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

BSDB10S65E6 Silicon Carbide Schottky Diode

General Information

Bourns® Model BSDB10S65E6 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, a very 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 BSDB10S65E6 is available in a TO263 (D^2PAK) 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	BSDB10S65E6	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Average Forward Current (Square Wave Pulse, D = 0.5, T_{mb} ≤147 °C, Fig. $Zth_{(J-mb)}$)	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current (Square Wave Pulse, D = 0.5, T_{mb} ≤147 °C, t_p = 25 µs, Fig. $Zth_{(J-mb)}$)	I_{FRM}	20	A
Non-Repetitive Peak Forward Surge Current (10 ms, Single Sine-Wave Pulse)	I_{FSM}	80	A
Total Power Dissipation	P_{tot}	125	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	$R_{θ(J-A)}$	In ambient air		60		°C/W
	Junction to Mounting Base	$R_{θ(J-mb)}$	Transient thermal impedance curves		1	1.2	

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 I_F = 10 A, T_J = 175 °C		1.29 1.5	1.45 1.7	V
Reverse Leakage Current	I_R	V_R = 650 V, T_J = 25 °C V_R = 650 V, T_J = 175 °C		1 15	50 200	µA
Recovered Charge	Q_r	dI_F/dt = 500 A/µs, V_R = 400 V, I_F = 10 A		24		nC
Diode Capacitance	C_d	V_R = 1 V, f = 1 MHz		500		pF
Capacitance Stored Energy	E_c	V_R = 400 V		5.1		µJ

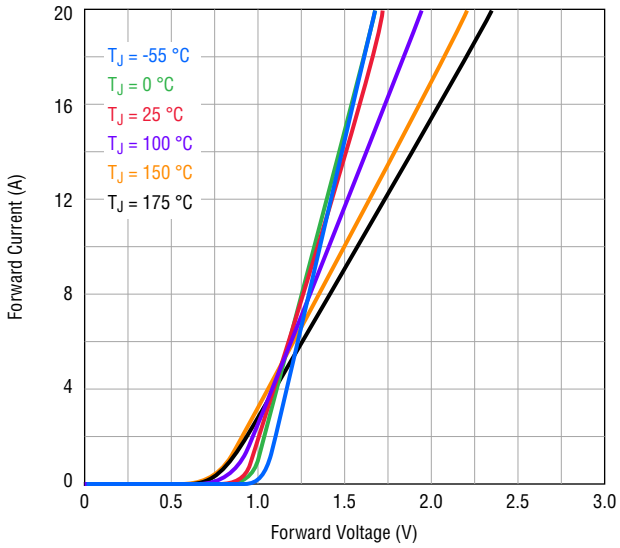
WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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

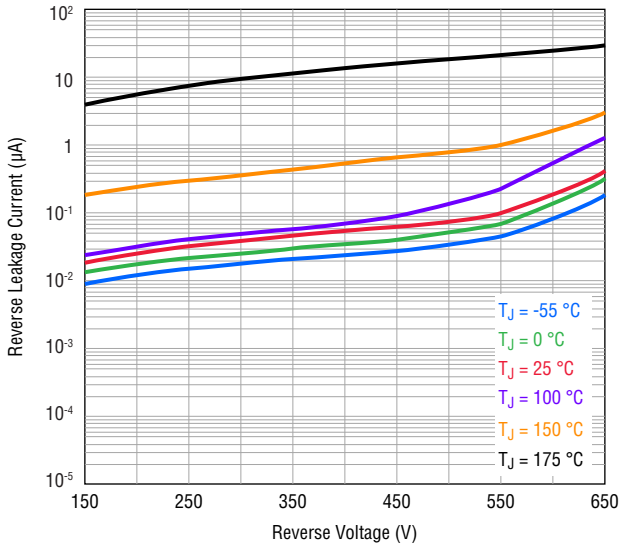
**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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

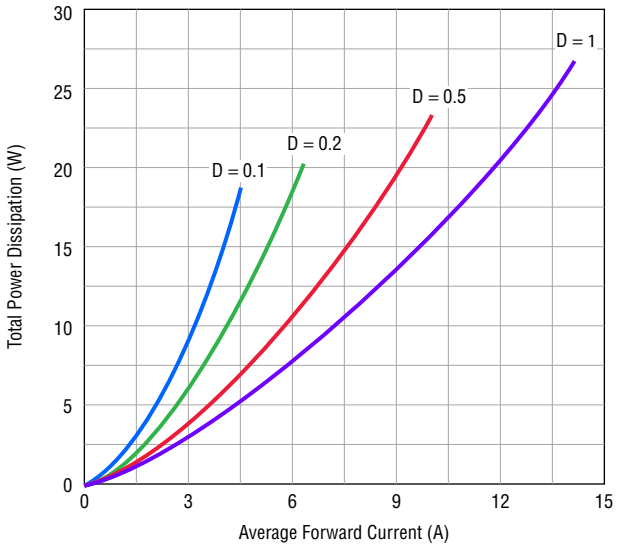
Typical Forward Characteristics



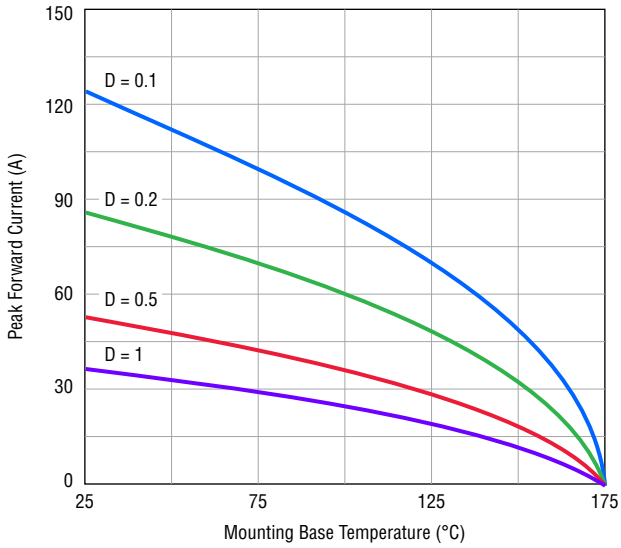
Typical Reverse Characteristics



Forward Power Dissipation

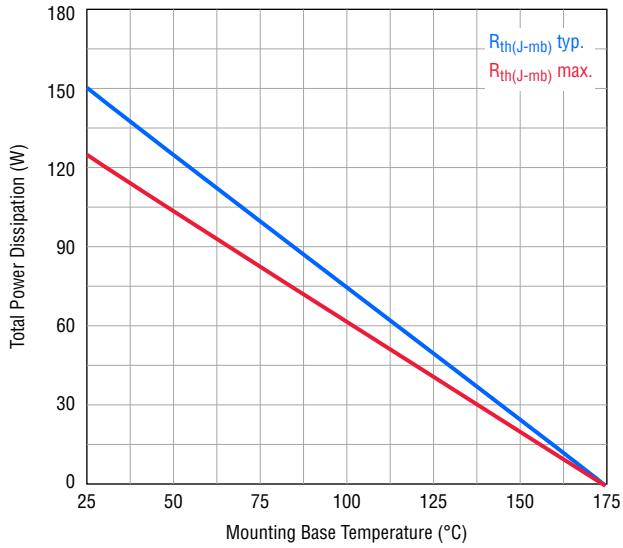


Forward Current Derating

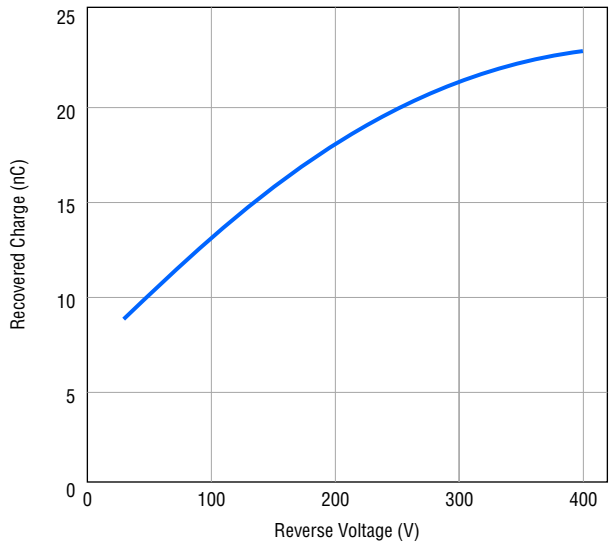


Rating and Characteristic Curves (Continued)

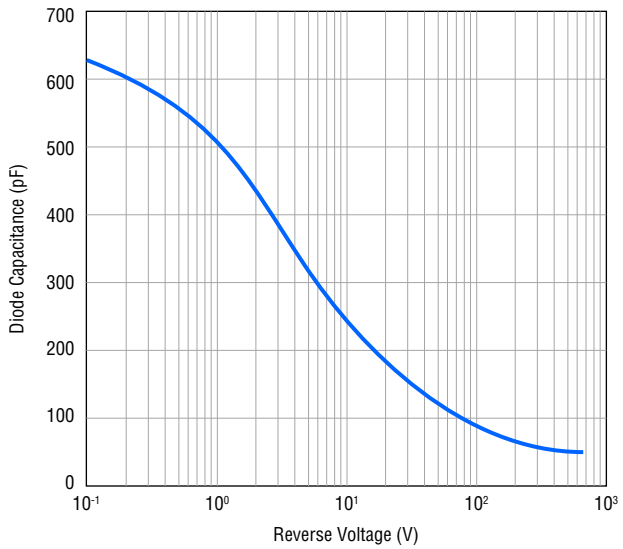
Power Derating



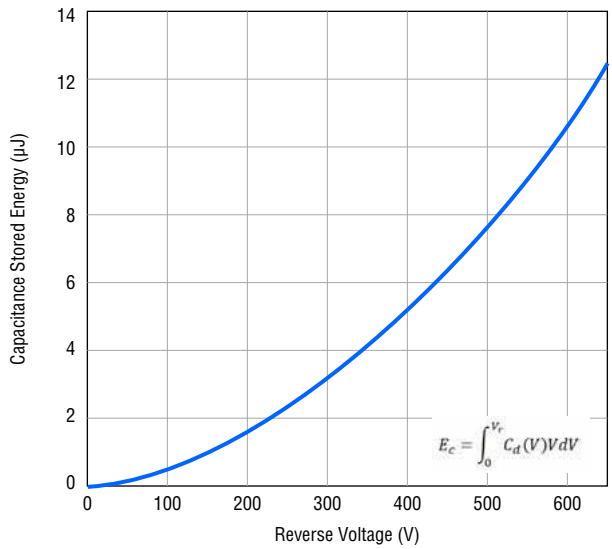
Typical Recovered Charge vs V_R



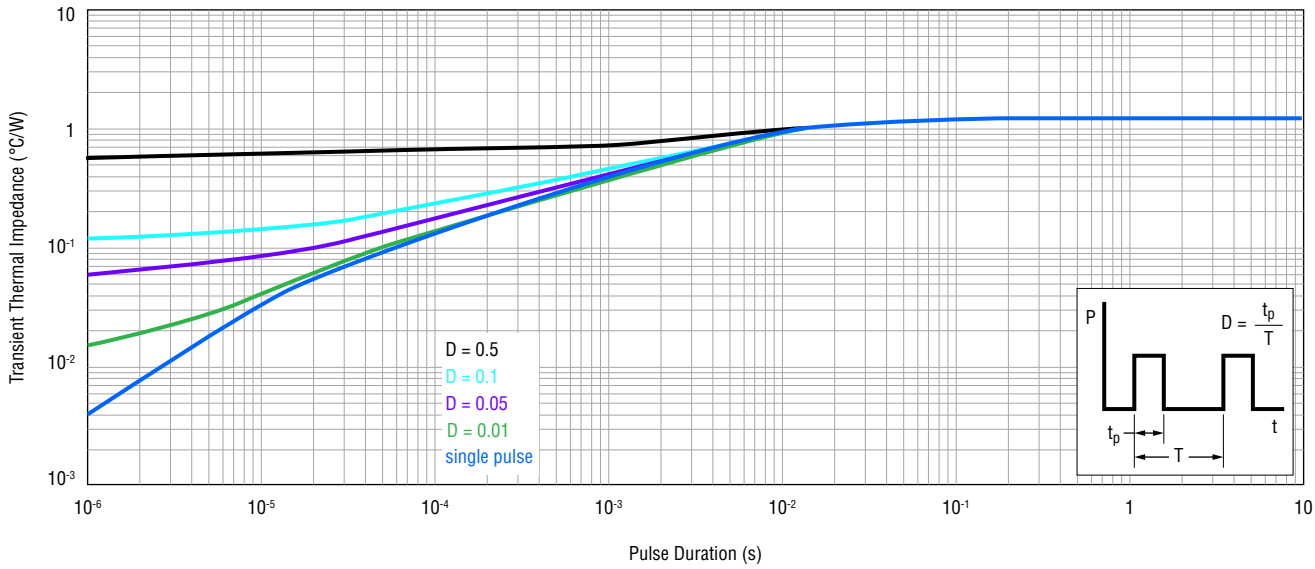
Typical Diode Capacitance vs V_R



Typical Capacitance Stored Energy vs V_R

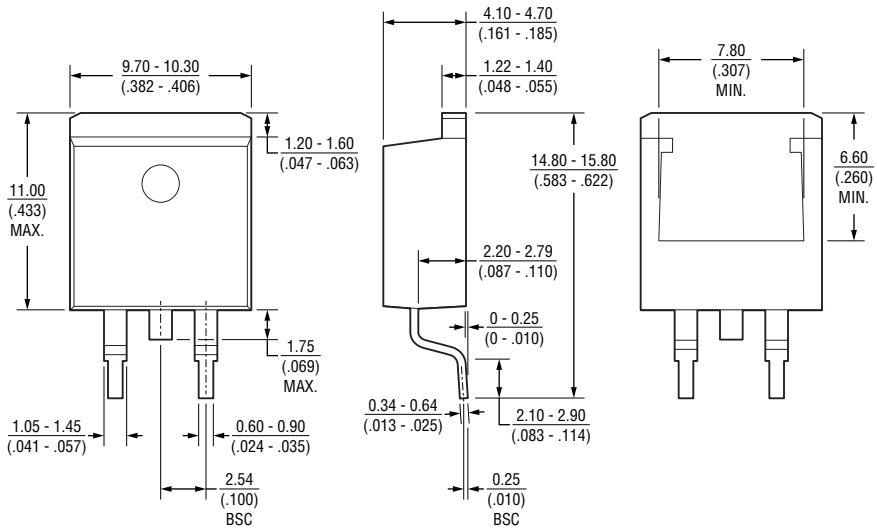


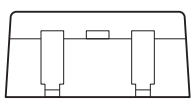
Transient Thermal Impedance, $Zth_{(J\text{-}mb)}$



Product Dimensions

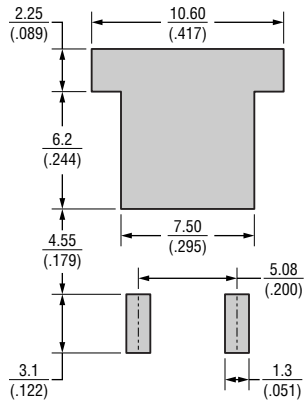
Package: TO263 (D^2PAK)





DIMENSIONS: MM / (INCHES)

Recommended Footprint

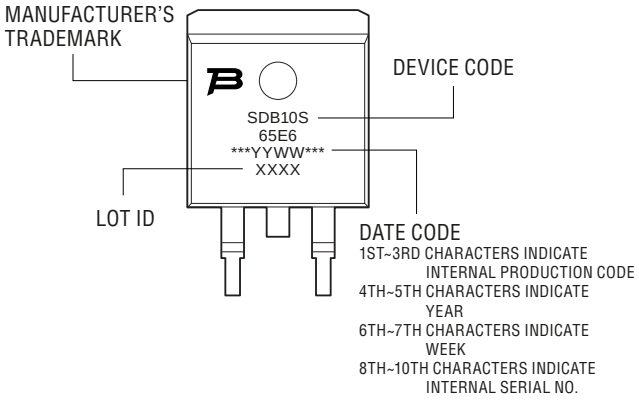


DIMENSIONS: MM / (INCHES)

BSDB10S65E6 Silicon Carbide Schottky Diode

BOURNS®

Typical Part Marking



Environmental Specifications

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

How to Order

B SD B 10 S 65 E 6

Manufacturer
B = Bourns

Product Type
SD = SiC Diodes

Package Code
H = TO263 (D^2 PAK)

Current Rating
10 = 10 A

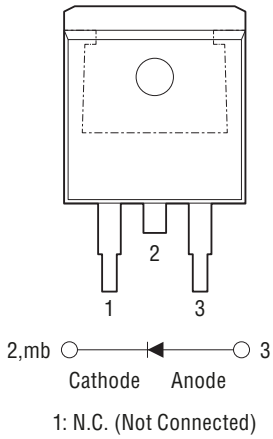
Device Type
S = Low V_F

Nominal Voltage
65 = 650 V

Configuration
E = Single Diode

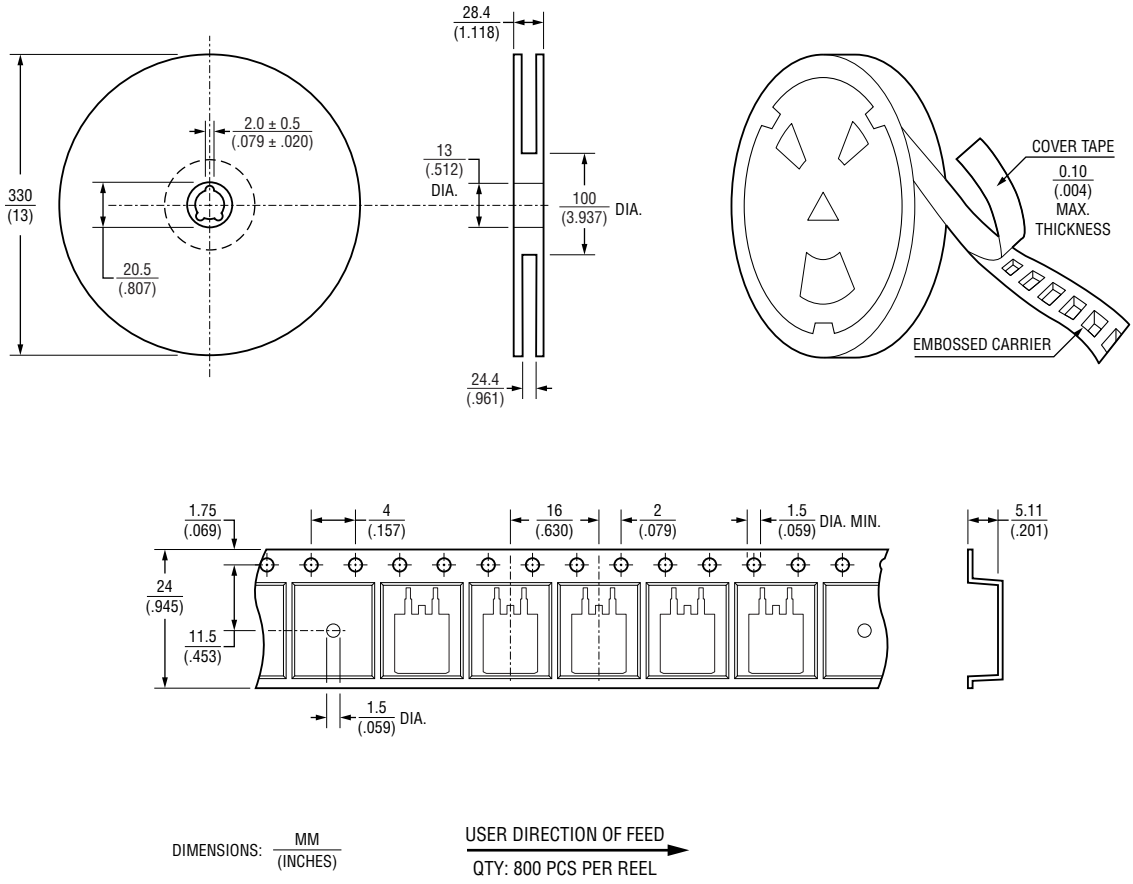
Version Number

Pin Information



1: N.C. (Not Connected)

Packaging Specifications



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