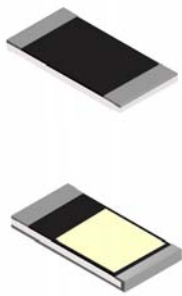


Wire Bondable Chip Resistor—WB Series



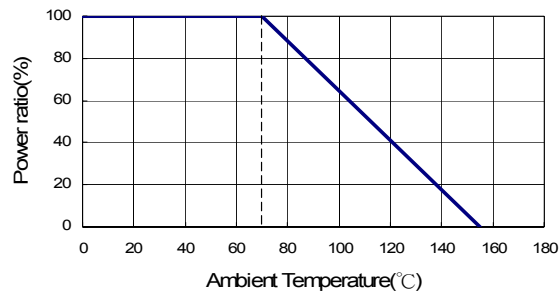
Features

- 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

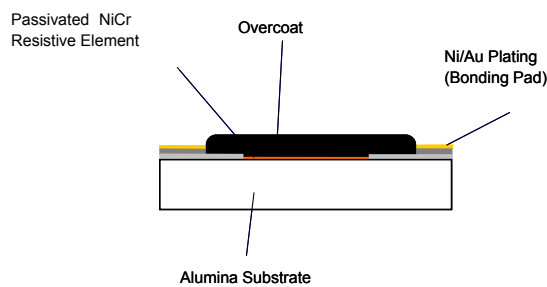
- LED Constant Current Application
- Medical Equipment
- Testing / Measurement Equipment
- Hybrid Chip on Board Circuits
- Multi Chip Module(MCM) Package
- Integrated MMIC

Derating Curve

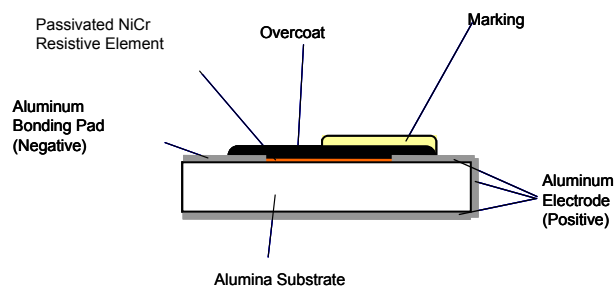


Construction

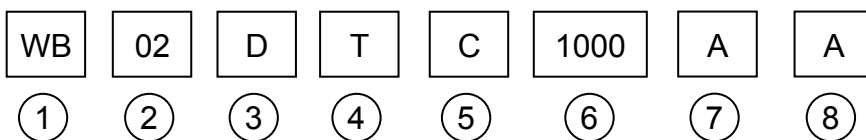
A Type / Two Bonding Pads



B Type / Single Bonding Pad



Part Numbering



① Product Type

Product Type	
WB	Wire Bondable Chip Resistor

② Dimensions (L×W)

Codes	Dimensions (L×W)	EIA
WB01	0.58×0.29mm	0201
WB02	1.00×0.50mm	0402
WB03	1.60×0.80mm	0603

③ Resistance Tolerance

Codes	Resistance Tolerance
B	$\pm 0.1\%$
D	$\pm 0.5\%$
F	$\pm 1\%$
J	$\pm 5\%$
K	$\pm 10\%$

④ Packaging

Code	Type
T	Taping Reel
B	Bulk

⑤ TCR

Codes	Type
D	$\pm 50\text{PPM}/^\circ\text{C}$
E	$\pm 100\text{PPM}/^\circ\text{C}$

⑥ Resistance

Codes	Type
0100	$10\ \Omega$
1000	$100\ \Omega$
2201	$2200\ \Omega$
1002	$10000\ \Omega$

⑦ Construction

Code	Type
A	Two Bonding Pads
B	Single Bonding Pad

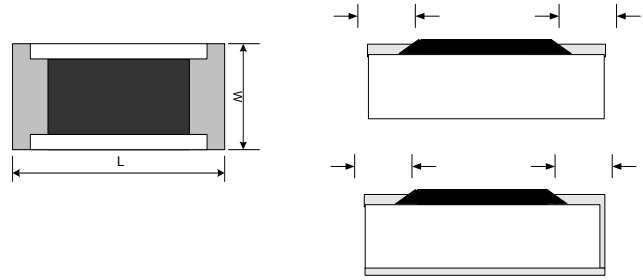
⑧ Electrode

Code	Type
N	Ni / Au
A	Aluminum

Dimensions

Unit: mm

Size	L	W	T	D1
0201	0.58±0.05	0.29±0.05	0.23±0.05	0.12±0.05
0402	1.00±0.05	0.50±0.05	0.30±0.05	0.20±0.10
0603	1.55±0.10	0.80±0.10	0.45±0.10	0.30±0.20



Standard Electrical Specifications

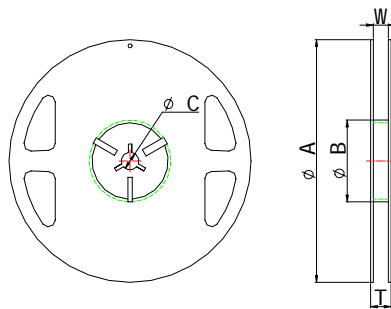
Item Type	Power Rating at 70°C	Operating Temp. Range	Max Operating Voltage	Max Overloading Voltage	Resistance Tolerance	Resistance Range	TCR (PPM/°C)
WB01 (0201)	1/32W	-55 ~ +155°C	15V	30V	±0.5% ±1% ±5% ±10%	50Ω~33KΩ	±50 ±100
WB02 (0402)	1/16W		25V	50V	±0.1% ±0.5% ±1% ±5% ±10%	10Ω~100KΩ	±25 ±50 ±100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

Operating Voltage $V=\sqrt{P \cdot R}$

Overload Voltage $V=2.5 \cdot \sqrt{P \cdot R}$

Packaging

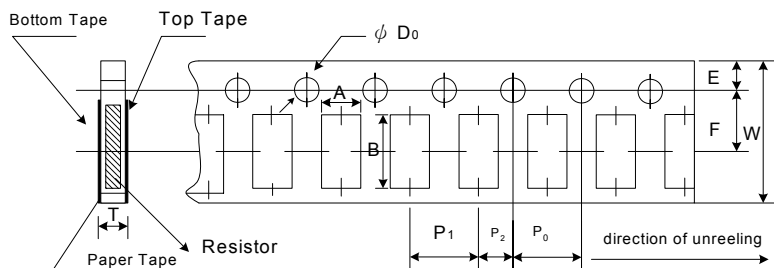
Reel Specifications & Packaging Quantity



Unit: mm

Series	Packaging	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

Series	A	B	W	F	E	P1	P2	P0	ΦD0	T
WB01	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
WB02	0.70±0.05	1.16±0.05	8.0±0.1	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
WB03	1.10±0.05	1.90±0.05	8.0±0.1	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

Environmental Characteristics

Test Item	Specification	Test Method
Temperature Coefficient of Resistance	As Spec	MIL-STD-202F Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	$\Delta R \pm 0.5\%$	JIS-C-5202-5.5 RCWV*2.5 or Max Overloading Voltage · 5 seconds
Dielectric Withstand Voltage	By type	MIL-STD-202F Method 301 Apply Max Overload Voltage for 1 minute
Insulation Resistance	>1000M Ω	MIL-STD-202F Method 302 Apply 100V _{DC} for 1 minute
Thermal Shock	$\Delta R \pm 0.25\%$	MIL-STD-202F Method 107G -55°C~150°C, 100 cycles
Load Life	$\Delta R \pm 0.2\%$	MIL-STD-202F Method 108A RCWV , 70°C , 1.5 hours ON , 0.5 hours OFF, total 1000~1048 hours
	>7k Ω $\Delta R \pm 0.5\%$	
Humidity (Steady State)	$\Delta R \pm 0.3\%$	MIL-STD-202F Method 103B 40°C , 90~95%RH,RCWV 1.5 hours ON,0.5 hours OFF, total 1000~1048 hours
Resistance to Dry Heat	$\Delta R \pm 0.2\%$	JIS-C-5202-7.2 96 hours @ +155°C without load
Low Temperature Operation	$\Delta R \pm 0.2\%$	JIS-C-5202-7.1 1 hours,-65°C ,followed by 45minutes of RCWV
Bending Strength	$\Delta R \pm 0.2\%$	JIS-C-5202-6.1.4 Bending Amplitude 3mm for 10 seconds
Solderability	95%min coverage	MIL-STD-202F Method 208H 245°C $\pm 5^\circ\text{C}$, 3 ± 0.5 (sec)
Resistance to Soldering Heat	$\Delta R \pm 0.2\%$	MIL-STD-202F Method 210E 260 $\pm 5^\circ\text{C}$, 10 ± 1 seconds