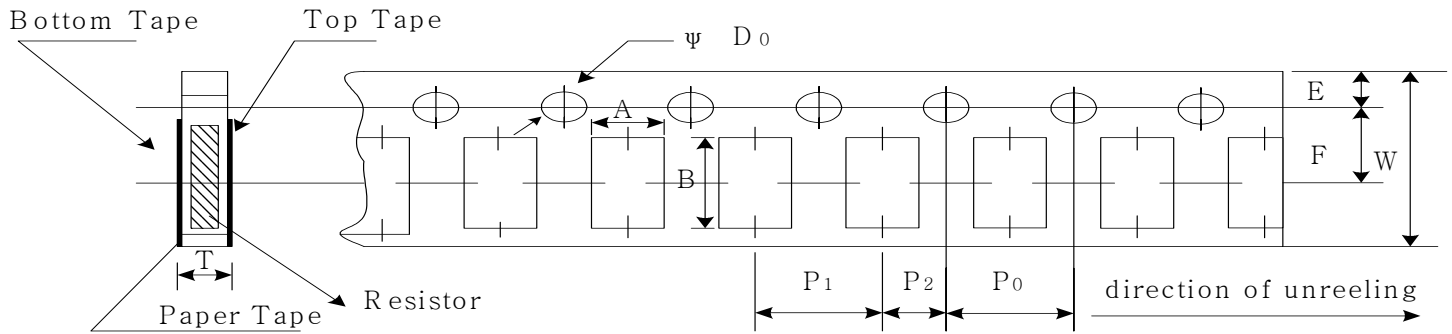
Unit:mm

Type	ΦA	ΦB	ΦC	W	T	Paper Tape (EA)
SMDW0201	178 \pm 1	60.0+1.0	13.5 \pm 0.7	9.5 \pm 1.0	11.5 \pm 1.0	10,000
SMDW0402	178 \pm 1	60.0+1.0	13.5 \pm 0.7	9.5 \pm 1.0	11.5 \pm 1.0	10,000
SMDW0603	178 \pm 1	60.0+1.0	13.5 \pm 0.7	9.5 \pm 1.0	11.5 \pm 1.0	5,000



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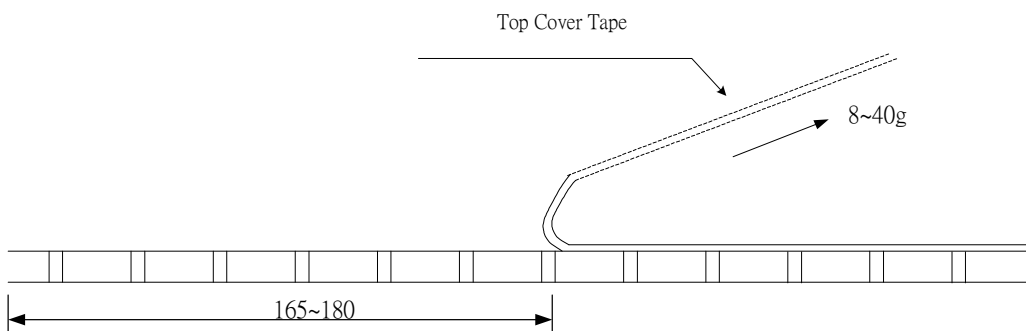
Paper Tape Specifications



Unit :mm

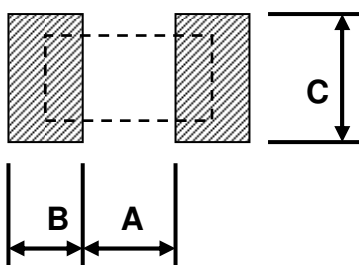
Type	A	B	W	E	F	P ₀	P ₁	P ₂	ψD_0	T
SMDW0201	0.40±0.05	0.70±0.05	8.00±0.10	3.50±0.05	1.75±0.05	2.00±0.05	2.00±0.05	4.00±0.10	1.55±0.05	0.265±0.05
SMDW0402	0.70±0.05	1.16±0.05	8.0±0.10	3.50±0.05	1.75±0.05	2.00±0.05	2.00±0.05	4.00±0.10	1.55±0.03	0.40±0.03
SMDW0603	1.10±0.05	1.90±0.05	8.0±0.10	3.50±0.05	1.75±0.05	4.00±0.10	2.00±0.05	4.00±0.10	1.55±0.03	0.40±0.03

- Peel force of top cover tape
- The peel speed shall be about 300mm/min±5%
- The peel force of top cover tape shall be between 8 to 40g



10. Recommended Land Pattern

Unit:mm



Type	A	B	C
SMDW0201	0.25	0.30	0.40±0.2
SMDW0402	0.50	0.50	0.60±0.2
SMDW0603	0.80	1.00	0.90±0.2

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► 11. Reflow

