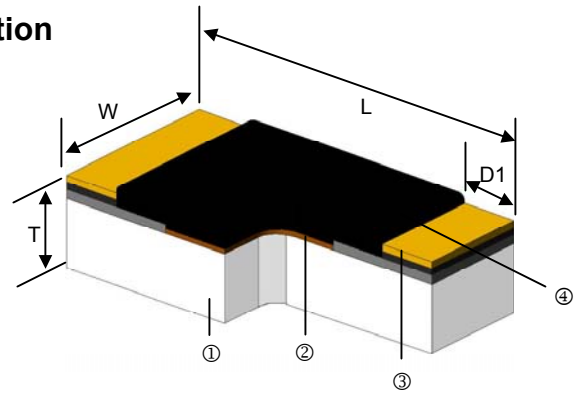


Wire Bondable Chip Resistor – WB Series

Construction



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

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

Applications

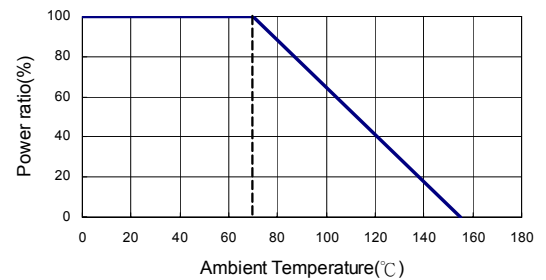
- LED Constant Current Application
- Medical Equipment
- Testing / Measurement Equipment
- Hybrid Chip on Board Circuits
- Multi Chip Module(MCM) Package
- Integrated MMIC

Dimensions

Unit: mm

Type	Size (Inch)	L	W	T	D1	Weight (g) (1000pcs)
WB01	0201	0.58 \pm 0.05	0.29 \pm 0.05	0.23 \pm 0.05	0.12 \pm 0.05	0.12
WB02	0402	1.00 \pm 0.05	0.50 \pm 0.05	0.30 \pm 0.05	0.20 \pm 0.10	0.52
WB03	0603	1.55 \pm 0.10	0.80 \pm 0.10	0.45 \pm 0.10	0.30 \pm 0.20	2.36

Derating Curve



Part Numbering

WB	02	D	T	E	1000	A	N
Product Type	Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Resistance	Construction	Electrode
	01: 0201 02: 0402 03: 0603	B: $\pm 0.1\%$ D: $\pm 0.5\%$ F: $\pm 1\%$ J: $\pm 5\%$ K: $\pm 10\%$	T: Taping Reel B: Bulk	C: ± 25 D: ± 50 E: ± 100	0100: 10 Ω 1000: 100 Ω 2201: 2200 Ω 1002: 10000 Ω	A: Two Bonding Pads	N: Ni / Au

Standard Electrical Specifications

Type	Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range					TCR (PPM/°C)	
						$\pm 0.1\%$	$\pm 0.5\%$	$\pm 1\%$	$\pm 5\%$	$\pm 10\%$		
WB01 (0201)		1/32W	-55 ~ +155°C	15V	30V	—	50 Ω - 33K Ω					± 50 ± 100
WB02 (0402)		1/16W		25V	50V	10 Ω - 100K Ω					± 25 ± 50 ± 100	
WB03 (0603)		1/16W		50V	100V	10 Ω - 332K Ω					± 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.

Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	+25/-55/+25/+125/+25°C
Short Time Overload	$\Delta R \pm 0.5\%$	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	>1000M Ω	Apply 100V _{DC} for 1 minute
Endurance	$\Delta R \pm 0.2\%$	70 $\pm 2^\circ\text{C}$, 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	$\Delta R \pm 0.3\%$	40 $\pm 2^\circ\text{C}$, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	$\Delta R \pm 0.2\%$	at +155 $^\circ\text{C}$ for 1000 hrs
Bending Strength	$\Delta R \pm 0.2\%$	Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage	245 $\pm 5^\circ\text{C}$ for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.2\%$	260 $\pm 5^\circ\text{C}$ for 10 seconds
Dielectric Withstand Voltage	By Type	Apply Max. overload voltage for 1 minute
Thermal Shock	$\Delta R \pm 0.25\%$	-55 $^\circ\text{C}$ ~150 $^\circ\text{C}$, 100 cycles
Low Temperature Operation	$\Delta R \pm 0.2\%$	1 hour, -65 $^\circ\text{C}$, followed by 45 minutes of RCWV

■ Reference Standards: MIL-STD-202, JIS-C 5201-1

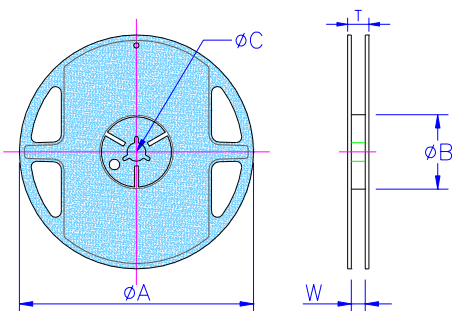
■ Storage Temperature: 25 $\pm 3^\circ\text{C}$; Humidity < 80%RH

Packaging

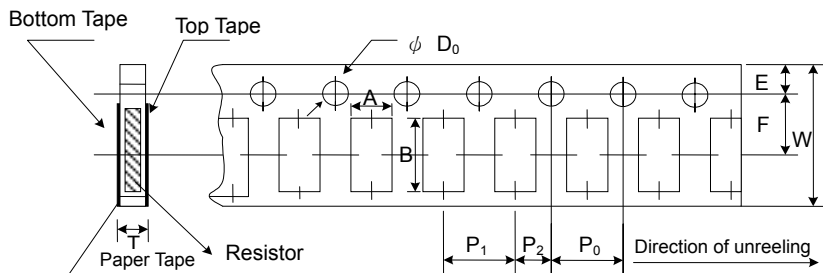
Reel Specifications & Packaging Quantity

Unit: mm

Type	ΦA	ΦB	ΦC	W	T	Paper Tape (EA)
WB01	178.0 ± 1.0	60.0 ± 1.0	13.5 ± 0.7	9.5 ± 1.0	11.5 ± 1.0	10,000
WB02	178.0 ± 1.0	60.0 ± 1.0	13.5 ± 0.7	9.5 ± 1.0	11.5 ± 1.0	10,000
WB03	178.0 ± 1.0	60.0 ± 1.0	13.5 ± 0.7	9.5 ± 1.0	11.5 ± 1.0	5,000



Paper Tape Specifications



Unit: mm

Type	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD_0	T
WB01	0.40 ± 0.05	0.70 ± 0.05	8.00 ± 0.10	1.75 ± 0.05	3.50 ± 0.05	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.05	0.265 ± 0.05
WB02	0.70 ± 0.05	1.16 ± 0.05	8.00 ± 0.10	1.75 ± 0.05	3.50 ± 0.05	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.03	0.40 ± 0.03
WB03	1.10 ± 0.05	1.90 ± 0.05	8.00 ± 0.10	1.75 ± 0.05	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.55 ± 0.03	0.40 ± 0.03