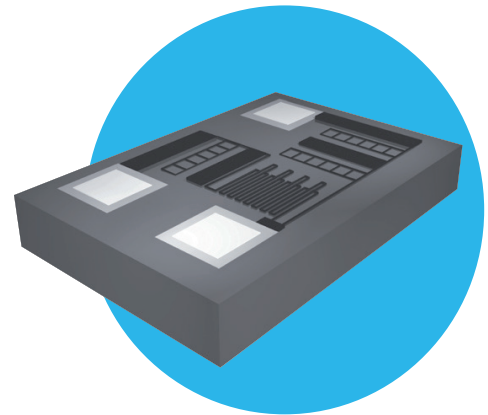


# Wire Bondable Voltage Divider Network

## DSOT Series

- Tight TCR tracking
- Extremely small footprint
- Precision ratio tolerances to  $\pm 0.05\%$
- Ultra-stable tantalum nitride resistors



 All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

IRC's TaNSil<sup>®</sup> voltage divider networks are ideally suited for low cost divider applications that demand precision performance in a wire bondable package.

The tantalum nitride film system on silicon provides precision tolerance, exceptional TCR tracking and miniature physical dimensions. Excellent performance in harsh, humid environments is a trademark of IRC's selfpassivating TaNSil<sup>®</sup> resistor film.

For applications requiring high performance voltage dividers in a miniature, wire bondable package, specify IRC DSOT wire bondable die.

## Electrical Data

Resistance Range Each Resistor	10 $\Omega$ to 200k $\Omega$	
Resistance Range Each Package	20 $\Omega$ to 400k $\Omega$	
Absolute Tolerance	to $\pm 0.1\%$	
Ratio Tolerance to R1	to $\pm 0.05\%$	
Absolute TCR	to $\pm 25\text{ppm}/^\circ\text{C}$	
Tracking TCR	to $\pm 5\text{ppm}/^\circ\text{C}$	
Element Power Rating	125mW @ 70 $^\circ\text{C}$	
Package Power Rating	250mW @ 70 $^\circ\text{C}$	
Rated Operating Voltage (not to exceed $\sqrt{P \times R}$ )	100V	
Operating Temperature	-55 $^\circ\text{C}$ to + 150 $^\circ\text{C}$	
Noise	<-30dB	
Substrate Material	Oxidized Silicon (10K $\text{\AA}$ SiO <sub>2</sub> minimum)	
Substrate Thickness	0.0095" $\pm$ 0.001 (0.241mm $\pm$ 0.025)	
Bond Pad Metallization	Aluminum	10K $\text{\AA}$ minimum
	Gold <sup>1</sup>	15K $\text{\AA}$ minimum
Backside	Silicon (gold available <sup>1</sup> )	
Passivation	Silicon Dioxide or Silicon Nitride	

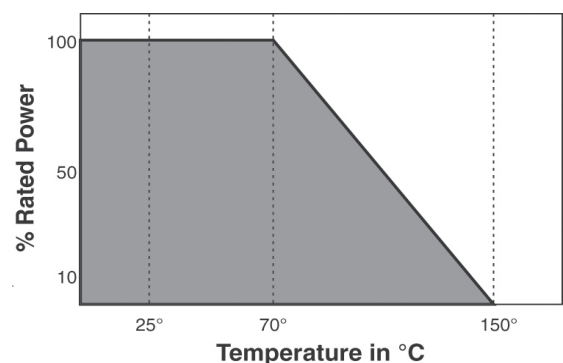
Note 1: Not recommended for new designs

## 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 include 100% visual inspection

## Power Derating Data



### General Note

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

## Manufacturing Capabilities Data

Resistance Range	Available Absolute Tolerances	Available Ratio Tolerances	Best Absolute TCR	Tracking TCR
10Ω - 50Ω	F G J K	D F G J K	±100ppm/°C	±50ppm/°C
51Ω - 100Ω	D F G J K	C D F G J K	±100ppm/°C	±25ppm/°C
101Ω - 200Ω	C D F G J K	B C D F G J K	±50ppm/°C	±10ppm/°C
201Ω - 500Ω	B C D F G J K	B C D F G J K	±50ppm/°C	±5ppm/°C
501Ω - 400kΩ	B C D F G J K	A B C D F G J K	±25ppm/°C	±2ppm/°C

## Environmental Data

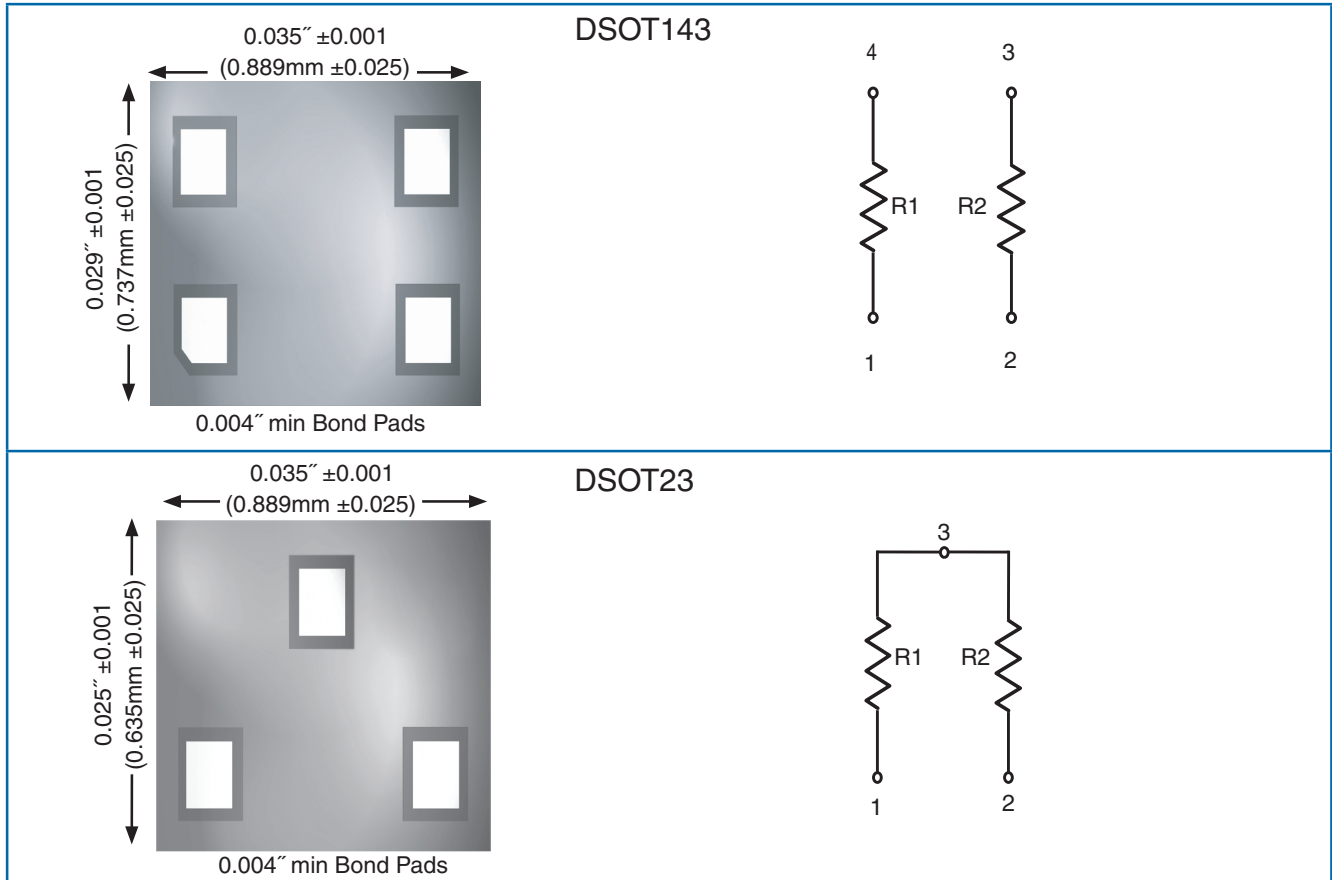
Test	Method	Max ΔR	Typical ΔR
Thermal Shock	MIL-STD-202 Method 107 Test condition F	±0.1%	±0.02%
High Temperature Exposure	MIL-STD-883 Method 1008 150°C, 1000 hours	±0.1%	±0.05%
Low Temperature Shortage	-55°C, 1000 hours	±0.03%	±0.01%
Life	MIL-STD-202 Method 108 70°C, 1000 hours	±0.5%	±0.01%
Life at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

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DSOT Series

Physical Data



Ordering Data

Prefix ..... **WBD** - **DSOT23** - **01** - **1002** - **1002** - **F** **B**

**Style** .....  
DSOT23 = 3-pad divider network  
DSOT143 = 4-pad divider network

**Absolute TCR Code** .....  
00 = ±250ppm/°C; 01 = ±100ppm/°C;  
02 = ±50ppm/°C; 03 = ±25ppm/°C

**R1 Resistance Code** .....  
4-Digit resistance code ex: 1002 = 10KΩ; 50R1 = 50.1Ω

**R2 Resistance Code** .....  
4-Digit resistance code ex: 1002 = 10KΩ; 50R1 = 50.1Ω

**Absolute Tolerance Code** .....  
K = ±10%; J = ±5%; G = ±2%; F = ±1%; D = ±0.5%; C = ±0.25%; B = ±0.1%

**Ratio Tolerance Code** .....  
G = ±2%; F = ±1%; D = ±0.5%; C = ±0.25%; B = ±0.1%; A = ±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.

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