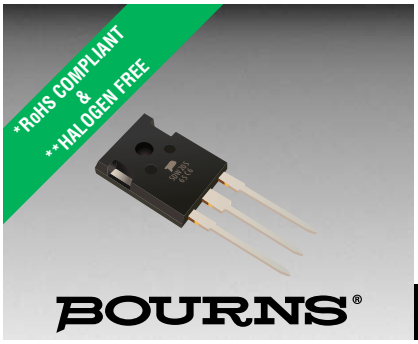


Features

- Low forward voltage drop, high efficiency
- Low reverse leakage current
- High peak forward surge current (I_{FSM})
- Reduced EMI
- Maximum operating T_J up to 175 °C
- Epoxy compound is flame retardant to the UL 94V-0 standard
- RoHS compliant*, Pb free and halogen free**

Applications

- Switched-Mode Power Supplies (SMPS)
- Power Factor Correction (PFC)
- PV inverters
- DC-DC converters
- Telecommunications
- Motor drives

BOURNS®

BSDW20S65C6 Silicon Carbide Schottky Diode

General Information

Bourns® Model BSDW20S65C6 Silicon Carbide (SiC) Schottky Diode provides excellent current carrying capacity. This advanced, high efficiency power component is suitable for applications such as converters requiring a high peak forward surge capability, low forward voltage drop, reduced thermal resistance and low power loss.

Bourns offers Silicon Carbide Schottky Diodes for rectification applications in assorted styles. The Model BSDW20S65C6 is available in a TO247-3 package, well-suited for high frequency Switched-Mode Power Supplies.

Additional Information

Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Absolute Maximum Ratings (@ T_J = 25 °C Unless Otherwise Noted)

Parameter	Symbol	BSDW20S65C6	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Average Forward Current (Square Wave Pulse, D = 0.5, T_{mb} ≤140 °C, dual diodes conducting, Fig. $Zth_{(J-mb)}$)	$I_{F(AV)}$	20	A
Repetitive Peak Forward Current (Square Wave Pulse, D = 0.5, T_{mb} ≤144 °C, t_p = 25 µs, per diode, Fig. $Zth_{(J-mb)}$)	I_{FRM}	20	A
Non-Repetitive Peak Forward Surge Current (10 ms, Single Sine-Wave Pulse, per diode)	I_{FSM}	85	A
Total Power Dissipation (Dual diodes conducting, per device)	P_{tot}	187.5	W
Operating Junction Temperature Range	T_J	-55 to +175	°C
Storage Temperature	T_{STG}	-55 to +175	°C

Thermal Characteristics

Parameter		Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Thermal Resistance	Junction to Ambient	$R_{\theta(J-A)}$	In ambient air		40		°C/W
	Junction to Mounting Base	$R_{\theta(J-mb)}$	Transient thermal impedance curves, per diode		1.15	1.4	
			Transient thermal impedance curves, per device			0.8	

Electrical Characteristics (@ T_J = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 10 A, T_J = 25 °C, per diode I_F = 10 A, T_J = 175 °C, per diode		1.29 1.47	1.45 1.65	V
Reverse Leakage Current	I_R	V_R = 650 V, T_J = 25 °C, per diode V_R = 650 V, T_J = 175 °C, per diode		1 15	50 200	µA
Recovered Charge	Q_r	dI_F/dt = 500 A/µs, V_R = 400 V, I_F = 10 A, per diode		24		nC
Diode Capacitance	C_d	V_R = 1 V, f = 1 MHz, per diode		500		pF
Capacitance Stored Energy	E_c	V_R = 400 V		5.1		µJ

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice.

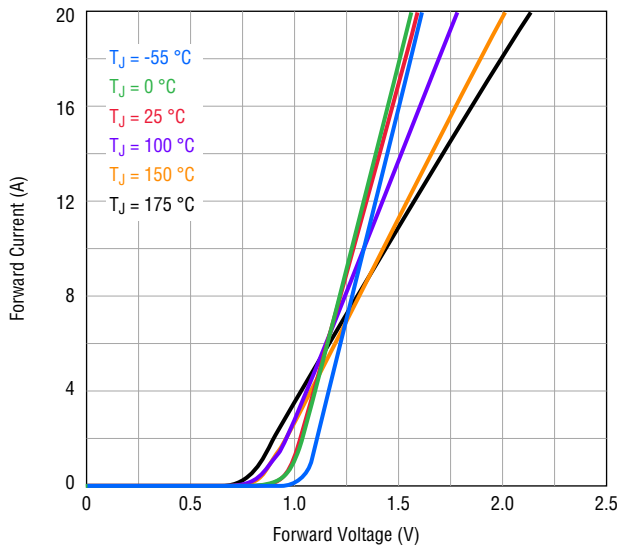
Users should verify actual device performance in their specific applications.

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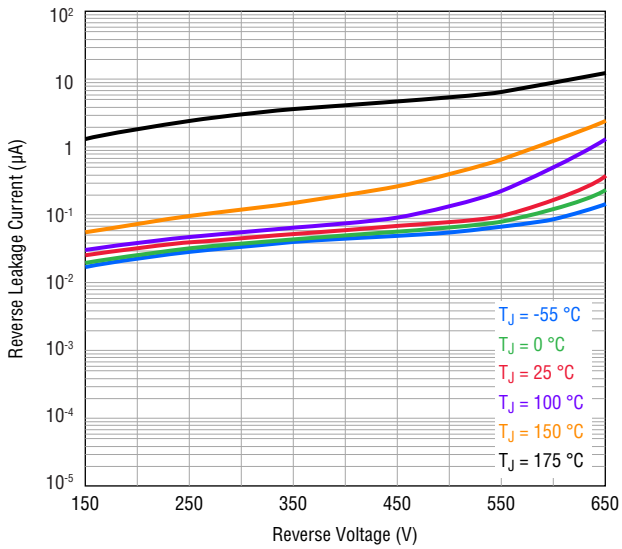
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Rating and Characteristic Curves (T_J = 25 °C unless otherwise noted)

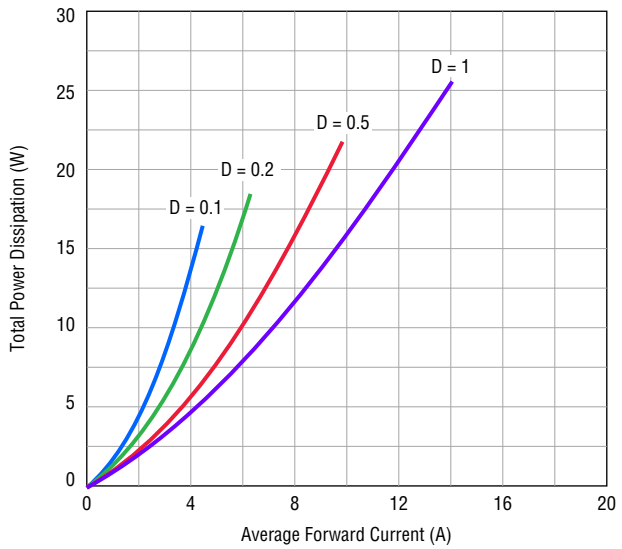
Typical Forward Characteristics, per Diode



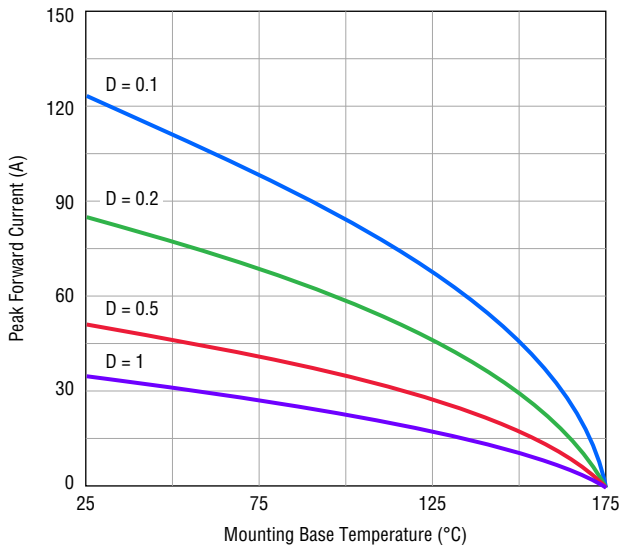
Typical Reverse Characteristics, per Diode



Forward Power Dissipation, per Diode



Forward Current Derating, per Diode

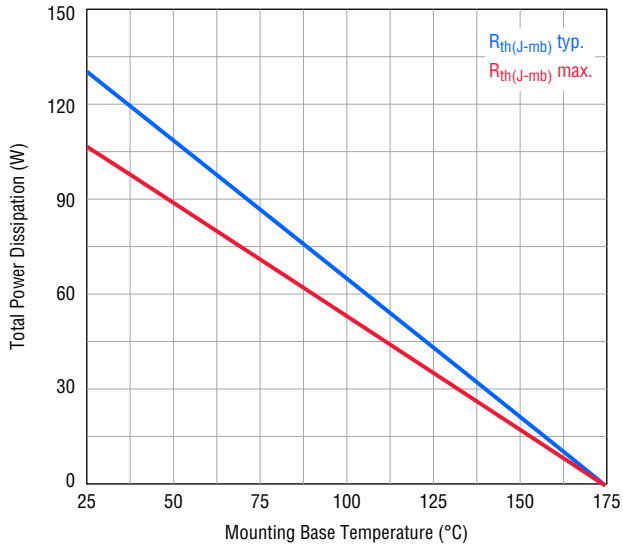


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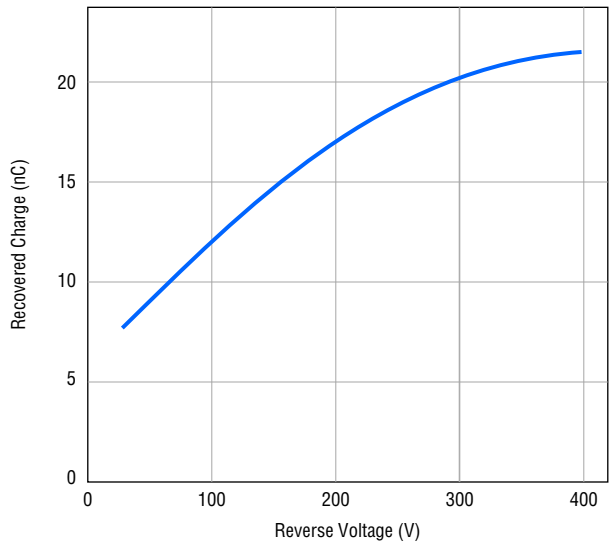
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Rating and Characteristic Curves (Continued)

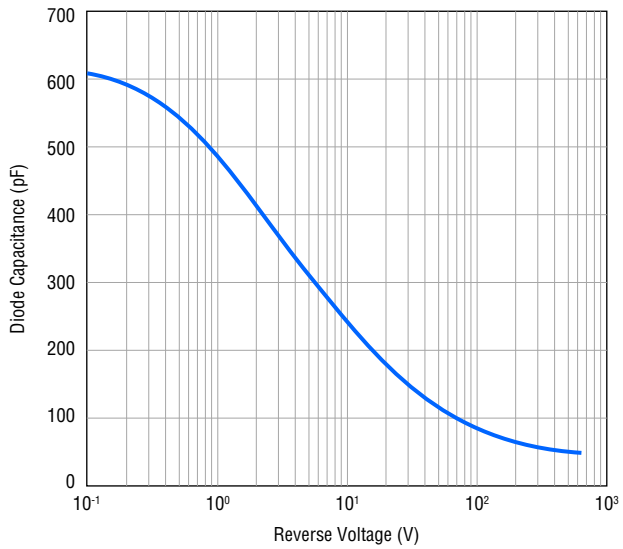
Power Derating, per Diode



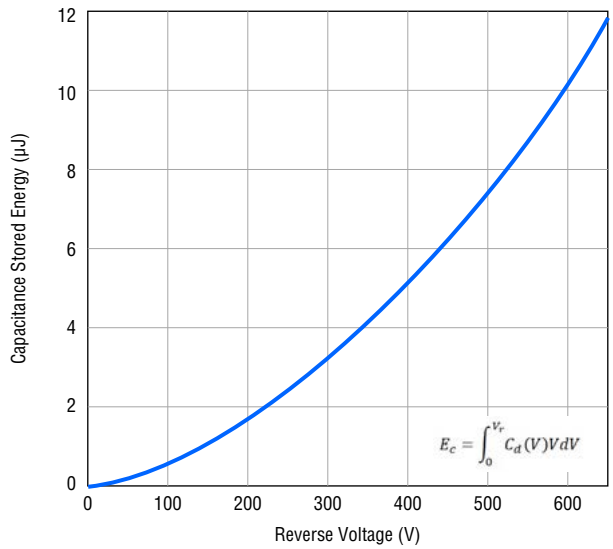
Typical Recovered Charge vs V_R, per Diode



Typical Diode Capacitance vs V_R, per Diode



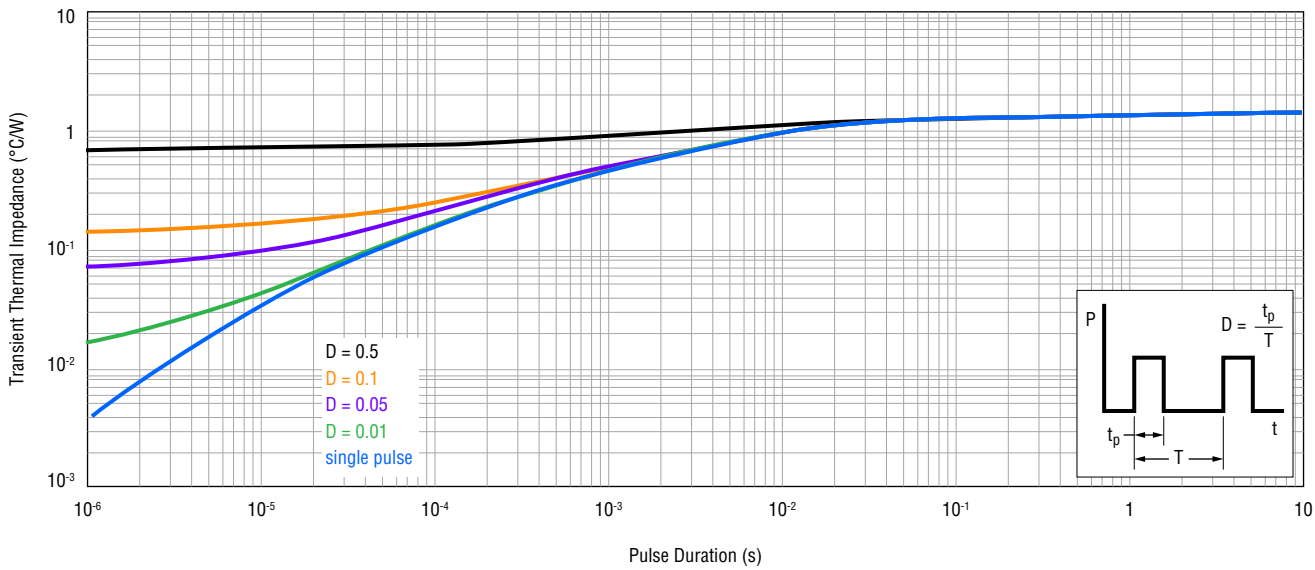
Typical Capacitance Stored Energy vs V_R, per Diode



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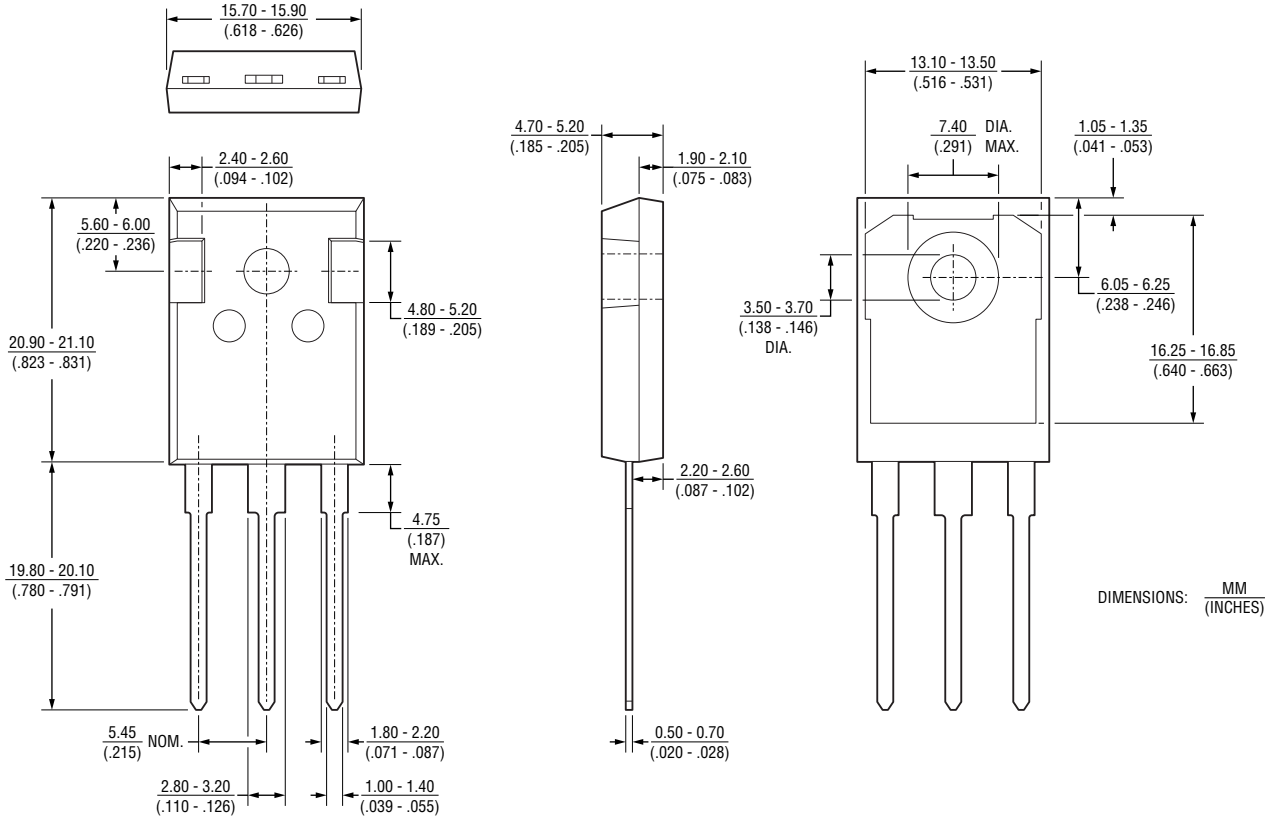
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Transient Thermal Impedance, $Zth_{(J\text{-}mb)}$, per Diode



Product Dimensions

Package Version: TO247N-3



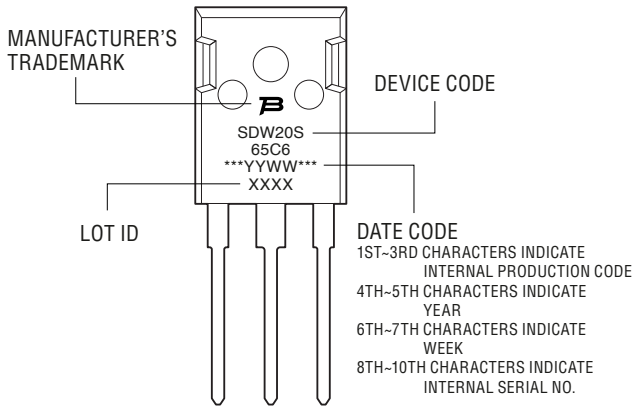
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BSDW20S65C6 Silicon Carbide Schottky Diode

BOURNS®

Typical Part Marking



Environmental Specifications

ESD Classification (HBM).....3B

How to Order

B SD W 20 S 65 C 6

Manufacturer
B = Bourns

Product Type
SD = SiC Diodes

Package Code
W = TO247-3

Current Rating
20 = 20 A

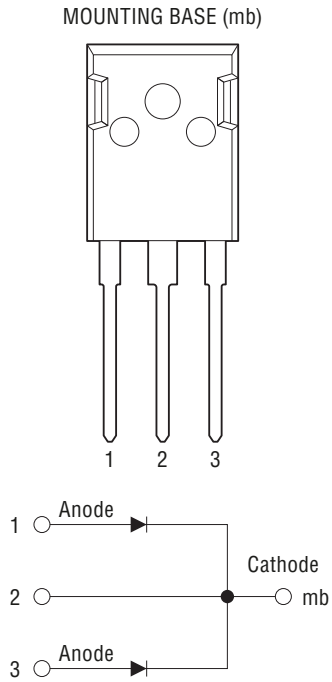
Device Type
S = Low V_F

Nominal Voltage
65 = 650 V

Configuration
C = Common Cathode

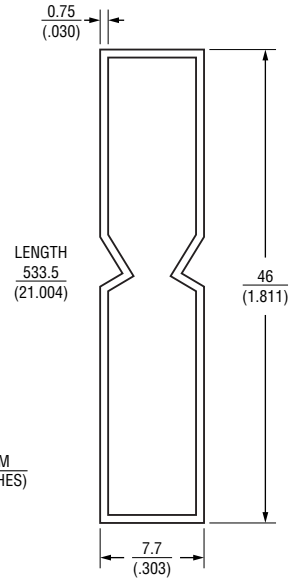
Version Number

Pin Information



Packaging Specifications

30 pcs./tube



BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117
Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877
Email: eurocus@bourns.com

The Americas: Tel: +1-951 781-5500
Email: americus@bourns.com

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