

Data Sheet

Customer :

Product : Wire Bondable Chip Resistors – WB Series

Size : 0201/0402/0603

Issued Date: 29-Jan-15

Edition : Rev.B3



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Wire Bondable Chip Resistor

■ Features

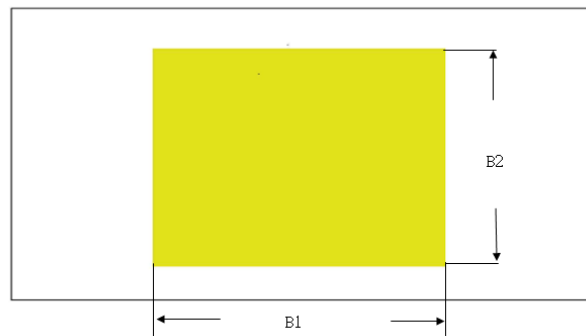
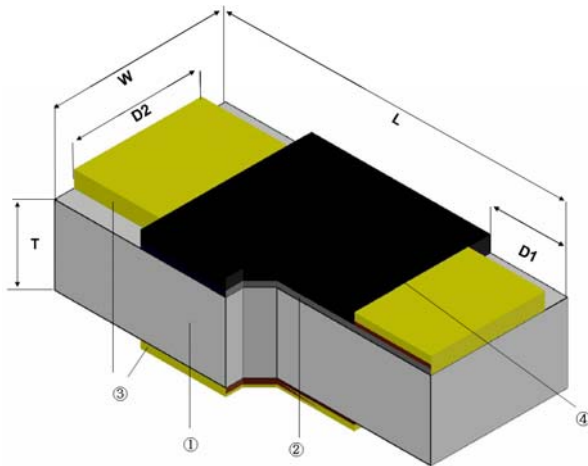
- Thin film passivated NiCr resistive element
- Tolerance of $\pm 0.1\%$
- Extremely low TCR down to $\pm 25\text{PPM}/^\circ\text{C}$
- Wide resistance range
- Customized bonding pattern design

■ Applications

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



■ Construction



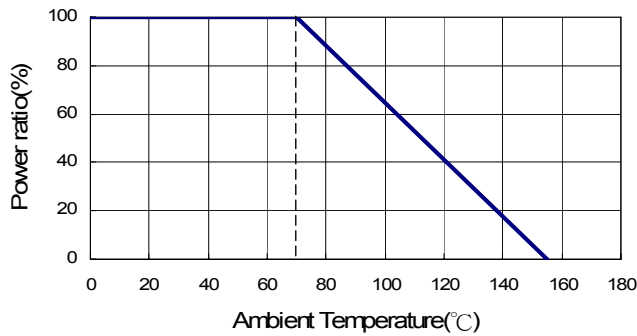
① Alumina Substrate	③ Ni/Au Plating (Bonding Pad)
② Passivated NiCr Resistive Element	④ Overcoat

■ Dimensions

Type	Size (Inch)	L	W	T	D1	D2	B1	B2	Weight (g) (1000pcs)
WB01	0201	0.58 \pm 0.05	0.29 \pm 0.05	0.20 \pm 0.05	0.12 \pm 0.05	0.20 \pm 0.05	0.40 \pm 0.1	0.20 \pm 0.1	0.124
WB02	0402	1.00 \pm 0.05	0.50 \pm 0.05	0.30 \pm 0.05	0.20 \pm 0.10	0.35 \pm 0.05	0.65 \pm 0.1	0.30 \pm 0.1	0.485
WB03	0603	1.55 \pm 0.10	0.80 \pm 0.10	0.42 \pm 0.10	0.30 \pm 0.10	0.63 \pm 0.10	1.00 \pm 0.1	0.60 \pm 0.1	1.720

Unit : mm

Derating Curve



Part Numbering

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

Standard Electrical Specifications

Item Type	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%	
WB01 (0201)	1/32W	-55 ~ +155°C	15V	30V	—	49.9Ω - 33KΩ				±50 ±100
WB02 (0402)	1/16W		25V	50V	10Ω - 100KΩ					±25 ±50 ±100
WB03 (0603)	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.

■Viking is capable of manufacturing the optional spec based on customer's requirement

Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	MIL-STD-202 Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	ΔR±0.5%	JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	>1000MΩ	MIL-STD-202 Method 302 Apply 100V _{DC} for 1 minute
Endurance	ΔR±0.2%	MIL-STD-202 Method 108A 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	>7kΩ ΔR±0.5%	
Damp Heat with Load	ΔR±0.3%	MIL-STD-202 Method 103B 40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	ΔR±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-202 Method 208H 245 \pm 5°C for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.2\%$	MIL-STD-202 Method 210E 260 \pm 5°C for 10 seconds
Dielectric Withstand Voltage	By Type	MIL-STD-202 Method 301 Apply Max. overload voltage for 1 minute
Thermal Shock	$\Delta R \pm 0.25\%$	MIL-STD-202 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

RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

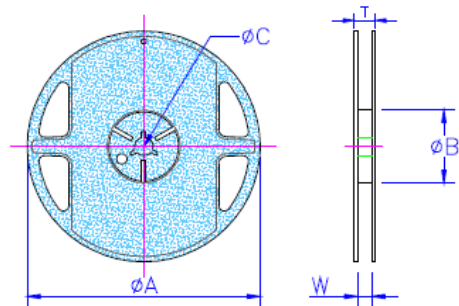
■ **Storage Temperature: 25 \pm 3°C; Humidity < 80%RH**

■ Packaging

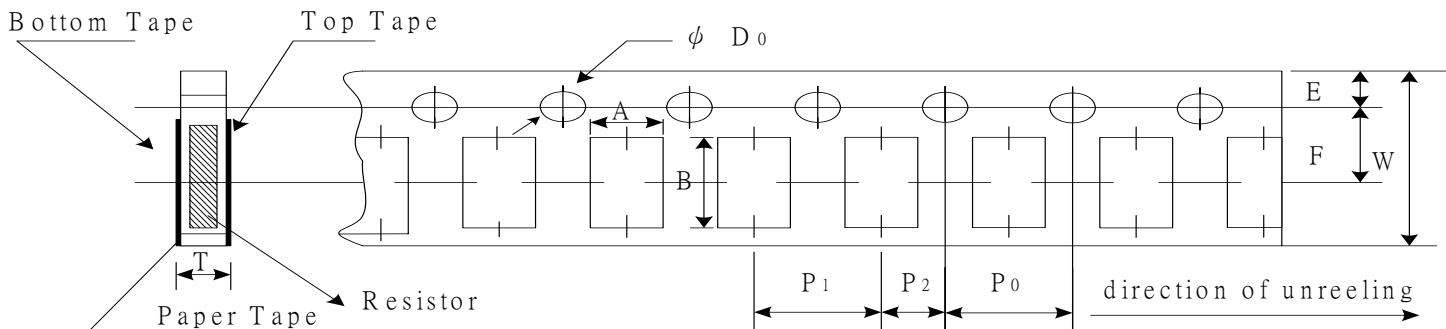
Reel Specifications & Package Quantity

Unit:mm

Type	ΦA	ΦB	ΦC	W	T	Paper Tape (EA)
WB01	178 \pm 1	60.0 \pm 1.0	13.5 \pm 0.7	9.5 \pm 1.0	11.5 \pm 1.0	10,000
WB02	178 \pm 1	60.0 \pm 1.0	13.5 \pm 0.7	9.5 \pm 1.0	11.5 \pm 1.0	10,000
WB03	178 \pm 1	60.0 \pm 1.0	13.5 \pm 0.7	9.5 \pm 1.0	11.5 \pm 1.0	5,000



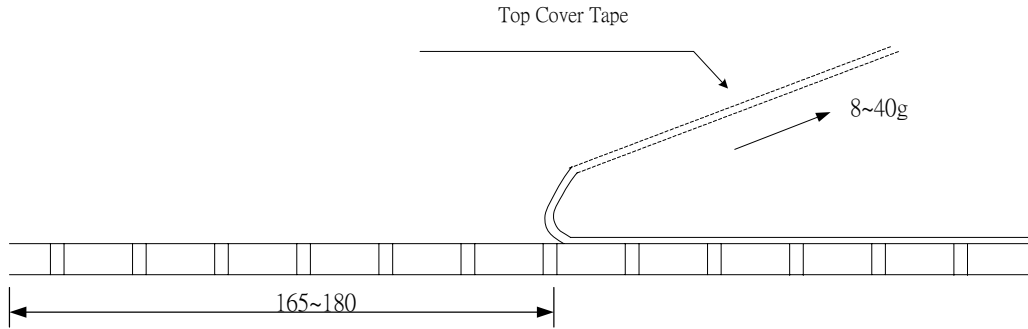
Paper Tape Specifications



Unit :mm

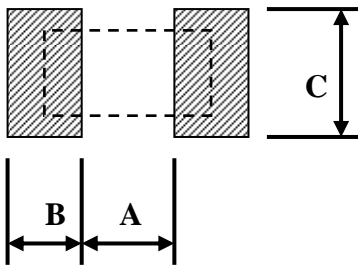
Type	A	B	W	E	F	P ₀	P ₁	P ₂	ψD_0	T
WB01	0.36 \pm 0.02	0.66 \pm 0.02	8.00 \pm 0.10	1.75 \pm 0.10	3.50 \pm 0.05	4.00 \pm 0.10	2.00 \pm 0.05	2.00 \pm 0.05	1.55 \pm 0.05	0.42 \pm 0.03
WB02	0.70 \pm 0.05	1.16 \pm 0.05	8.00 \pm 0.10	1.75 \pm 0.10	3.50 \pm 0.05	4.00 \pm 0.10	2.00 \pm 0.05	2.00 \pm 0.05	1.55 \pm 0.05	0.40 \pm 0.03
WB03	1.10 \pm 0.05	1.90 \pm 0.05	8.00 \pm 0.10	1.75 \pm 0.10	3.50 \pm 0.05	4.00 \pm 0.10	4.00 \pm 0.10	2.00 \pm 0.05	1.55 \pm 0.05	0.60 \pm 0.03

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



Recommend Land Pattern

Unit:mm



Type	A	B	C
WB01	0.25	0.30	0.40±0.2
WB02	0.50	0.50	0.60±0.2
WB03	0.80	1.00	0.90±0.2

Reflow

