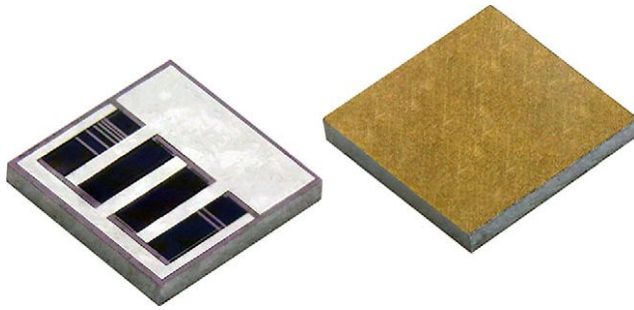


## Thin Film, High Power Back-Contact Resistor



### FEATURES

- Wire bondable
- Small size
- High power rating
- Single wire bond assembly
- Moisture resistant
- Case size 0202 to 0808
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

The high power back-contact resistor (IGBR) series thin film chip resistor utilizes the excellent thermal properties of silicon to allow ultra high power rating with miniature case size for hybrid (chip and wire) assemblies.

### APPLICATIONS

- Gate resistor for IGBT based power converters
- Current limiting for LED lighting applications
- High power applications
- Alternative energy
- Hybrid assemblies

### TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES

PARAMETER	VALUE	UNIT
Total Resistance Range	1.8 to 25	$\Omega$
Standard Tolerances	5, 10, 25	%
TCR	$\pm 500$	ppm/ $^{\circ}$ C

### TCR (ppm/ $^{\circ}$ C) BY CASE SIZE AND VALUE



### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	VALUE	UNIT
Operating Film Temperature Range	200 max.	$^{\circ}$ C
Operating Temperature Range	-55 to +125	$^{\circ}$ C
Working Voltage	75 max.	V
Breakdown Voltage	400 max.	V
Thermal Resistivity <sup>(1)</sup>	Down to 2	K/W
DC Power Rating <sup>(1)(2)</sup>	Up to 4	W
Load Life Stability, 1000 h, Film Temperature 200 $^{\circ}$ C	$\pm 1 \Delta R/R$	%
Short Time Overload, 5 x Rated Power, 25 $^{\circ}$ C, 5 s	$\pm 0.25 \Delta R/R$	%
Thermal Shock, MIL-STD-202, Method 107 F	$\pm 1 \Delta R/R$	%
Moisture Resistance, MIL-STD-202, Method 106 <sup>(3)</sup>	$\pm 0.25 \Delta R/R$	%
High Temperature Exposure, 100 h, +150 $^{\circ}$ C	$\pm 0.5 \Delta R/R$	%
Low Temperature Operation, -65 $^{\circ}$ C, 45 min	$\pm 0.5 \Delta R/R$	%

#### Notes

- (1) See table "Power Rating by Case Size"
- (2) Power rating determined by application specific heat sink properties. Film temperature should not exceed 200  $^{\circ}$ C. See table "Power Rating by Case Size" for more details
- (3) Aluminum pads and aluminum wire bonds are sensitive to high moisture environments. Adequate application level packaging is required to protect the components and wire bonds from moisture related damage

<b>POWER RATING BY CASE SIZE</b>						
CASE SIZE	CHIP SIZE mil (mm) <sup>(2)</sup>	BOND PAD SIZE mil (mm)	DIE THICKNESS mil (mm) <sup>(2)</sup>	TYPICAL <i>R</i> THERMAL <sup>(1)</sup> K/W	<i>R</i> MIN. Ω	<i>R</i> MAX. Ω
0202	20 x 20 (0.5 x 0.5)	10 x 16 (0.25 x 0.41)	10 (0.25)	10	15	25
0404	40 x 40 (1 x 1)	15 x 36 (0.38 x 0.91)	10 (0.25)	7	5	25
0606	60 x 60 (1.5 x 1.5)	20 x 56 (0.51 x 1.42)	10 (0.25)	5	1.8	25
0808	80 x 80 (2 x 2)	27 x 76 (0.69 x 1.93)	10 (0.25)	2	1.8	25

**Notes**

- (1) Typical *R* thermal between film and back contact. Does not include die attach joint (epoxy or solder)  
 (2) Dimension tolerances are ± 0.05 mm (± 2 mil)

**SCHEMATIC**


<b>MATERIAL SPECIFICATIONS</b>	
PARAMETER	
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO <sub>2</sub>
Film Material	Tantalum Nitride
Case Size	See table "Power Rating by Case Size"
Passivation	None
Number of Pads	1
Top Terminations Suitable for Heavy Gage Aluminum Wire-Bonding	Al (2.5 μm min.)
Back Termination (for epoxy, lead (Pb)-free solder or silver compression assembly)	P = TiW (500 Å to 1000 Å) Pd (2000 Å to 3000 Å) Au (3000 Å to 5000 Å)
	N = TiW (500 Å to 1000 Å) Ni (6000 Å to 7000 Å) Au (3000 Å to 5000 Å)
	T = TiW (500 Å to 1000 Å) Au (1000 Å to 3000 Å) Ni (40 μ" minimum) Au (40 μ" minimum)



GLOBAL PART NUMBER INFORMATION															
Global Part Number: IGBRB3000CJOPCST															
Global Part Number Description: IGBR 1 mm 3 Ω 5 % 300 ppm/°C PD Commercial Tape															
I	G	B	R	B	3	0	0	0	C	J	O	P	C	S	T
MODEL	SIZE	RESISTANCE (Ω)	RESISTANCE MULTIPLIER CODE	TOL. CODE (%)	TCR (ppm/°C)	BACKSIDE TERMINATION	VISUAL CLASS	PACKAGING CODE							
IGBR High power back-contact resistor	A = 20 x 20 B = 40 x 40 C = 60 x 60 D = 80 x 80	First 4 digits are significant figures of resistance	C = 0.001 B = 0.01 A = 0.1	J = 5 K = 10 M = 20 L = 25	J = ± 500 W = ± 350 O = ± 300 M = ± 250	P = TiW/Pd/Au N = TiW/Ni/Au T = TiW/Au/Ni/Au <sup>(1)</sup>	C = commercial H = class H K = class K	WS = waffle pack 100 min., 1 mult FW = full wafer (3") ST = diced on tape							

**Note**

<sup>(1)</sup> See Material Specifications table for metal thickness



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.