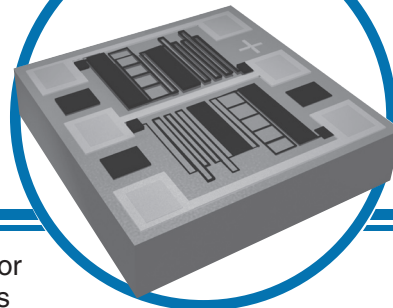


Wire Bondable Chip Resistors

WBC Series

- Discrete or tapped schematics
- MIL inspection available
- High resistor density

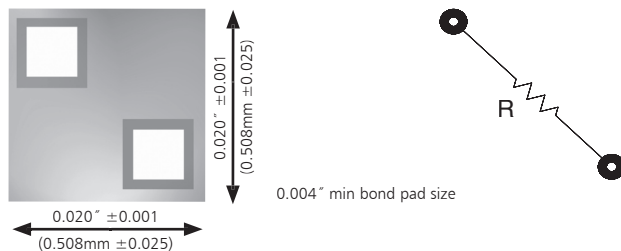


IRC's WBC series wire bondable chip resistors are ideally suited for the most demanding hybrid application. The WBC combines IRC's TaNSiI® tantalum nitride thin film technology with silicon substrate processing to produce an extremely small footprint device with the proven stability, reliability and moisture performance of IRC's TaNSiI® resistor film.

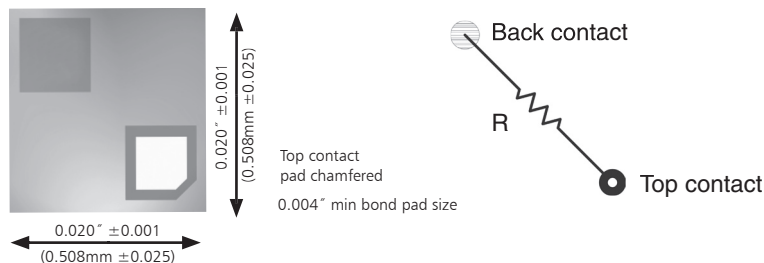
Available in a wide range of tolerances and temperature coefficients to fit a variety of hybrid circuit applications. Custom resistance values, sizes and schematics are available on request from the factory.

Physical Data

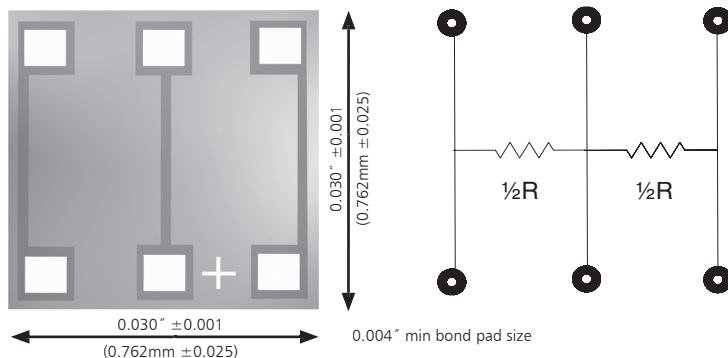
R0202 - Discrete



B0202 - Discrete back contact



T0303 - Tapped network $\frac{1}{2}R + \frac{1}{2}R$



Electrical Data

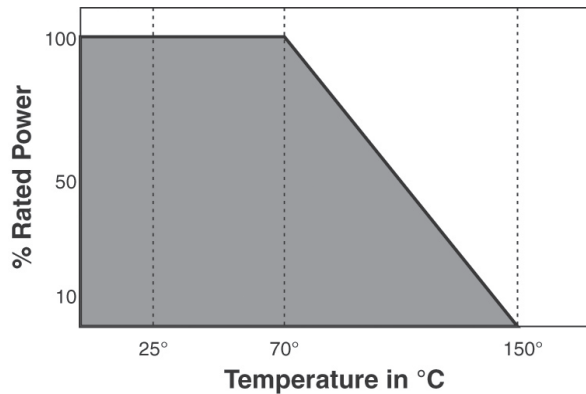
Absolute Tolerance	to $\pm 0.1\%$	
Absolute TCR	to $\pm 25\text{ppm}/^\circ\text{C}$	
Package Power Rating (@ 70°C)	250mW	
Rated Operating Voltage (not to exceed $\sqrt{P \times R}$)	100V	
Operating Temperature	-55°C to $+150^\circ\text{C}$	
Noise	< -30dB	
Substrate Material	Oxidized Silicon (10KÅ SiO ₂ min)	
Substrate Thickness	0.010" $\pm$ 0.001 (0.254mm $\pm$ 0.025)	
Bond Pad Metallization	Aluminum	10KÅ minimum
	Gold	15KÅ minimum
Backside	R0202 and T0303	Silicon (Gold available)
	B0202	Gold 3KÅ minimum
Passivation	Silicon Dioxide or Silicon Nitride	

General Note

IRC reserves the right to make changes in product specification without notice or liability. All information is subject to IRC's own data and is considered accurate at time of going to print.

Wire Bondable Chip Resistors

Power Derating Data



TCR/Inspection Code Table

Absolute TCR	Commercial Code	MIL Inspection Code*
$\pm 300\text{ppm}/^{\circ}\text{C}$	00	04
$\pm 100\text{ppm}/^{\circ}\text{C}$	01	05
$\pm 50\text{ppm}/^{\circ}\text{C}$	02	06
$\pm 25\text{ppm}/^{\circ}\text{C}$	03	07

*Notes: Product supplied to Class H of MIL-PRF 38534 includes 100% visual inspection

Manufacturing Capabilities Data

Resistance Range	Available Absolute Tolerances	Available Ratio Tolerances (T0303 only)	Best Absolute TCR	Tracking TCR (T0303 only)
10 Ω -20 Ω	G J K	F G J	$\pm 100\text{ppm}/^{\circ}\text{C}$	$\pm 50\text{ppm}/^{\circ}\text{C}$
21 Ω -50 Ω	F G J K	F G J	$\pm 100\text{ppm}/^{\circ}\text{C}$	$\pm 50\text{ppm}/^{\circ}\text{C}$
51 Ω -100 Ω	C D F G J K	C D F G J	$\pm 100\text{ppm}/^{\circ}\text{C}$	$\pm 25\text{ppm}/^{\circ}\text{C}$
101 Ω -200 Ω	C D F G J K	C D F G J	$\pm 50\text{ppm}/^{\circ}\text{C}$	$\pm 10\text{ppm}/^{\circ}\text{C}$
201 Ω -500 Ω	B C D F G J K	B C D F G J	$\pm 50\text{ppm}/^{\circ}\text{C}$	$\pm 5\text{ppm}/^{\circ}\text{C}$
501 Ω -999 Ω	B C D F G J K	B C D F G J	$\pm 25\text{ppm}/^{\circ}\text{C}$	$\pm 2\text{ppm}/^{\circ}\text{C}$
1.0K Ω -1.0M Ω	B C D F G J K	A B C D F G J	$\pm 25\text{ppm}/^{\circ}\text{C}$	$\pm 2\text{ppm}/^{\circ}\text{C}$

Wire Bondable Chip Resistors

Environmental Data

Test	Method	Max ΔR	Typical ΔR
Thermal Shock	MIL-STD-202 Method 107 Test condition F	$\pm 0.1\%$	$\pm 0.02\%$
High Temperature Exposure	MIL-STD-883 Method 1008 150°C, 1000 hours	$\pm 0.1\%$	$\pm 0.05\%$
Low Temperature Storage	-55°C, 1000 hours	$\pm 0.03\%$	$\pm 0.01\%$
Life	MIL-STD-202 Method 108 70°C, 1000 hours	$\pm 0.5\%$	$\pm 0.01\%$
Life at Elevated Temperature	MIL-STD-202 Method 108 125°C, 1000 hours	$\pm 0.5\%$	$\pm 0.05\%$

Ordering Data

Prefix **WBC** - **R0202** **A** **S** - **01** - **1002** - **F** **B**

Style
R0202 = Discrete Element
B0202 = Discrete Element with Back Contact
T0303 = Tapped Network

Bonding pads
A = Aluminum; G = Gold

Backside
G = Gold; S = Silicon

TCR/Inspection Code
Reference TCR/Inspection Code Table

Total Resistance (R)
4-Digit Resistance Code Ex: 1002 = 10K Ω ; 50R1 = 50.1 Ω

Absolute Tolerance Code
K = $\pm 10\%$; J = $\pm 5\%$; G = $\pm 2\%$; F = $\pm 1\%$; D = $\pm 0.5\%$; C = $\pm 0.25\%$; B = $\pm 0.1\%$

Ratio Tolerance Code (T0303 Only)
J = $\pm 5\%$; G = $\pm 2\%$; F = $\pm 1\%$; D = 0.5%; C = $\pm 0.25\%$; B = $\pm 0.1\%$; A = $\pm 0.05\%$

Packaging
Standard packaging is 2" x 2" chip tray. For additional information or to discuss your specific requirements, please contact our Applications Team using the contact details below.