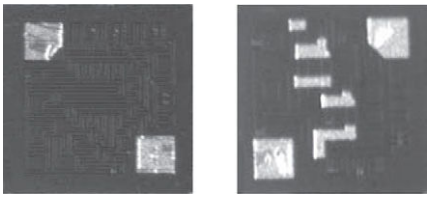
Thin Film, Back-Contact Resistor



Product may not be to scale

FEATURES

- Wire bondable
- Only one wire bond required
- Small size: 0.020 inches square
- Resistance range: 10 Ω to 1 MΩ
- Oxidized silicon substrate for good power dissipation
- Moisture resistant
- Case size: 0202
- Resistor material: tantalum nitride, self-passivating
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

LINKS TO ADDITIONAL RESOURCES

3D Models

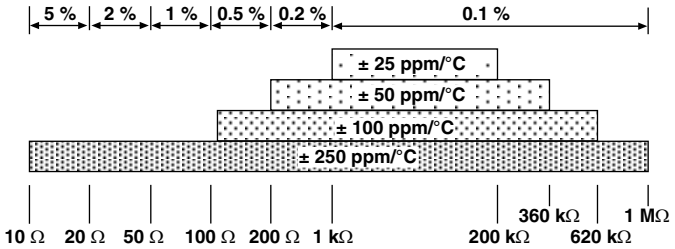
The Back Contact Resistor (BCR) series single-value back-contact resistor chip is one of the smallest chips available.
The BCR requires only one wire bond thus saving hybrid space.
The BCRs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The BCRs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

APPLICATIONS

Vishay EFI BCR resistor chips are widely used in hybrid packages where space is limited. The bottom connection is made by attaching the back of the chip to the substrate either eutectic or with conductive epoxy. The single wire bond is made to the notched pad on the top of the chip. (The other rectangular pad on the top of the chip is a via hole, a low-ohmic contact connecting the resistor to the bottom of the chip.)

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	**VALUE**	**UNIT**
Total resistance range	10 to 1M	Ω
Standard tolerances	± 0.1, ± 0.2, ± 0.5, ± 1, ± 2, ± 5	%
TCR	± 25, ± 50, ± 100, ± 250	ppm/°C

Tightest Standard Tolerance Available



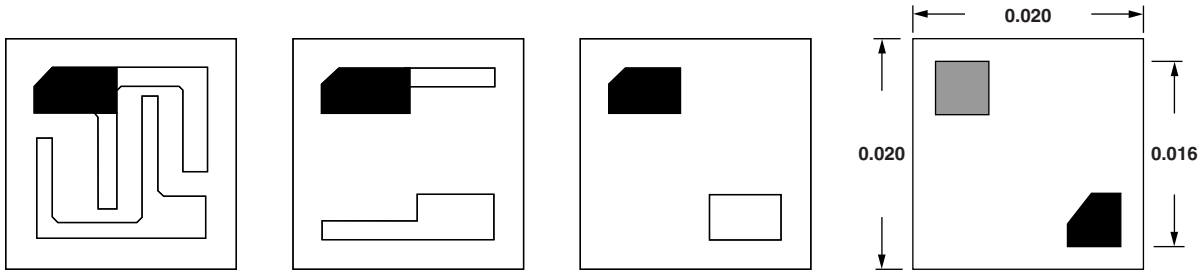
STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
Noise, MIL-STD-202, method 308 100 Ω to 250 kΩ < 100 Ω or > 251 kΩ	 -35 typ. -20 typ.	dB
Moisture resistance, MIL-STD-202, method 106	± 0.5 max. Δ*R*/*R*	%
Stability, 1000 h, +125 °C, 125 mW	± 1.0 max. Δ*R*/*R*	%
Operating temperature range	-55 to +125	°C
Thermal shock, MIL-STD-202, method 107, test condition F	± 0.25 max. Δ*R*/*R*	%
High temperature exposure, +150 °C, 100 h	± 0.5 max. Δ*R*/*R*	%
Dielectric voltage breakdown	200	V
Insulation resistance	10^{12} min.	Ω
Operating voltage	75 max.	V
DC power rating at +70 °C (derated to zero at +175 °C)	0.250	W
5 x rated power short-time overload, +25 °C, 5 s	± 0.25 max. Δ*R*/*R*	%

For technical questions, contact: efi@vishay.com

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DIMENSIONS in inches



TYPICAL RANGE
10 Ω to 29 Ω

TYPICAL RANGE
30 Ω to 81 Ω

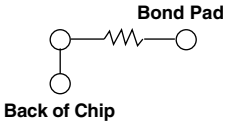
TYPICAL RANGE
82 Ω to 819 Ω

TYPICAL RANGE
820 Ω to 1 MΩ

Note

- Notched shaded area represents top bonding pad. The backside of the chip constitutes the second resistor connection

SCHEMATIC



MECHANICAL SPECIFICATIONS

PARAMETER	VALUE
Chip size	0.020" x 0.020" ± 0.002" (0.50 mm x 0.50 mm ± 0.05 mm)
Chip thickness	0.010" ± 0.002" (0.254 mm ± 0.05 mm)
Chip substrate material	Oxidized silicon, 10 kÅ minimum SiO_2
Resistor material	Tantalum nitride, self-passivating
Bonding pad size	0.004" x 0.004" (0.100 mm x 0.100 mm)
Number of pads	1
Pad material	10 kÅ minimum aluminum (15 kÅ minimum gold optional)
Backing	3 kÅ minimum gold
Recommended attachment method	Eutectic or conductive epoxy

GLOBAL PART NUMBER INFORMATION

Global Part Number: BCR50000FKAHWS
Global Part Number Description: BCR 5K 1 %, 100 ppm/°C, Al term., Class H, WS

B	C	R	5	0	0	0	0	F	K	A	H	W	S

MODEL	RESISTANCE	RESISTANCE MULTIPLIER CODE	TOLERANCE CODE	TCR (ppm/°C)	TERMINATION	VISUAL CLASS (per MIL-STD-883, method 2032)	PACKAGING
BCR 20 x 20 size back contact resistor	First 4 digits are significant figures of resistance	**B** = 0.01 **A** = 0.1 **0** = 1 **1** = 10 **2** = 100 **3** = 1000	**B** = 0.1 % **C** = 0.25 % **D** = 0.5 % **F** = 1.0 % **G** = 2.0 % **J** = 5.0 % **K** = 10 %	**E** = ± 25 **C** = ± 50 **K** = ± 100 **M** = ± 250 **R** = 0 / - 250	**G** = gold **A** = aluminum	**H** = class H **K** = class K	**WS** = waffle pack 100 min./mult.

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