



Features

- High efficiency with low power loss
- Low reverse leakage current
- High peak forward surge current capability
 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

BSDD06G65E2 Silicon Carbide Schottky Diode

General Information

Bourns® Model BSDD06G65E2 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 BSDD06G65E2 is available in a TO252 (DPAK) package, well-suited for high frequency Switched-Mode Power Supplies.

Additional Information

Click these links for more information:



Absolute Maximum Ratings (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	BSDD06G65E2	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Average Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 141\text{ °C}$, Fig. Zth(J-mb))	$I_{F(AV)}$	6	A
Repetitive Peak Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 141\text{ °C}$, $t_p = 25\text{ }\mu\text{s}$, Fig. Zth(J-mb))	I_{FRM}	12	A
Non-Repetitive Peak Forward Surge Current (10 ms, Single Sine-Wave Pulse)	I_{FSM}	36	A
Total Power Dissipation	P_{tot}	85.7	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		50	°C/W
	Junction to Mounting Base	$R_{\theta(J-mb)}$	Transient thermal impedance curves		1.44	

Electrical Characteristics (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 6\text{ A}$, $T_J = 25\text{ °C}$ $I_F = 6\text{ A}$, $T_J = 175\text{ °C}$		1.45 2.0	1.7 2.3	V
Reverse Leakage Current	I_R	$V_R = 650\text{ V}$, $T_J = 25\text{ °C}$ $V_R = 650\text{ V}$, $T_J = 175\text{ °C}$		0.3 15	30 150	μA
Recovered Charge	Q_r	$di_F/dt = 500\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $I_F = 6\text{ A}$		9		nC
Diode Capacitance	C_d	$V_R = 1\text{ V}$, $f = 1\text{ MHz}$		201		pF
Capacitance Stored Energy	E_c	$V_R = 400\text{ V}$		2.2		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.

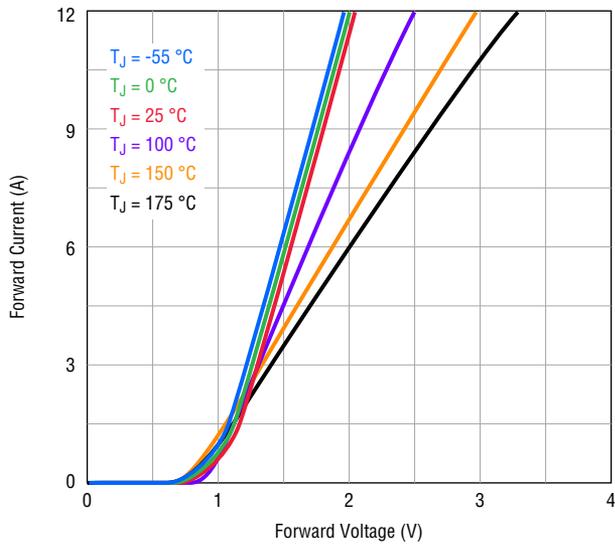
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BSDD06G65E2 Silicon Carbide Schottky Diode

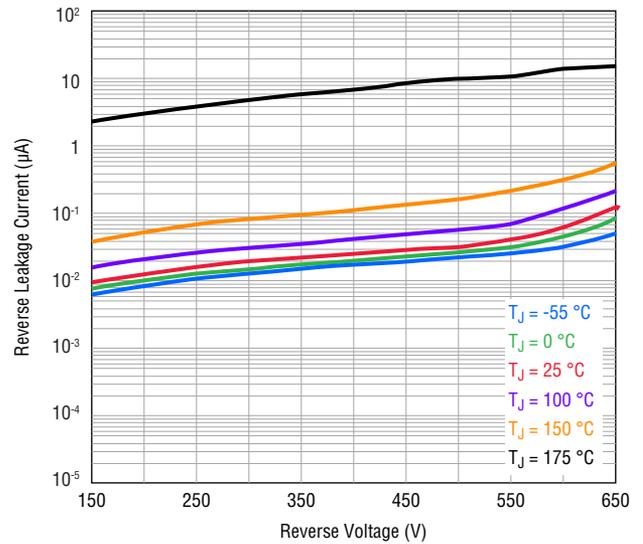


Rating and Characteristic Curves ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)

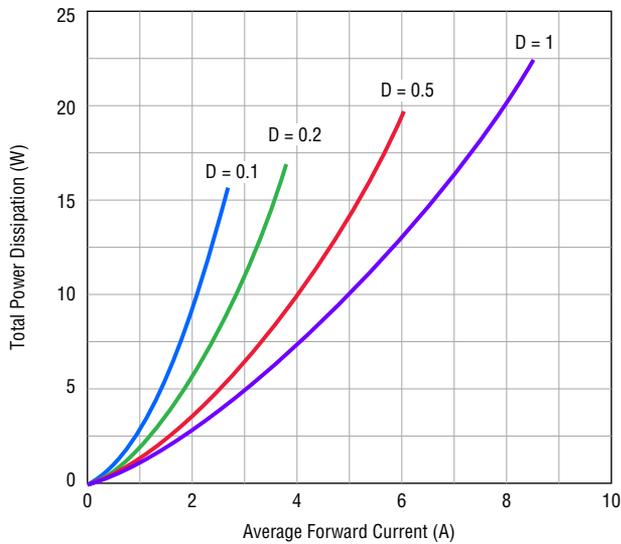
Typical Forward Characteristics



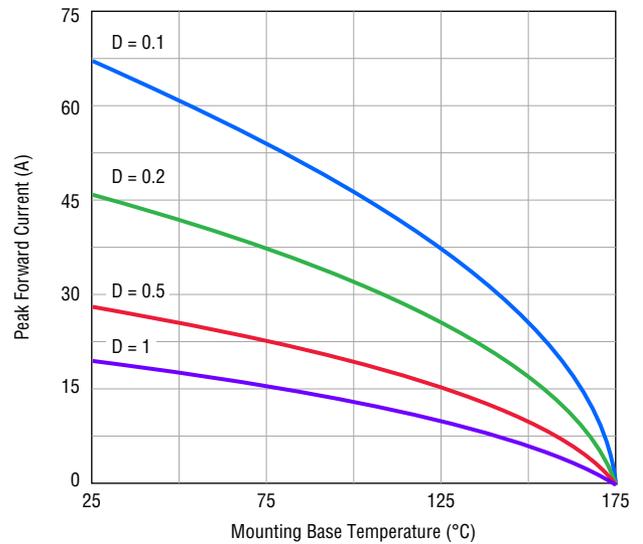
Typical Reverse Characteristics



Forward Power Dissipation



Forward Current Derating

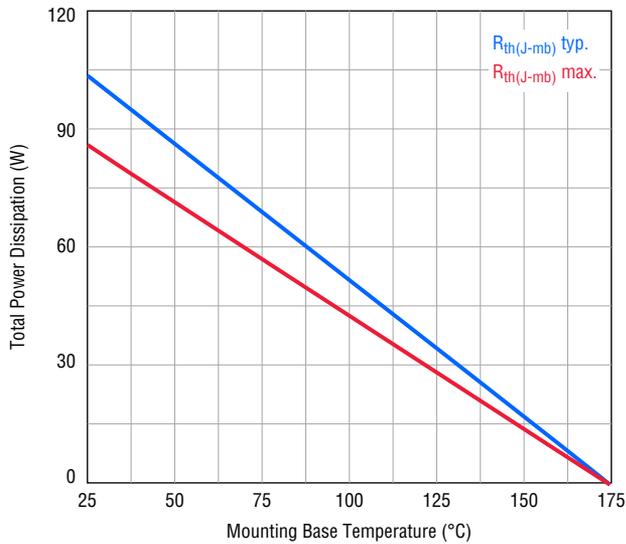


BSDD06G65E2 Silicon Carbide Schottky Diode

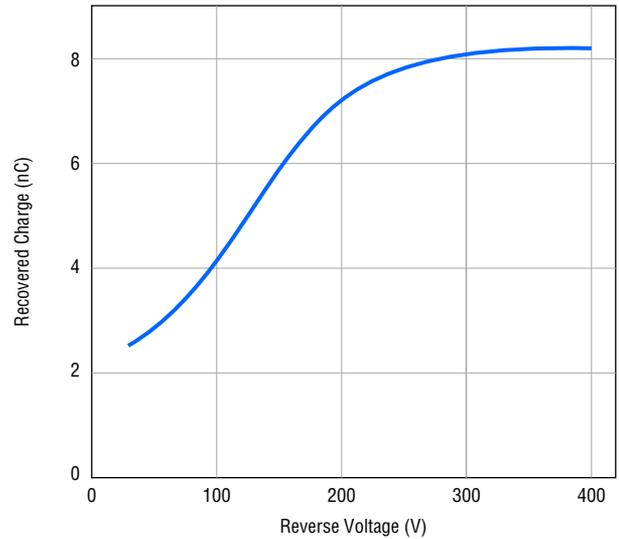


Rating and Characteristic Curves (Continued)

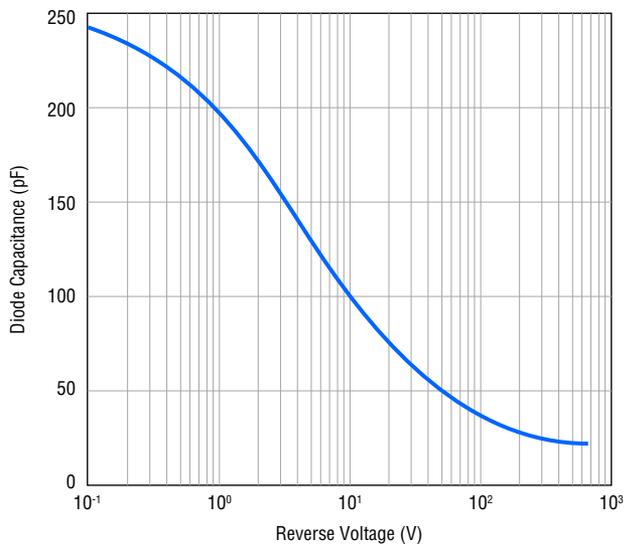
Power Derating



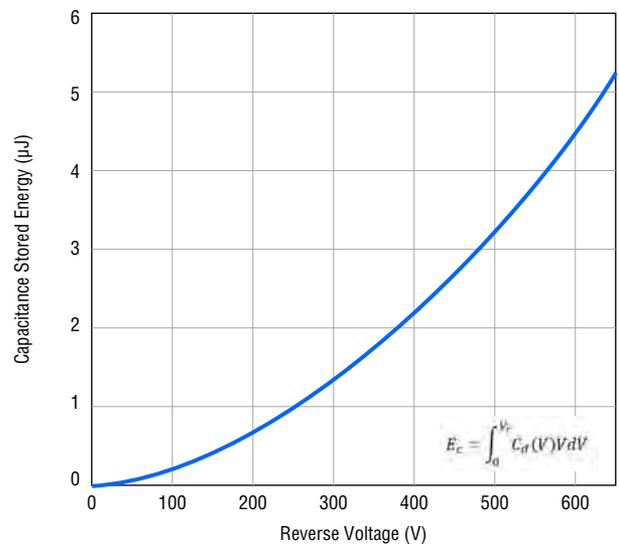
Typical Recovered Charge vs V_R



Typical Diode Capacitance vs V_R



Typical Capacitance Stored Energy vs V_R



Specifications are subject to change without notice.

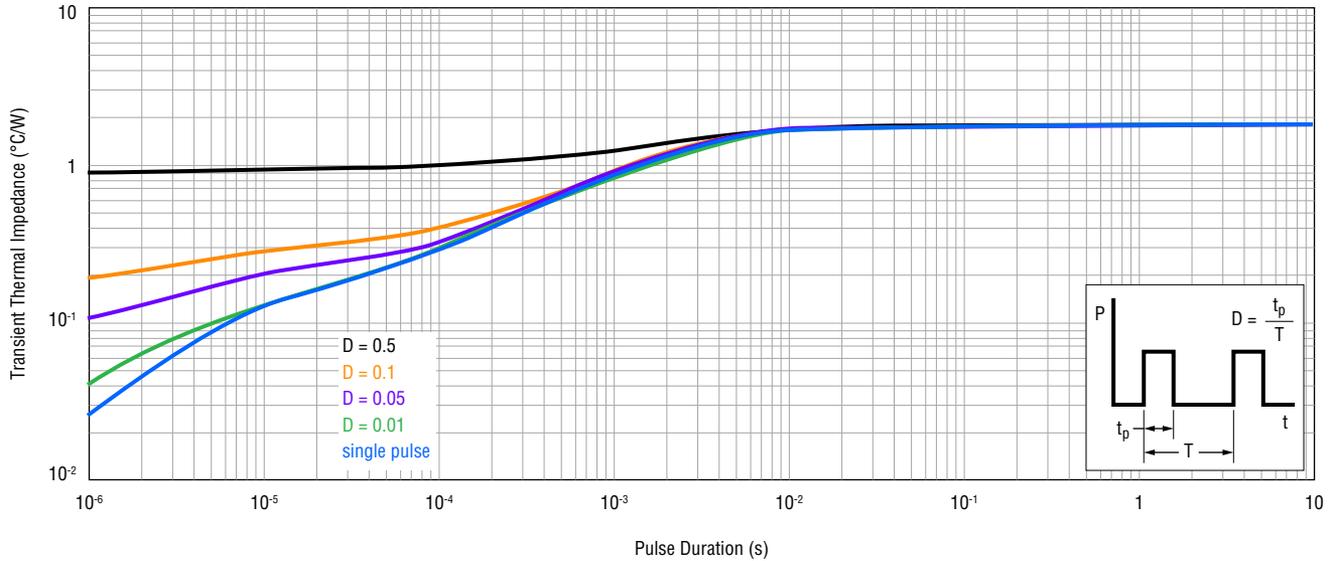
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BSDD06G65E2 Silicon Carbide Schottky Diode

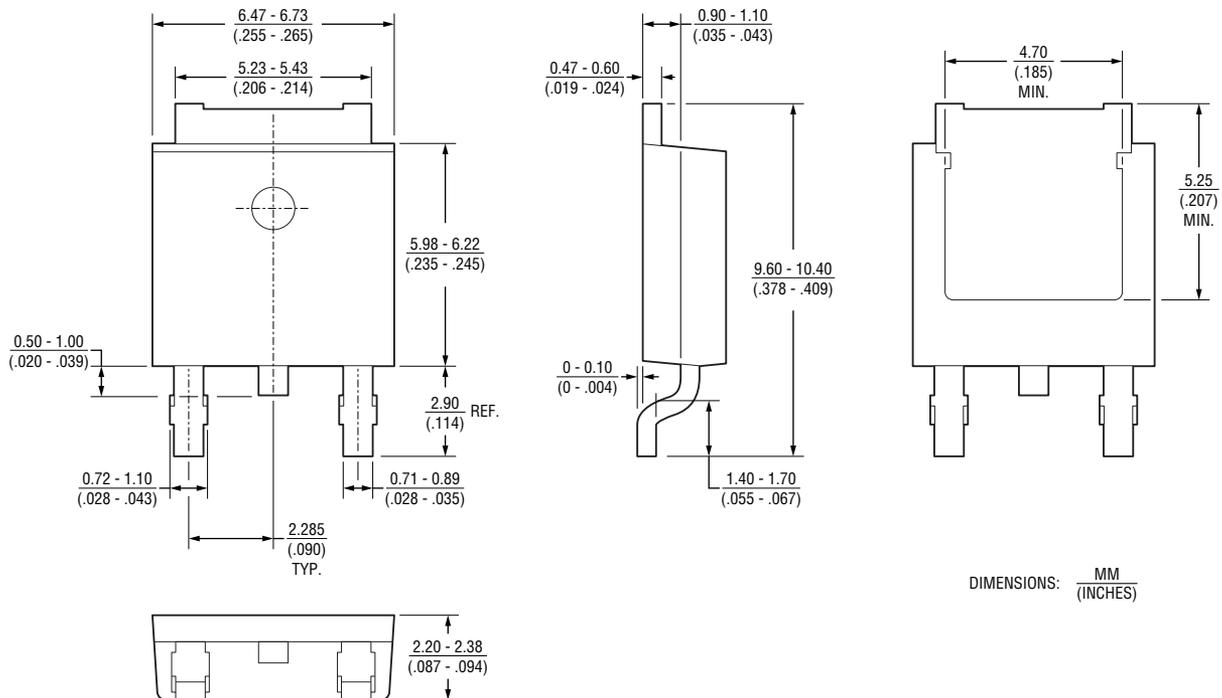
BOURNS®

Transient Thermal Impedance, $Z_{th(J-mb)}$



Product Dimensions

Package: TO252 (DPAK)

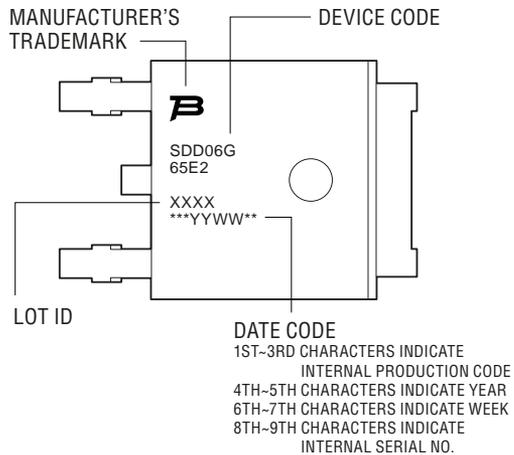


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BSDD06G65E2 Silicon Carbide Schottky Diode



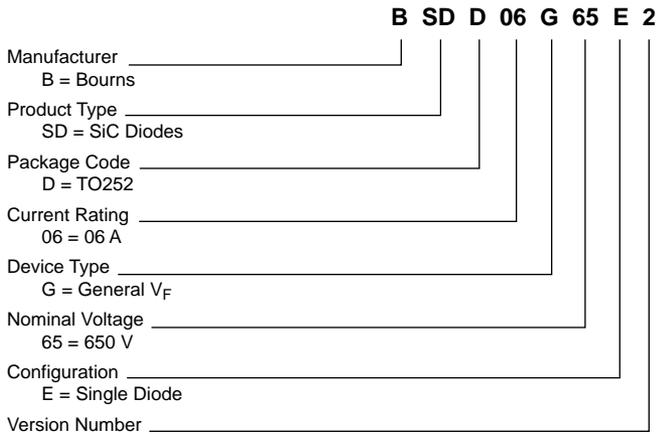
Typical Part Marking



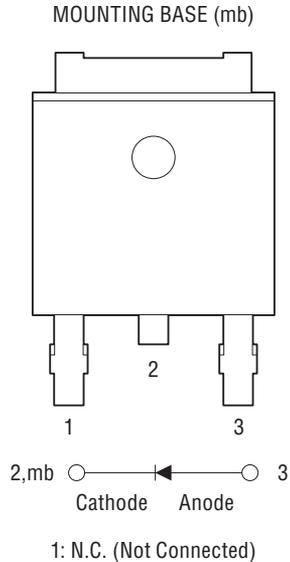
Environmental Specifications

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

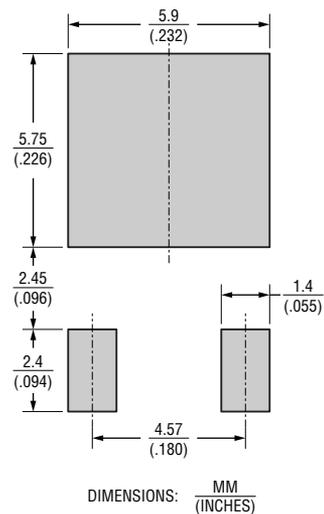
How to Order



Pin Information



Recommended Footprint



Specifications are subject to change without notice.

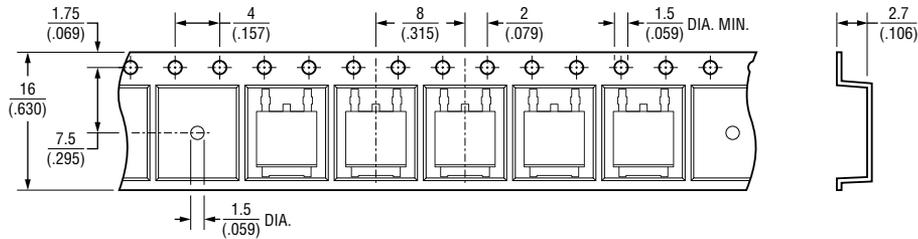
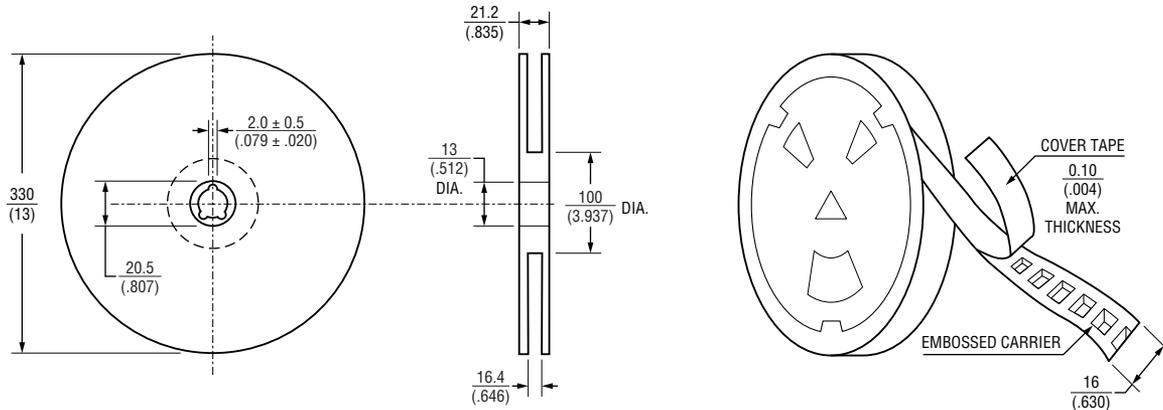
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BSDD06G65E2 Silicon Carbide Schottky Diode

BOURNS®

Packaging Specifications



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

USER DIRECTION OF FEED \rightarrow
QTY: 2,500 PCS PER REEL

BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117

Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877

Email: euocus@bourns.com

The Americas: Tel: +1-951 781-5500

Email: americus@bourns.com

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Features

- High efficiency with low power loss
- Low reverse leakage current
- High peak forward surge current capability
 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

BSDH10G120E2 Silicon Carbide Schottky Diode

General Information

Bourns® Model BSDH10G120E2 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 BSDH10G120E2 is available in a TO220-2 package, well-suited for high frequency Switched-Mode Power Supplies.

Additional Information

Click these links for more information:



Absolute Maximum Ratings (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	BSDH10G120E2	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V
Average Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 146\text{ °C}$, Fig. Zth(J-mb))	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 146\text{ °C}$, $t_p = 25\text{ }\mu\text{s}$, 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}	176.4	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		0.65 0.85	

Electrical Characteristics (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 10\text{ A}$, $T_J = 25\text{ °C}$ $I_F = 10\text{ A}$, $T_J = 175\text{ °C}$		1.42 2.0	1.6 2.5	V
Reverse Leakage Current	I_R	$V_R = 1200\text{ V}$, $T_J = 25\text{ °C}$ $V_R = 1200\text{ V}$, $T_J = 175\text{ °C}$		1 25	50 500	μA
Recovered Charge	Q_r	$di_F/dt = 500\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $I_F = 10\text{ A}$		22		nC
Diode Capacitance	C_d	$V_R = 1\text{ V}$, $f = 1\text{ MHz}$		481		pF
Capacitance Stored Energy	E_c	$V_R = 800\text{ V}$		13		μJ



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

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

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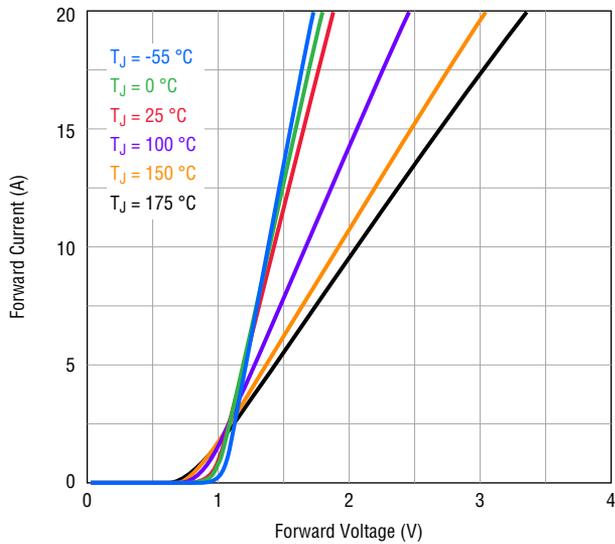
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BSDH10G120E2 Silicon Carbide Schottky Diode

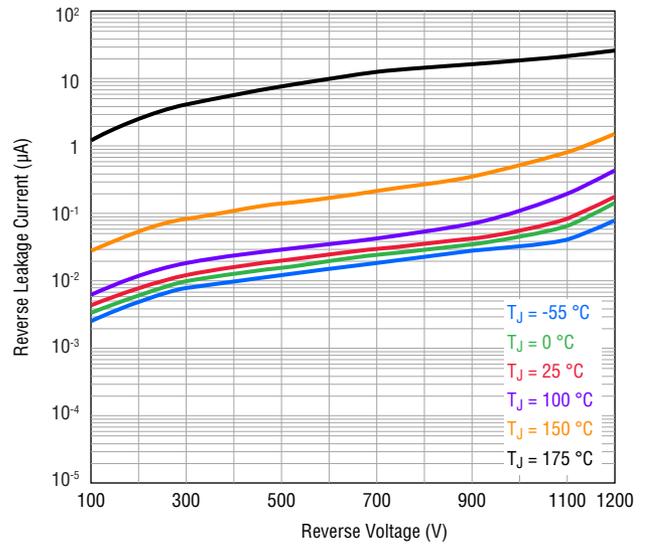


Rating and Characteristic Curves ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)

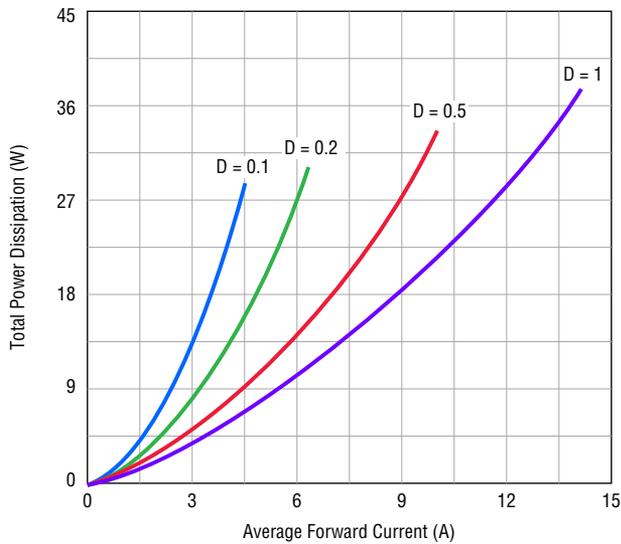
Typical Forward Characteristics



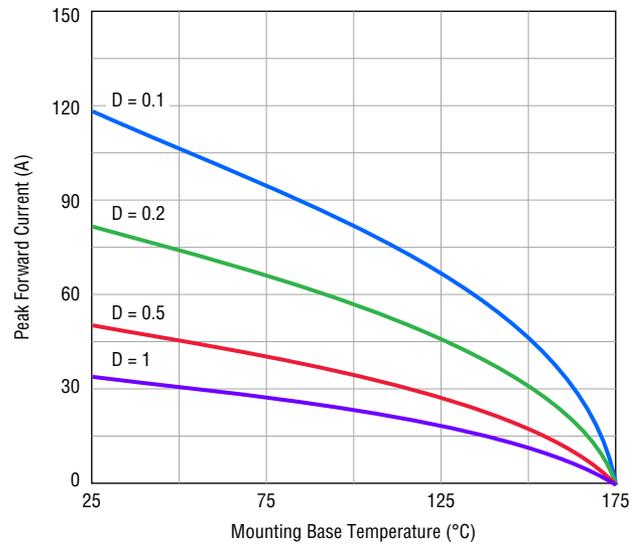
Typical Reverse Characteristics



Forward Power Dissipation



Forward Current Derating

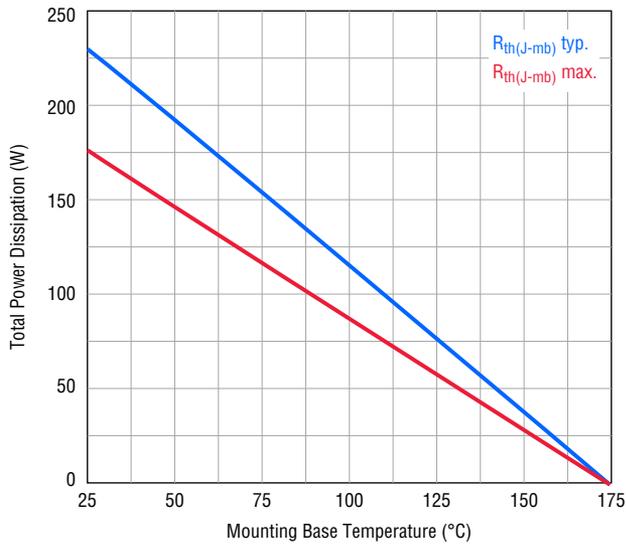


BSDH10G120E2 Silicon Carbide Schottky Diode

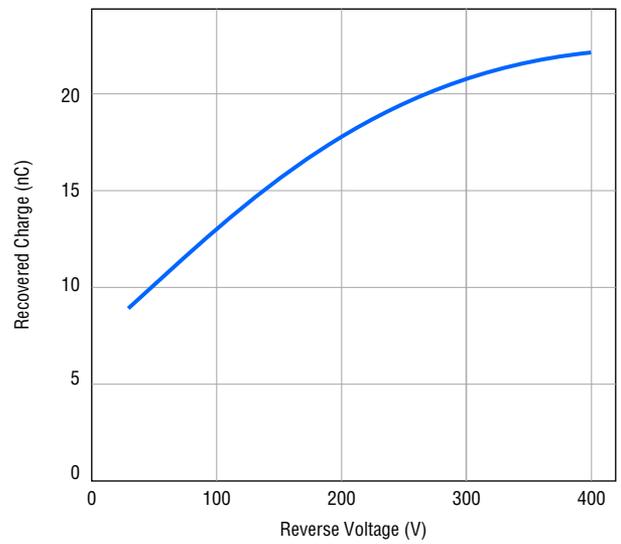


Rating and Characteristic Curves (Continued)

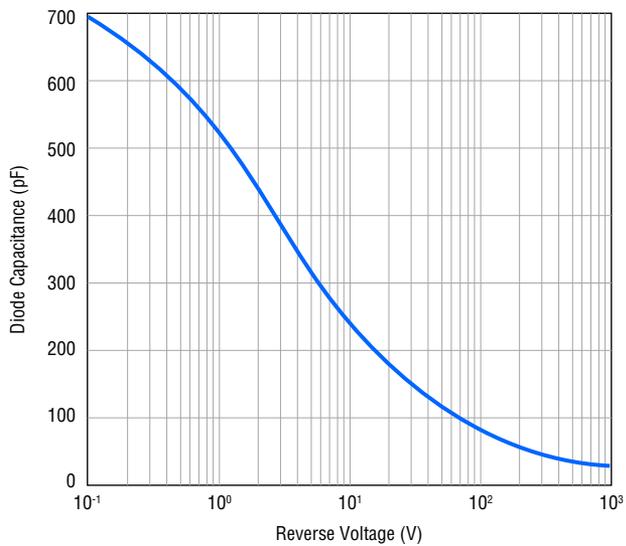
Power Derating



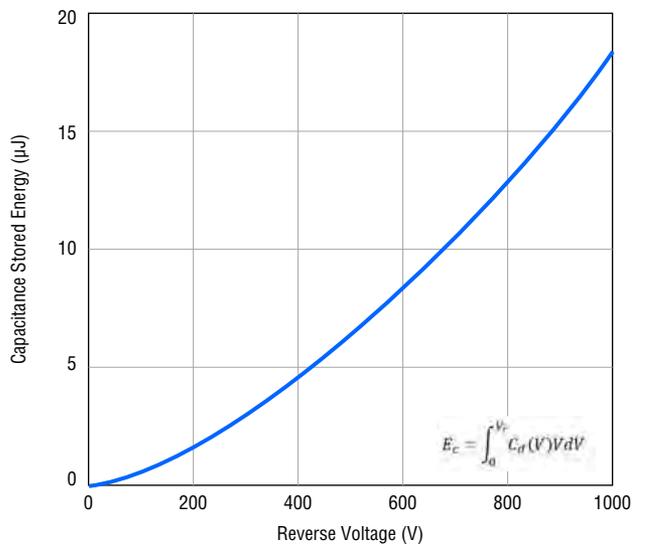
Typical Recovered Charge vs V_R



Typical Diode Capacitance vs V_R



Typical Capacitance Stored Energy vs V_R



Specifications are subject to change without notice.

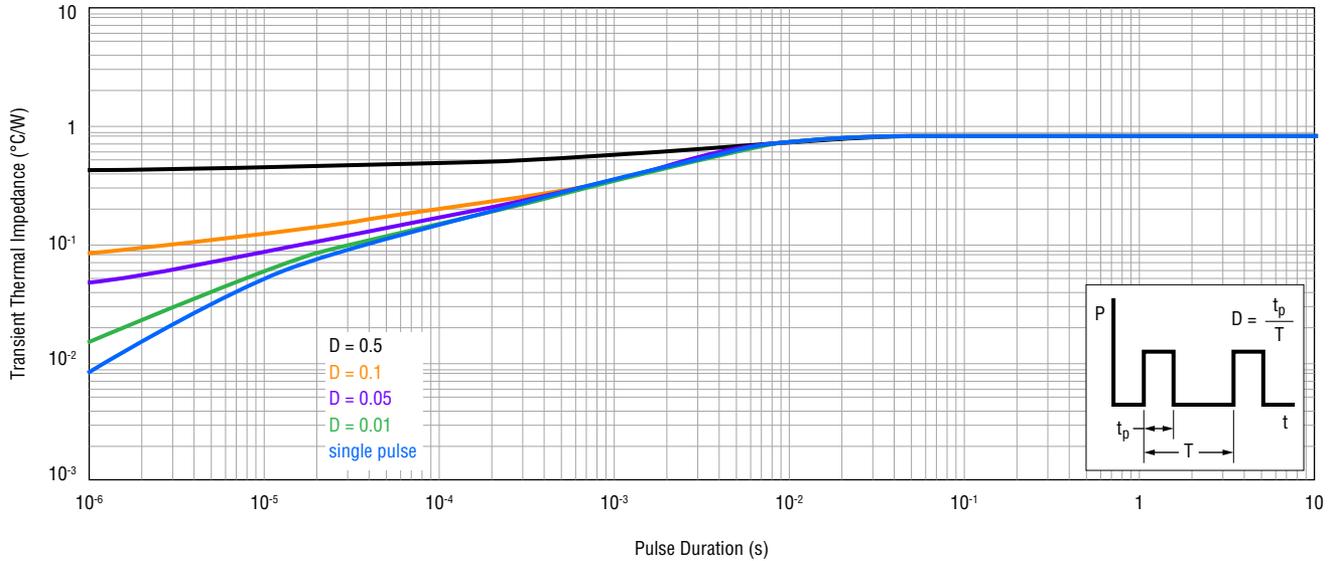
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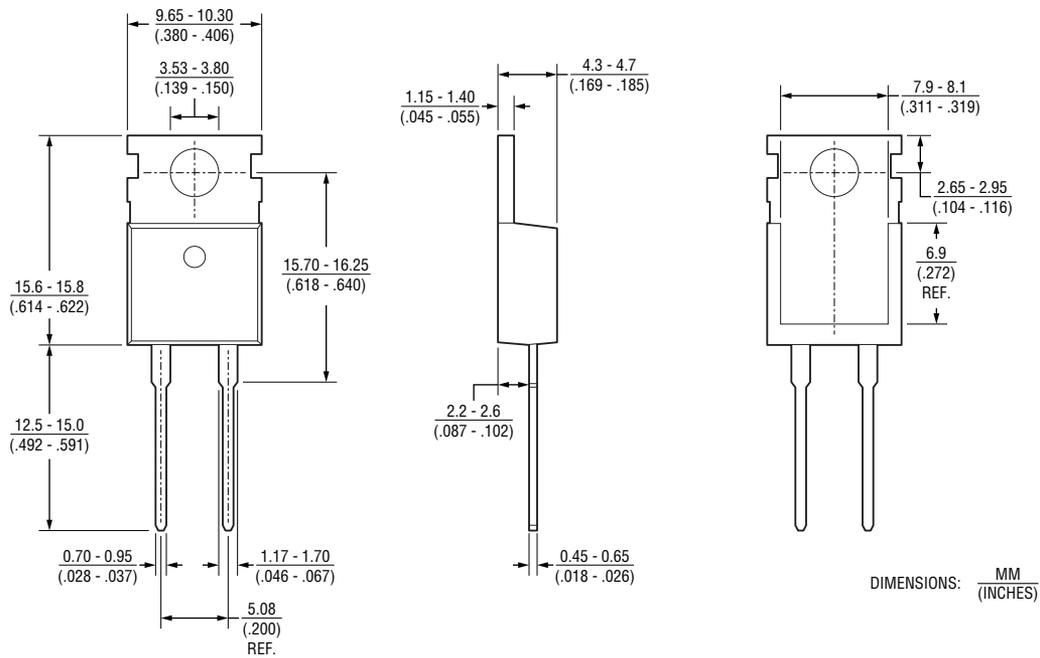
BOURNS®

Transient Thermal Impedance, $Z_{th(J-mb)}$, per Diode



Product Dimensions

Package: TO220-2



Specifications are subject to change without notice.

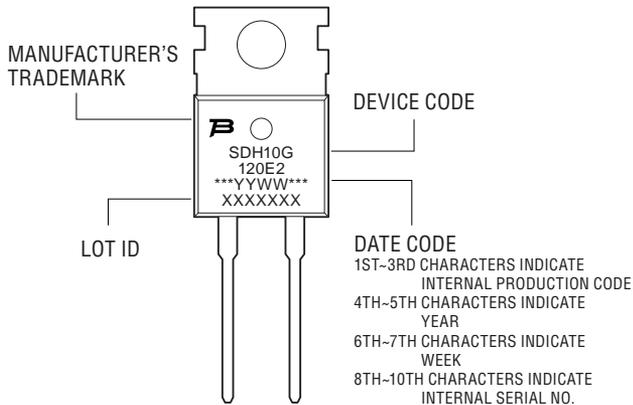
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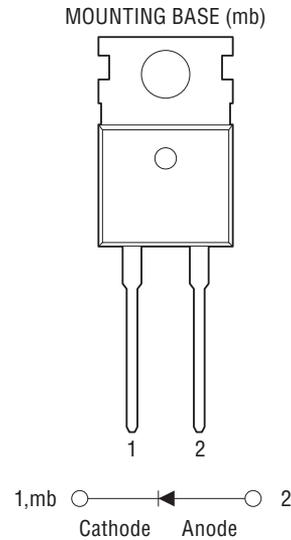
BSDH10G120E2 Silicon Carbide Schottky Diode

BOURNS®

Typical Part Marking



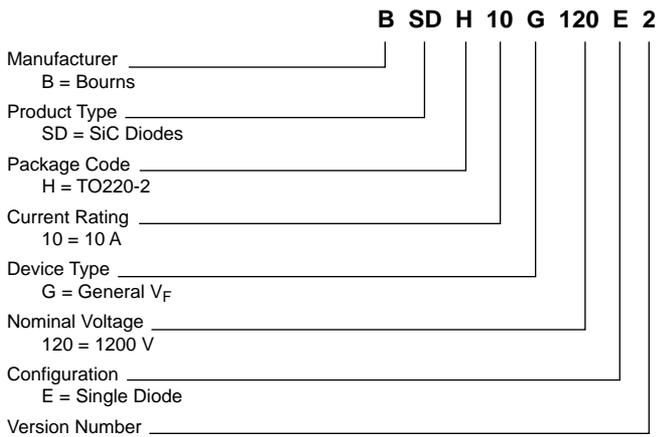
Pin Information



Environmental Specifications

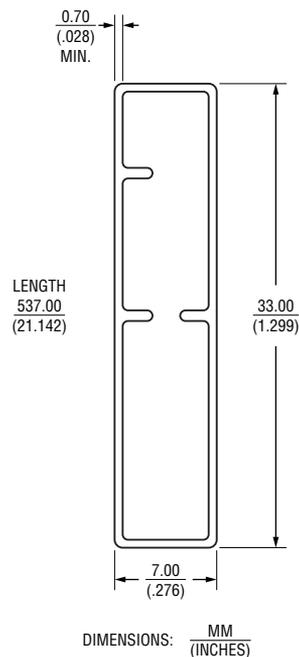
ESD Classification (HBM).....3B

How to Order



Packaging Specifications

50 pcs./tube



BOURNS®

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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

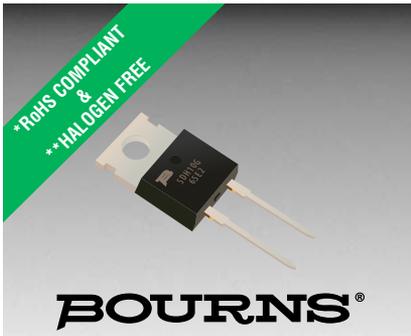
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- RoHS compliant*, Pb free and halogen free**

Applications

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Additional Information

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Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Average Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 130\text{ °C}$, Fig. Zth(J-mb))	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 130\text{ °C}$, $t_p = 25\ \mu s$, Fig. Zth(J-mb))	I_{FRM}	20	A
Non-Repetitive Peak Forward Surge Current (10 ms, Single Sine-Wave Pulse)	I_{FSM}	60	A
Total Power Dissipation	P_{tot}	107.1	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		60	°C/W
	Junction to Mounting Base	$R_{\theta(J-mb)}$	Transient thermal impedance curves		1.15	

Electrical Characteristics (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 10\text{ A}$, $T_J = 25\text{ °C}$ $I_F = 10\text{ A}$, $T_J = 175\text{ °C}$		1.45 2.0	1.7 2.3	V
Reverse Leakage Current	I_R	$V_R = 650\text{ V}$, $T_J = 25\text{ °C}$ $V_R = 650\text{ V}$, $T_J = 175\text{ °C}$		0.5 25	50 250	μA
Recovered Charge	Q_r	$di_F/dt = 500\text{ A}/\mu s$, $V_R = 400\text{ V}$, $I_F = 10\text{ A}$		14.5		nC
Diode Capacitance	C_d	$V_R = 1\text{ V}$, $f = 1\text{ MHz}$		323		pF
Capacitance Stored Energy	E_c	$V_R = 400\text{ V}$		3.4		μJ



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

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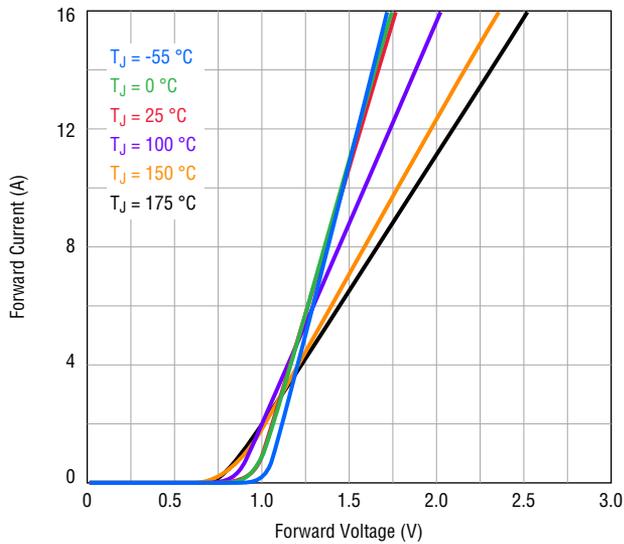
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BSDH10G65E2 Silicon Carbide Schottky Diode

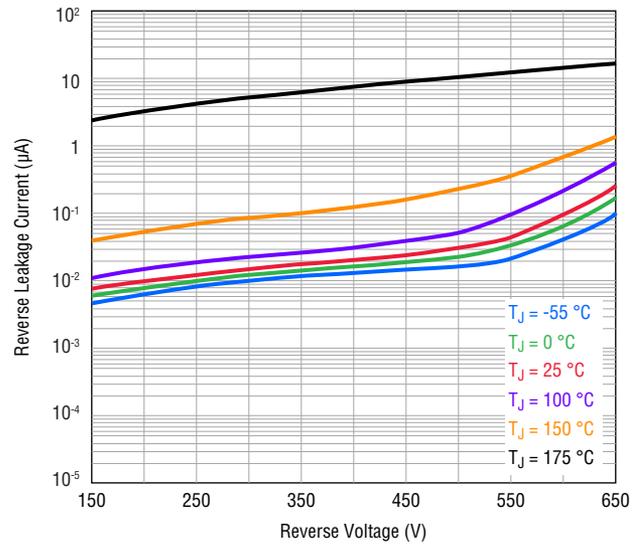


Rating and Characteristic Curves ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)

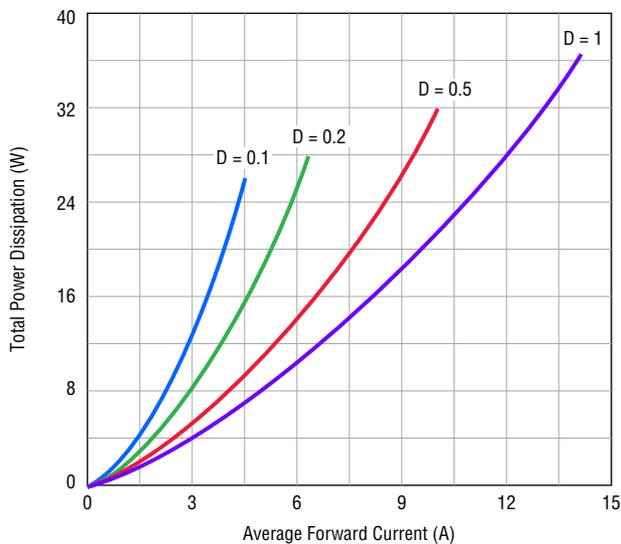
Typical Forward Characteristics



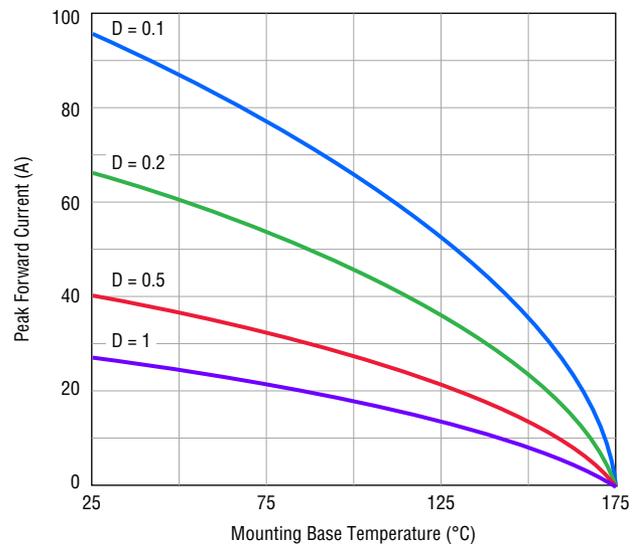
Typical Reverse Characteristics



Forward Power Dissipation



Forward Current Derating

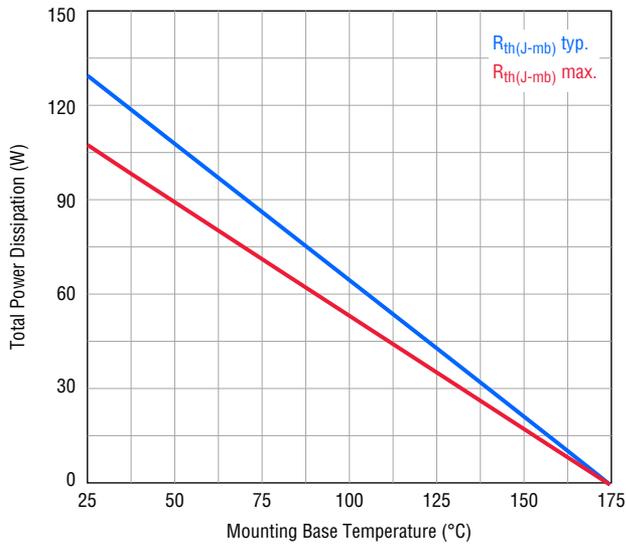


BSDH10G65E2 Silicon Carbide Schottky Diode

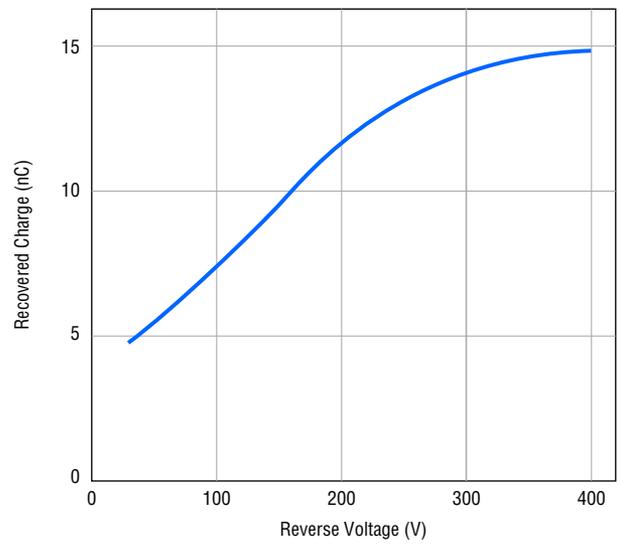


Rating and Characteristic Curves (Continued)

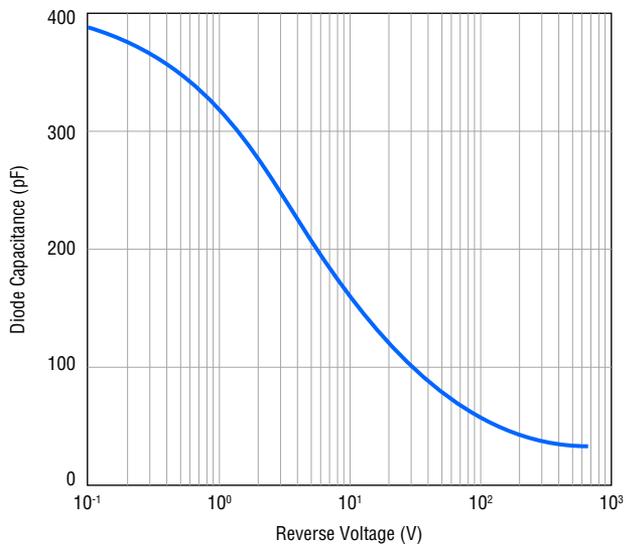
Power Derating



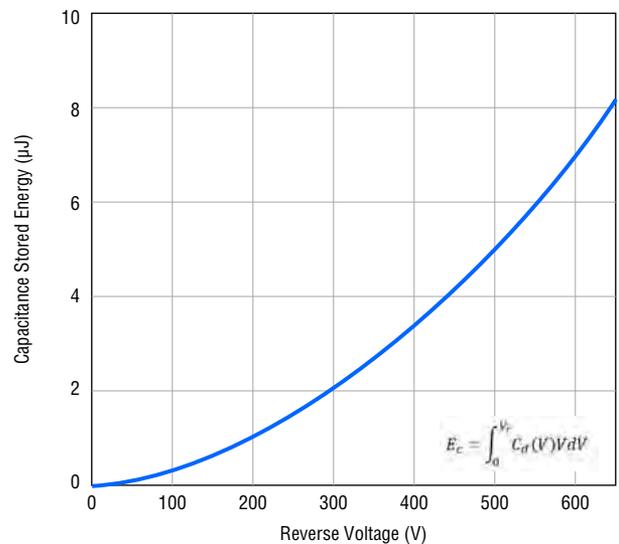
Typical Recovered Charge vs V_R



Typical Diode Capacitance vs V_R



Typical Capacitance Stored Energy vs V_R



Specifications are subject to change without notice.

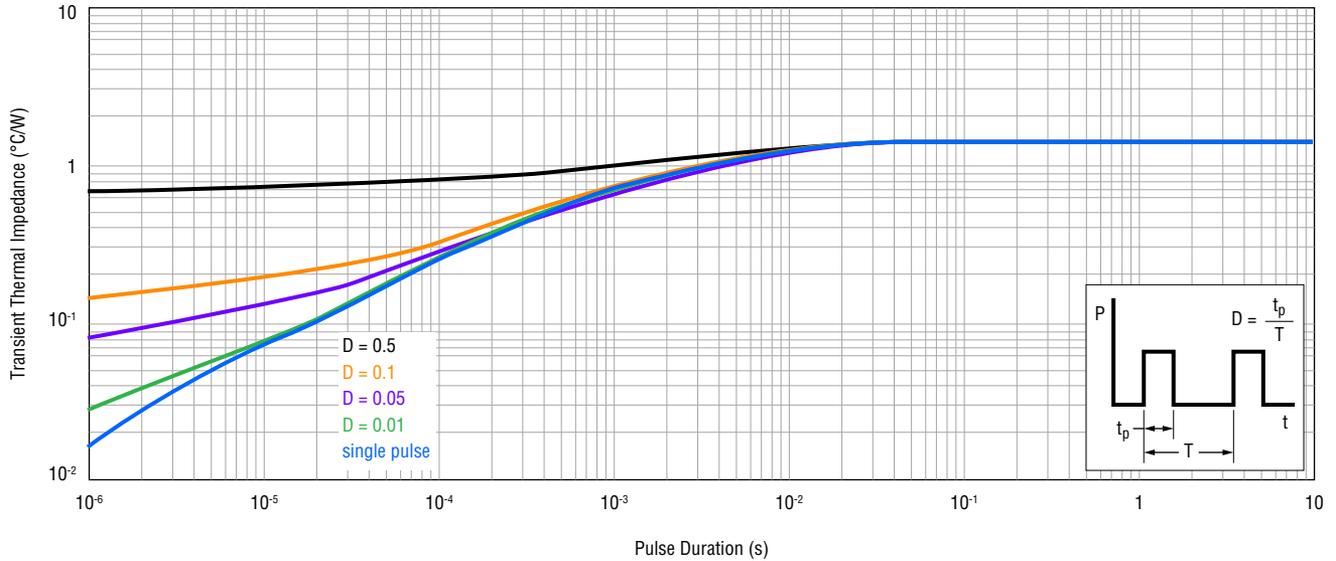
Users should verify actual device performance in their specific applications.

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BSDH10G65E2 Silicon Carbide Schottky Diode

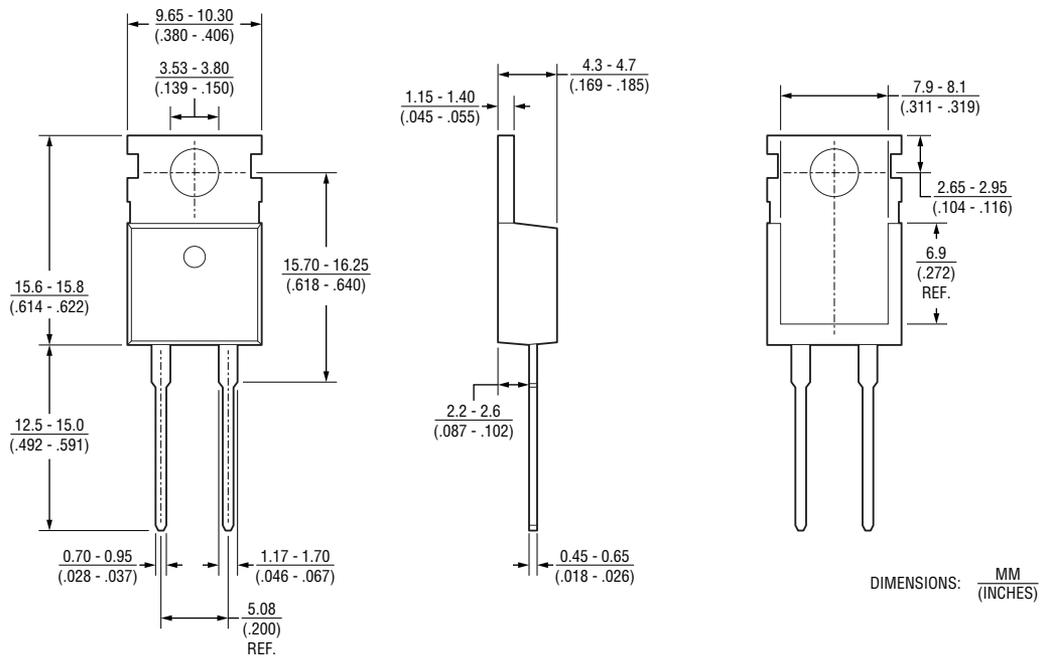
BOURNS®

Transient Thermal Impedance, $Z_{th(J-mb)}$



Product Dimensions

Package: TO220-2



Specifications are subject to change without notice.

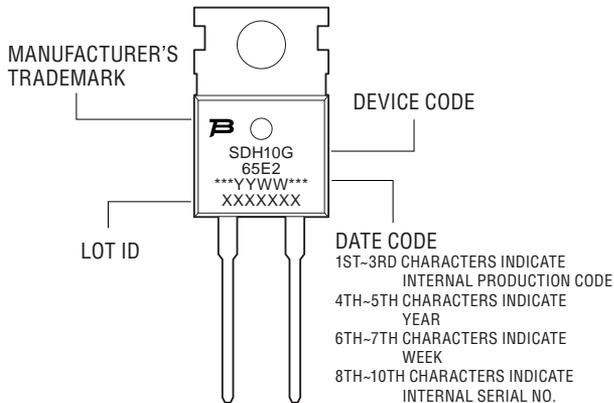
Users should verify actual device performance in their specific applications.

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BSDH10G65E2 Silicon Carbide Schottky Diode

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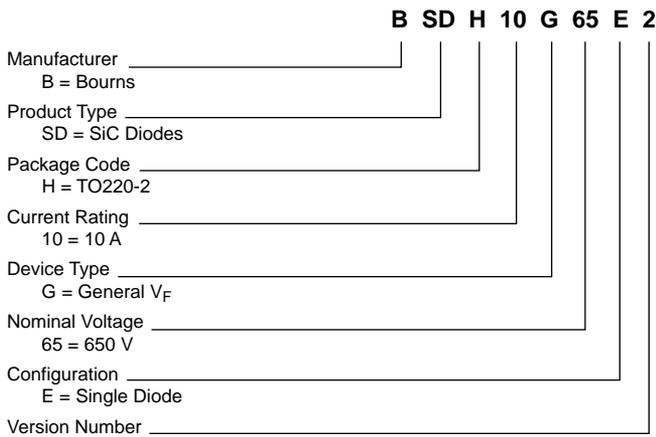
Typical Part Marking



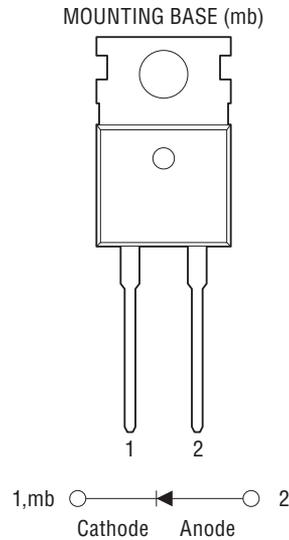
Environmental Specifications

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

How to Order

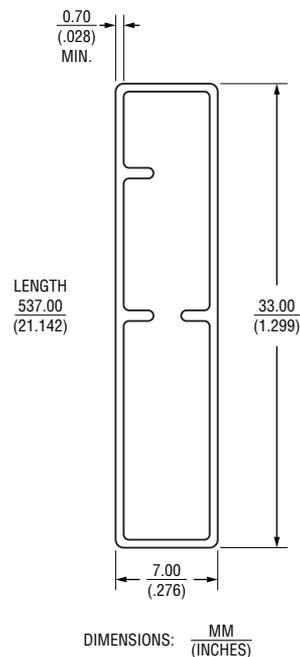


Pin Information



Packaging Specifications

50 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

www.bourns.com

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Features

- High efficiency with low power loss
- Low reverse leakage current
- High peak forward surge current capability
 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

BSDL10S65E6 Silicon Carbide Schottky Diode

General Information

Bourns® Model BSDL10S65E6 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 BSDL10S65E6 is available in a DFN8x8 package, well-suited for high frequency Switched-Mode Power Supplies.

Additional Information

Click these links for more information:



Absolute Maximum Ratings (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	BSDL10S65E6	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Average Forward Current (Square Wave Pulse, $D = 0.5$, $T_c \leq 153\text{ °C}$, Fig. Zth(J-c))	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current (Square Wave Pulse, $D = 0.5$, $T_c \leq 153\text{ °C}$, $t_p = 25\ \mu s$, Fig. Zth(J-c))	I_{FRM}	20	A
Non-Repetitive Peak Forward Surge Current (10 ms, Single Sine-Wave Pulse)	I_{FSM}	75	A
Total Power Dissipation	P_{tot}	157.8	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		60	°C/W
	Junction to Case	$R_{\theta(J-C)}$	Transient thermal impedance curves		0.7 0.95	

Electrical Characteristics (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 10\text{ A}$, $T_J = 25\text{ °C}$ $I_F = 10\text{ A}$, $T_J = 175\text{ °C}$		1.29 1.5	1.45 1.7	V
Reverse Leakage Current	I_R	$V_R = 650\text{ V}$, $T_J = 25\text{ °C}$ $V_R = 650\text{ V}$, $T_J = 175\text{ °C}$		1 15	50 200	μA
Recovered Charge	Q_r	$di_F/dt = 500\text{ A}/\mu s$, $V_R = 400\text{ V}$, $I_F = 10\text{ A}$		24		nC
Diode Capacitance	C_d	$V_R = 1\text{ V}$, $f = 1\text{ MHz}$		500		pF
Capacitance Stored Energy	E_c	$V_R = 400\text{ V}$		4.9		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.

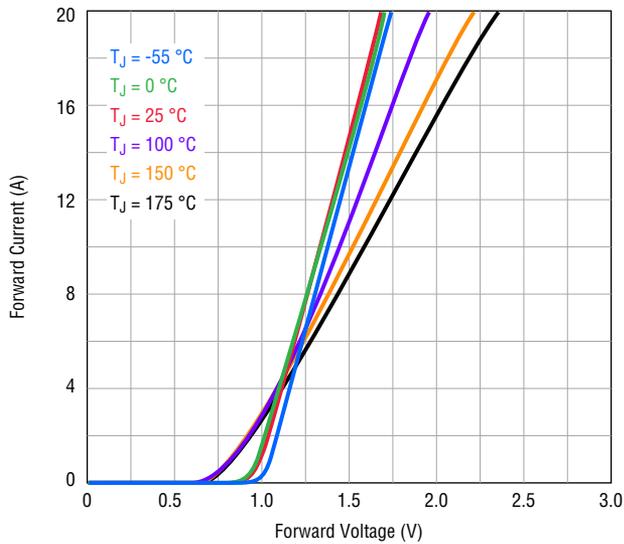
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BSDL10S65E6 Silicon Carbide Schottky Diode

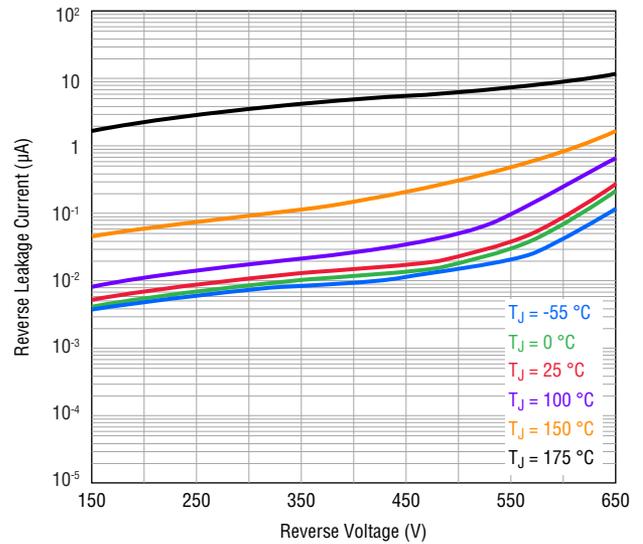


Rating and Characteristic Curves ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)

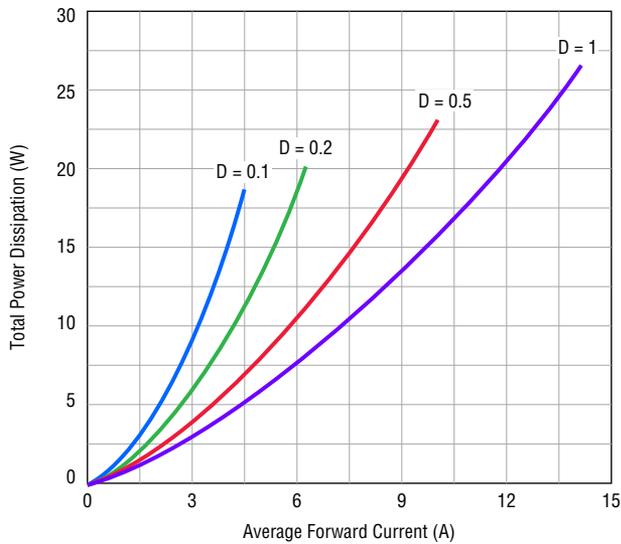
Typical Forward Characteristics



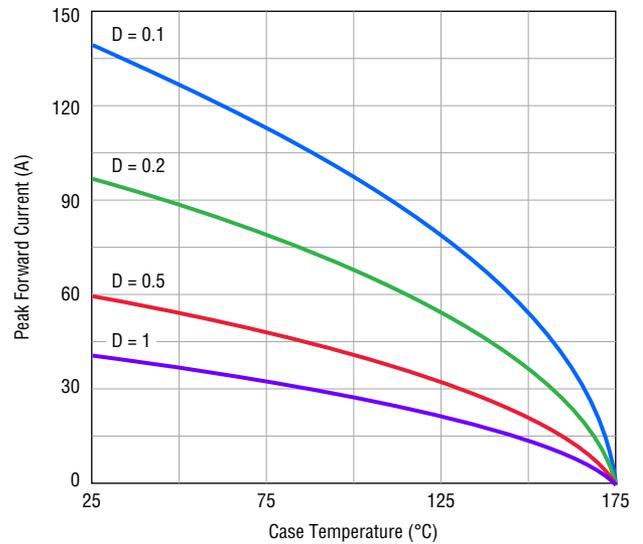
Typical Reverse Characteristics



Forward Power Dissipation



Forward Current Derating



Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

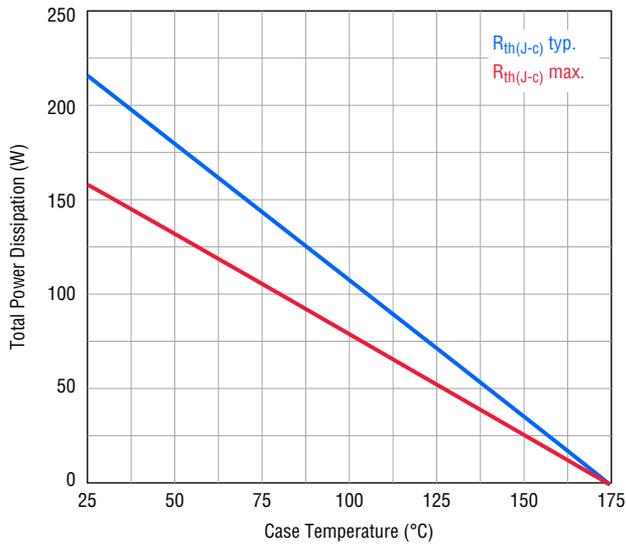
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BSDL10S65E6 Silicon Carbide Schottky Diode

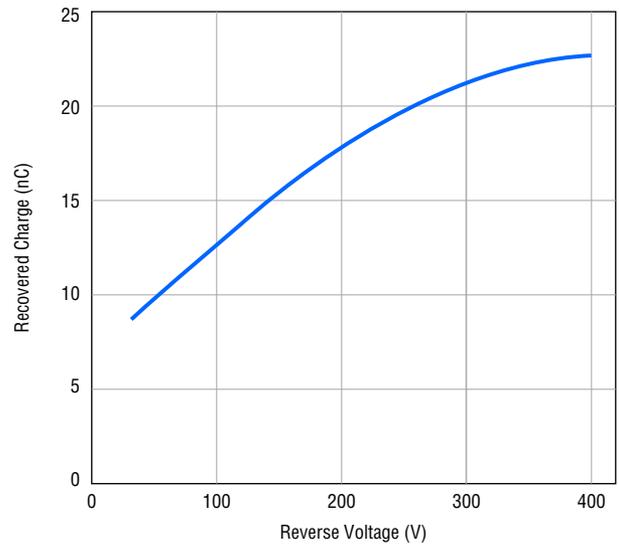


Rating and Characteristic Curves (Continued)

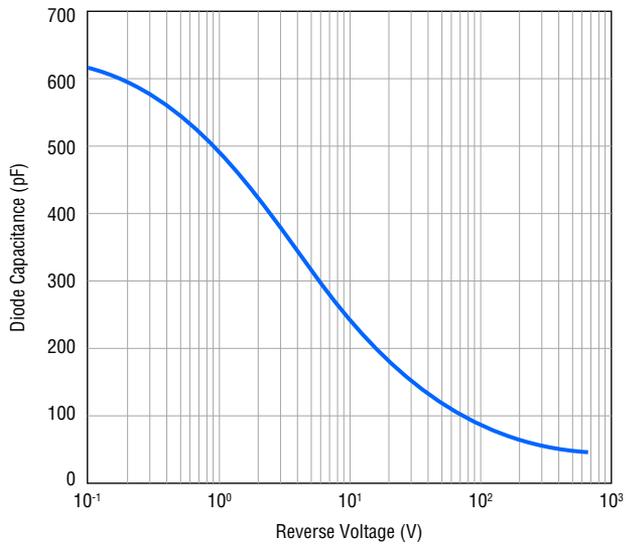
Power Derating



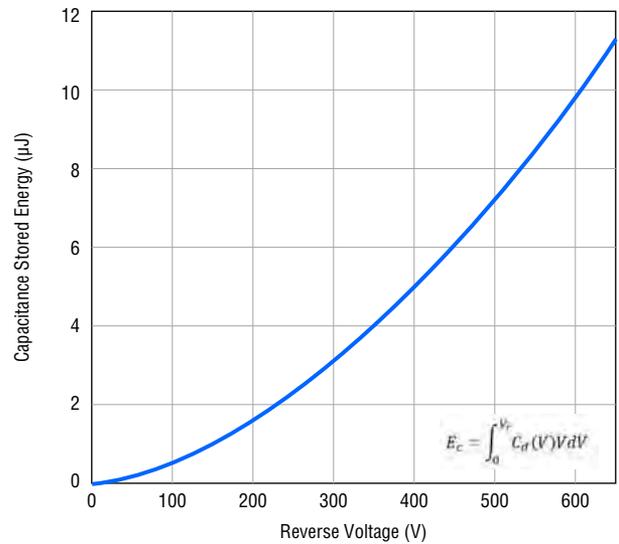
Typical Recovered Charge vs V_R



Typical Diode Capacitance vs V_R



Typical Capacitance Stored Energy vs V_R



Specifications are subject to change without notice.

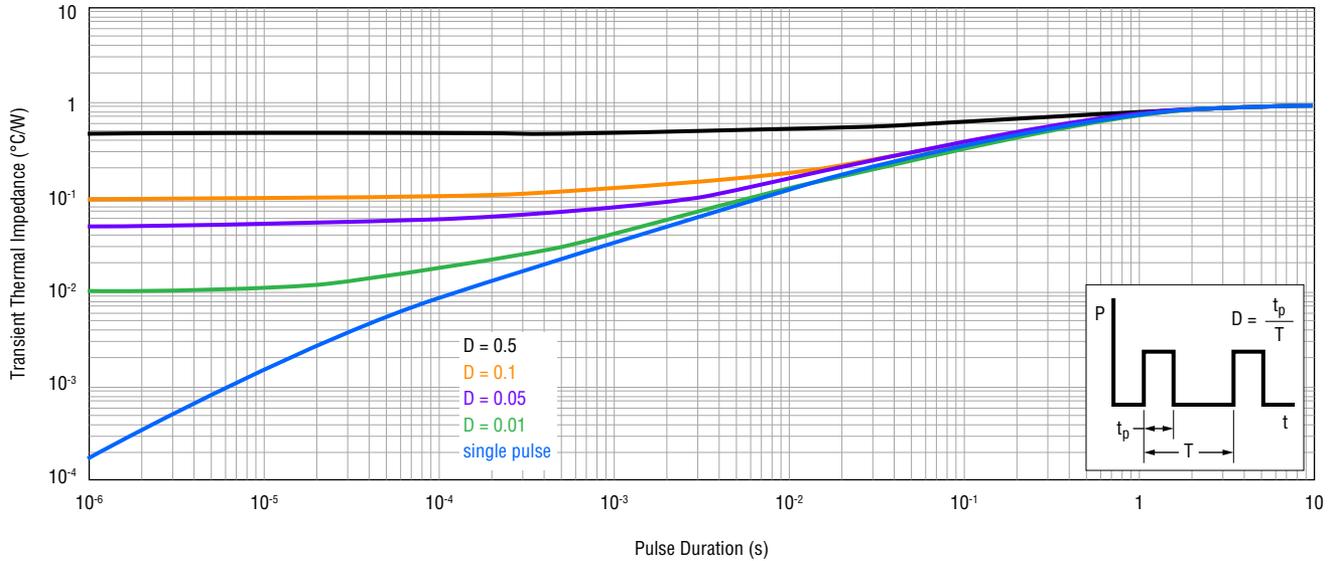
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BSDL10S65E6 Silicon Carbide Schottky Diode

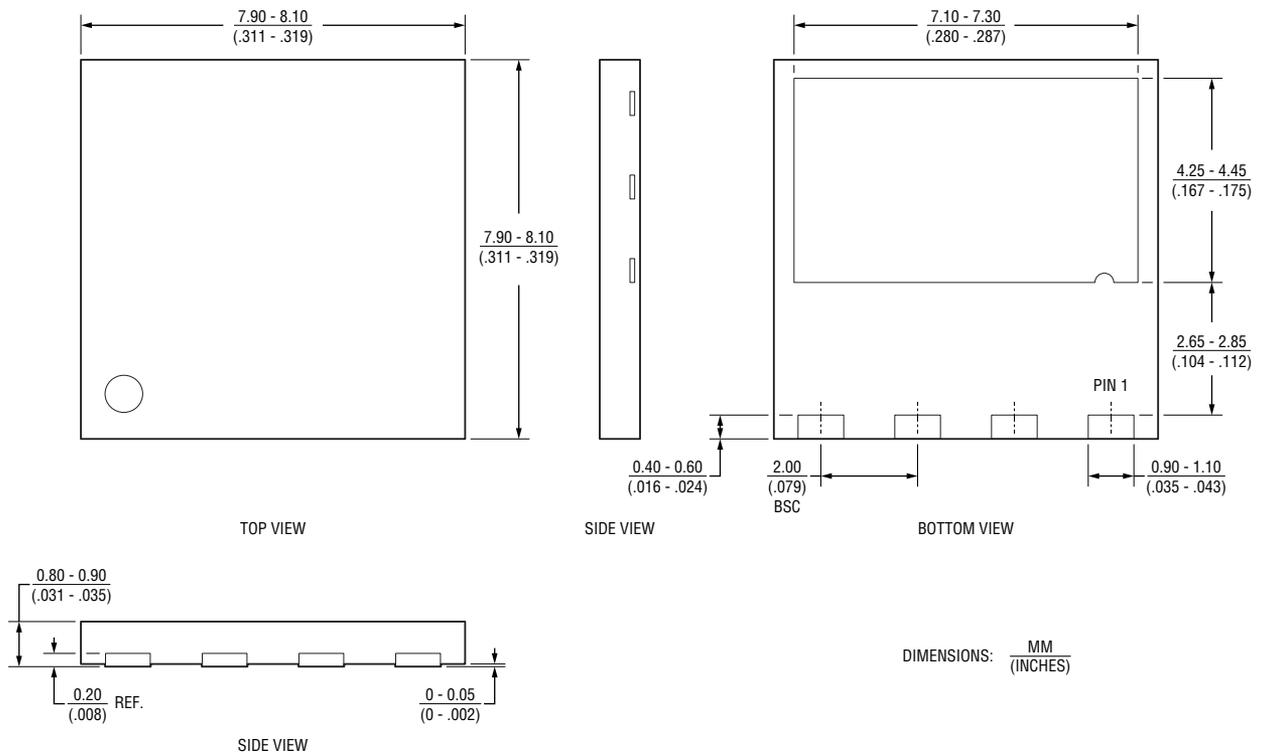
BOURNS®

Transient Thermal Impedance, $Z_{th(J-c)}$



Product Dimensions

Package: DFN8X8



Specifications are subject to change without notice.

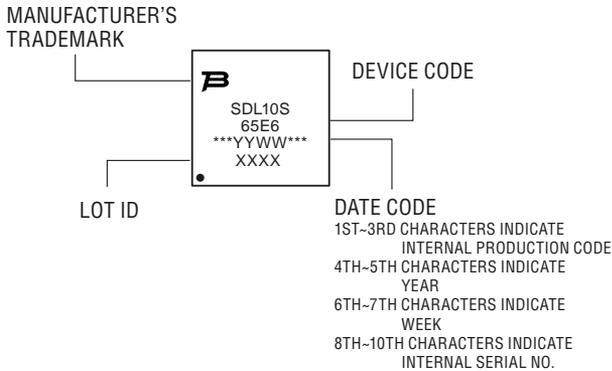
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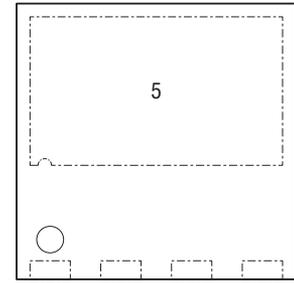
BSDL10S65E6 Silicon Carbide Schottky Diode



Typical Part Marking



Pin Information



5(mb) Cathode Anode 3,4

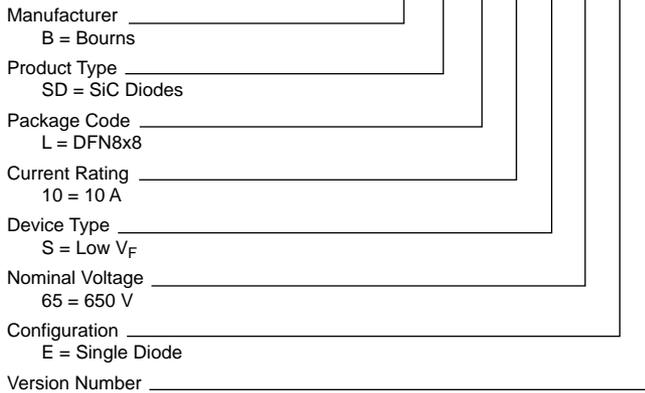
1,2: N.C. (Not Connected)

Environmental Specifications

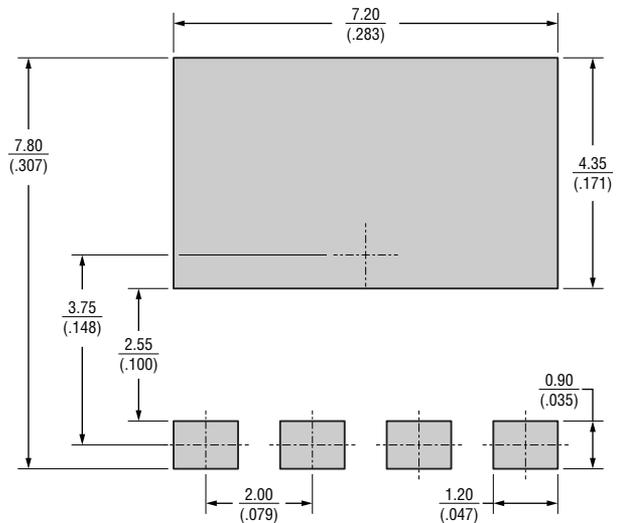
ESD Classification (HBM).....3B

How to Order

B S D L 10 S 65 E 6



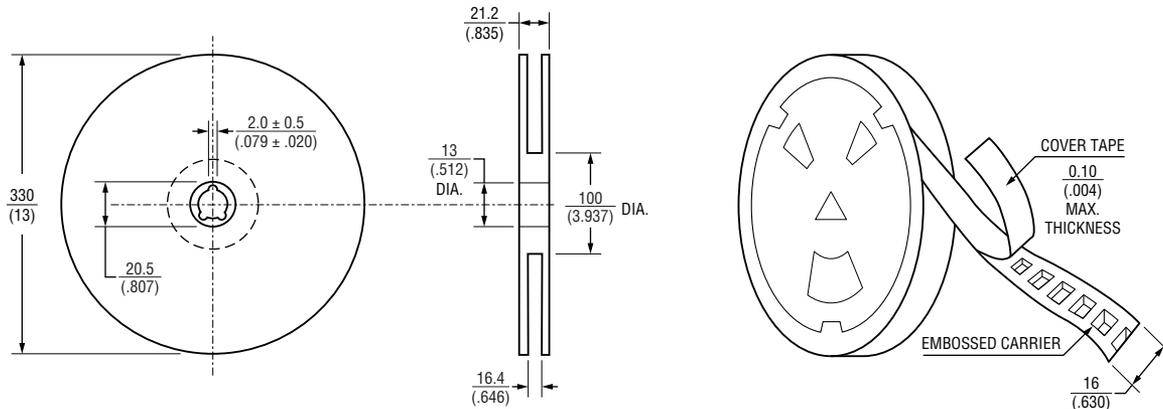
Recommended Footprint



BSDL10S65E6 Silicon Carbide Schottky Diode

BOURNS®

Packaging Specifications



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

USER DIRECTION OF FEED →
QTY: 3,000 PCS PER REEL

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

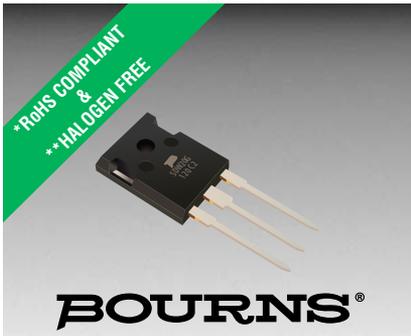
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Features

- High efficiency with low power loss
- Low reverse leakage current
- High peak forward surge current capability
 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

BSDW20G120C2 Silicon Carbide Schottky Diode

General Information

Bourns® Model BSDW20G120C2 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 BSDW20G120C2 is available in a TO247-3 package, well-suited for high frequency Switched-Mode Power Supplies.

Additional Information

Click these links for more information:



Absolute Maximum Ratings (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	BSDW20G120C2	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V
Average Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 138\text{ °C}$, dual diodes conducting, Fig. Zth(J-mb))	$I_{F(AV)}$	20	A
Repetitive Peak Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 141\text{ °C}$, $t_p = 25\text{ }\mu\text{s}$, per diode, 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 (dual diodes conducting, per device)	P_{tot}	272.7	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		0.84	
			Transient thermal impedance curves, per device		0.45	

Electrical Characteristics (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	Condition or Model	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 10\text{ A}$, $T_J = 25\text{ °C}$, per diode $I_F = 10\text{ A}$, $T_J = 175\text{ °C}$, per diode		1.42 2.0	1.6 2.5	V
Reverse Leakage Current	I_R	$V_R = 1200\text{ V}$, $T_J = 25\text{ °C}$, per diode $V_R = 1200\text{ V}$, $T_J = 175\text{ °C}$, per diode		1 25	50 500	μA
Recovered Charge	Q_r	$di_F/dt = 500\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $I_F = 10\text{ A}$, per diode		22		nC
Diode Capacitance	C_d	$V_R = 1\text{ V}$, $f = 1\text{ MHz}$, per diode		481		pF
Capacitance Stored Energy	E_c	$V_R = 800\text{ V}$		13.8		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.

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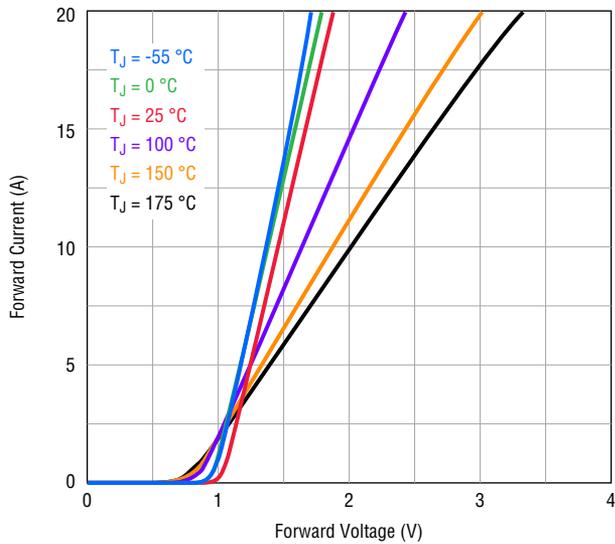
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BSDW20G120C2 Silicon Carbide Schottky Diode

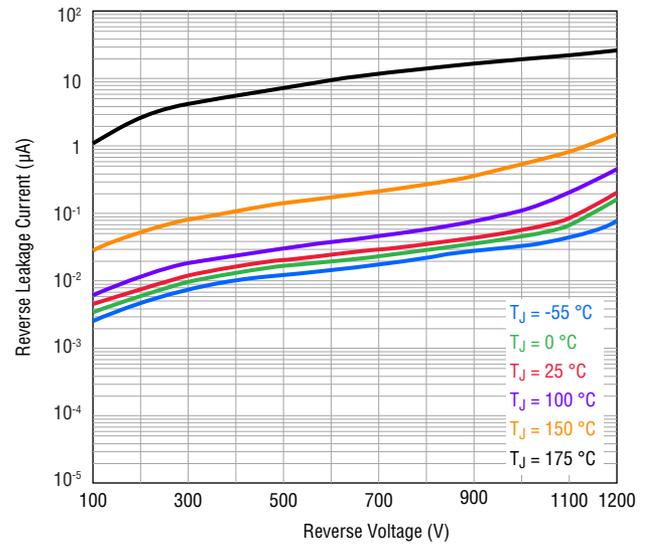


Rating and Characteristic Curves ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)

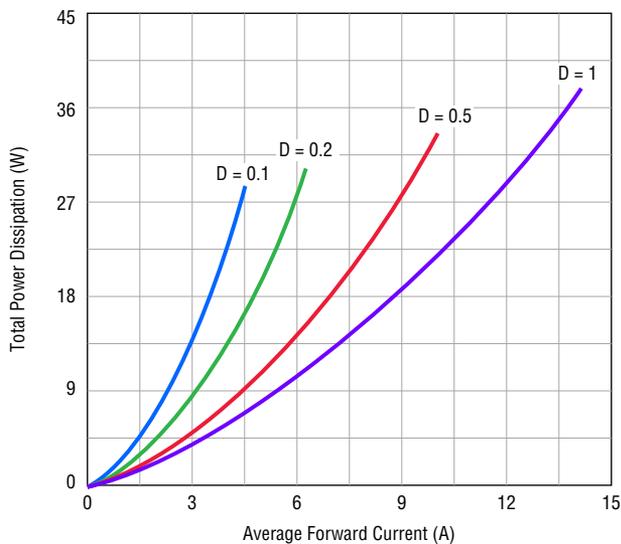
Typical Forward Characteristics, per Diode



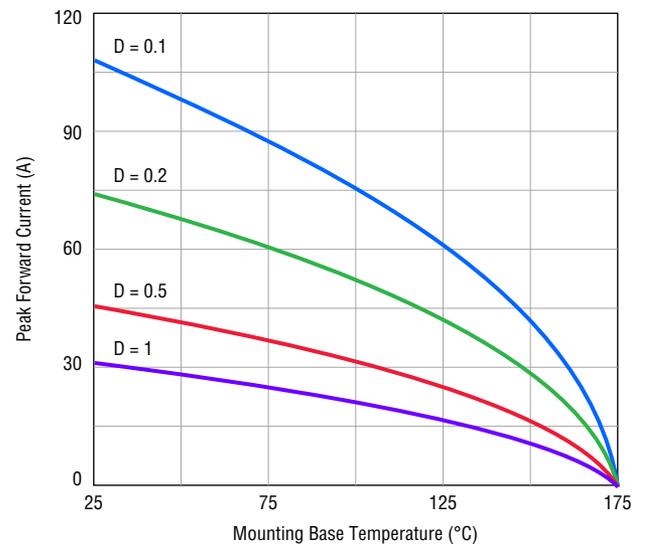
Typical Reverse Characteristics, per Diode



Forward Power Dissipation, per Diode



Forward Current Derating, per Diode



Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

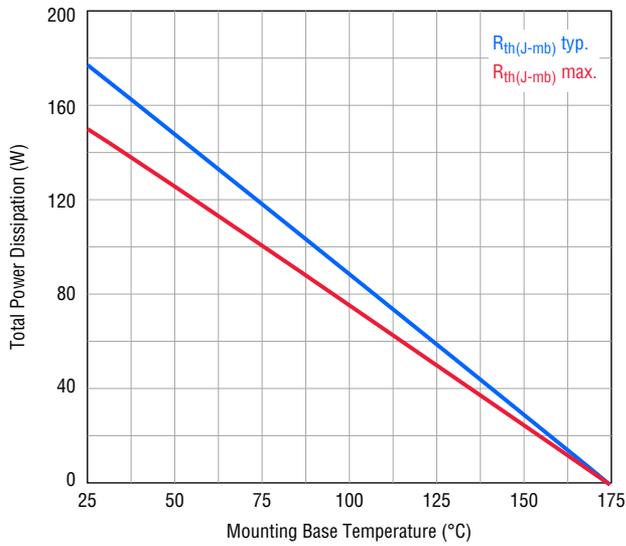
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BSDW20G120C2 Silicon Carbide Schottky Diode

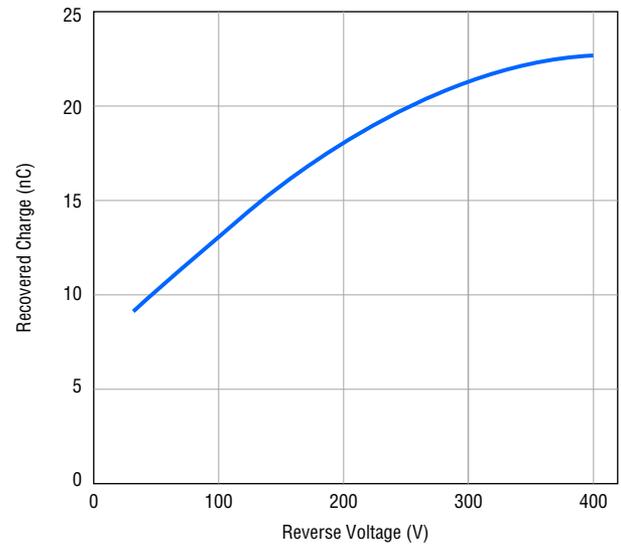


Rating and Characteristic Curves (Continued)

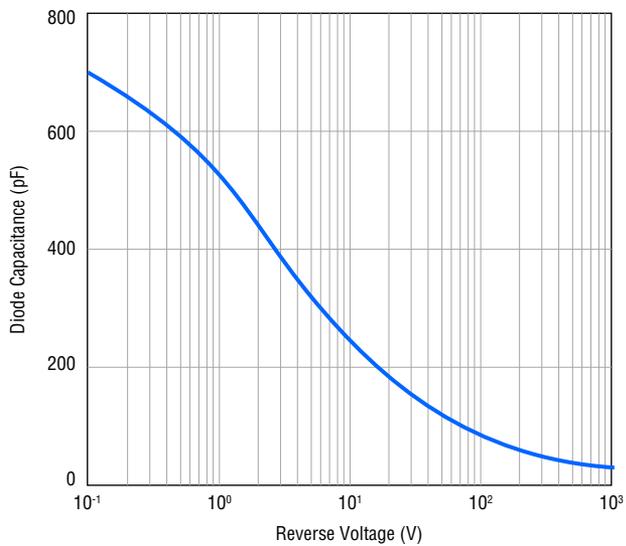
Power Derating, per Diode



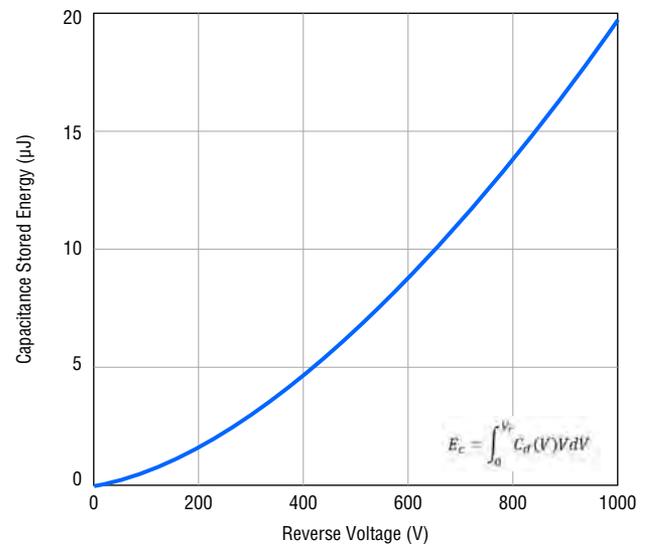
Typical Recovered Charge vs V_R , per Diode



Typical Diode Capacitance vs V_R , per Diode



Typical Capacitance Stored Energy vs V_R , per Diode



Specifications are subject to change without notice.

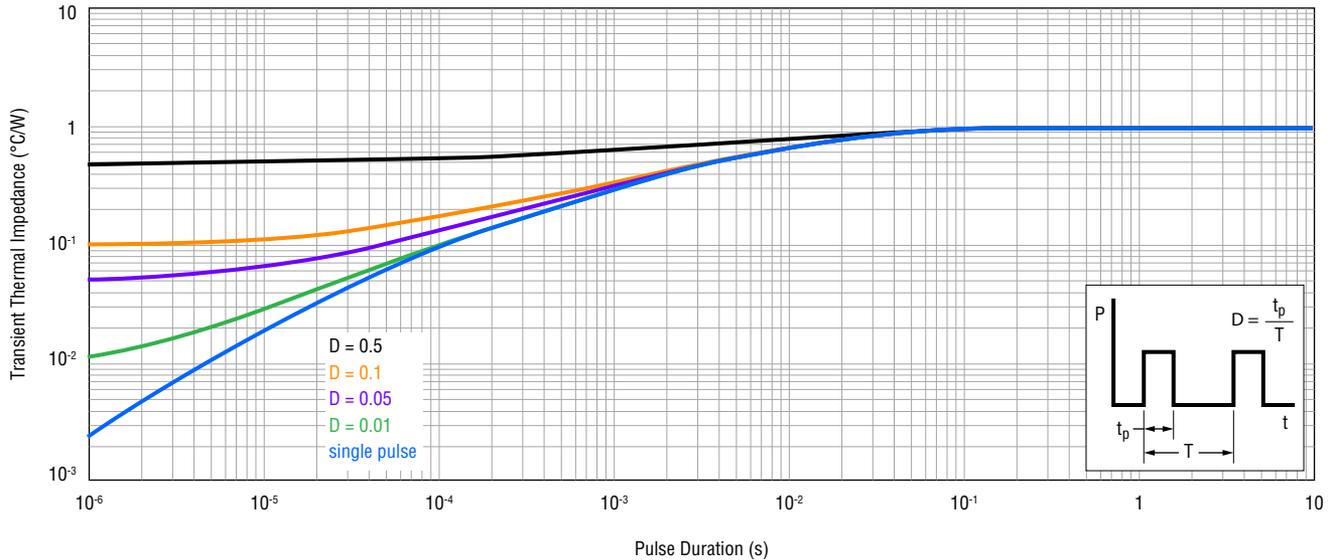
Users should verify actual device performance in their specific applications.

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BSDW20G120C2 Silicon Carbide Schottky Diode

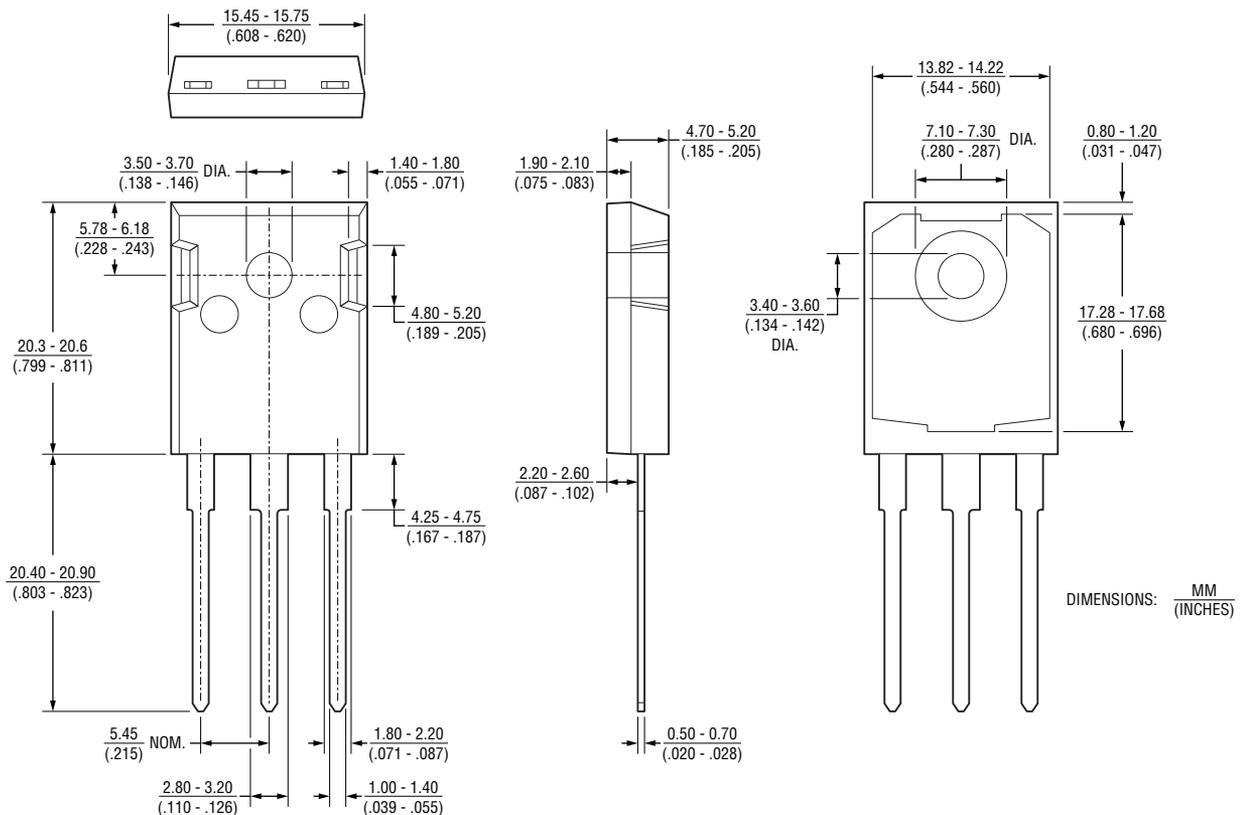
BOURNS®

Transient Thermal Impedance, $Z_{th(J-mb)}$, per Diode



Product Dimensions

Package: TO247-3



Specifications are subject to change without notice.

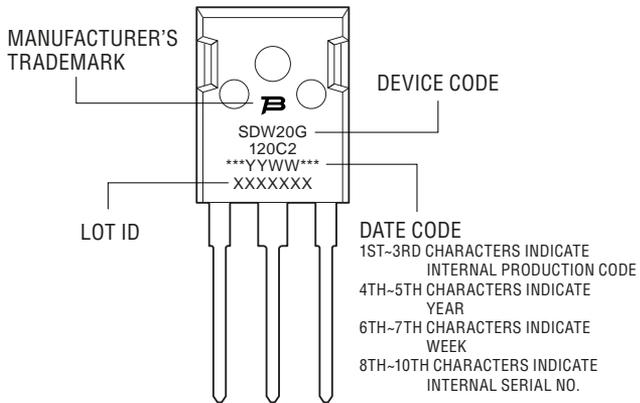
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BSDW20G120C2 Silicon Carbide Schottky Diode

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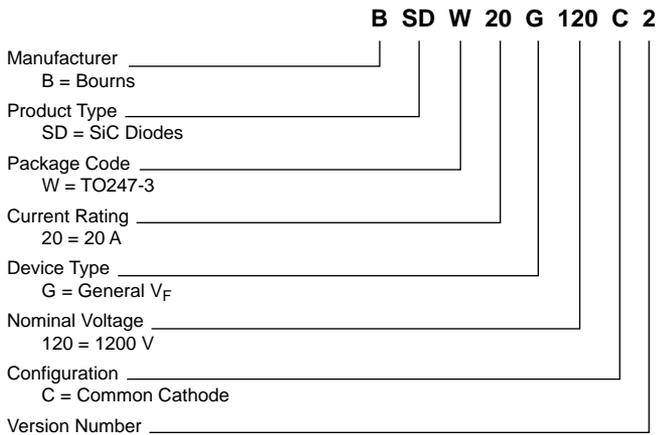
Typical Part Marking



Environmental Specifications

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

How to Order



BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117

Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877

Email: eurocus@bourns.com

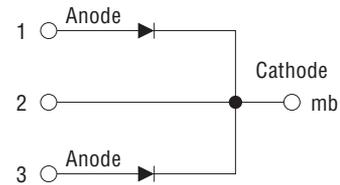
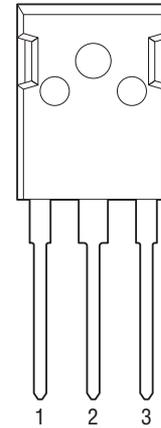
The Americas: Tel: +1-951 781-5500

Email: americus@bourns.com

www.bourns.com

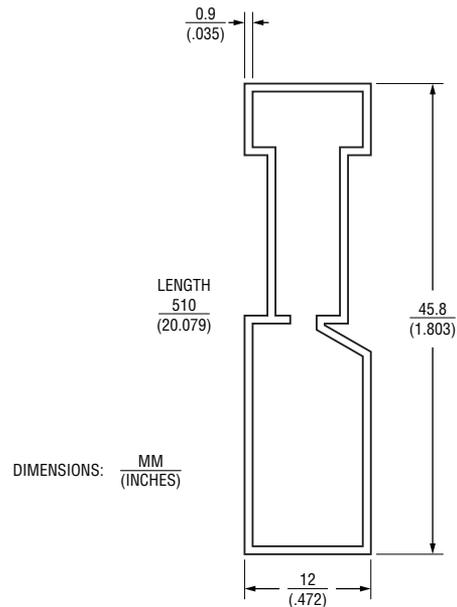
Pin Information

MOUNTING BASE (mb)



Packaging Specifications

30 pcs./tube

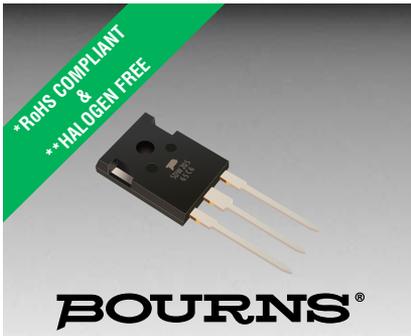


REV. 06/23

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Features

- High efficiency with low power loss
- Low reverse leakage current
- High peak forward surge current capability
 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

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:



Absolute Maximum Ratings (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

Parameter	Symbol	BSDW20S65C6	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Average Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 140\text{ °C}$, dual diodes conducting, Fig. Zth(J-mb))	$I_{F(AV)}$	20	A
Repetitive Peak Forward Current (Square Wave Pulse, $D = 0.5$, $T_{mb} \leq 144\text{ °C}$, $t_p = 25\text{ }\mu\text{s}$, 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	
			Transient thermal impedance curves, per device		0.8	

Electrical Characteristics (@ $T_J = 25\text{ °C}$ Unless Otherwise Noted)

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

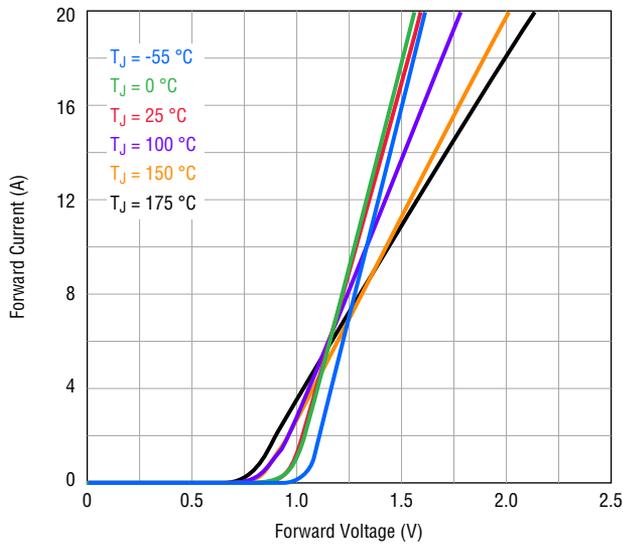
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BSDW20S65C6 Silicon Carbide Schottky Diode

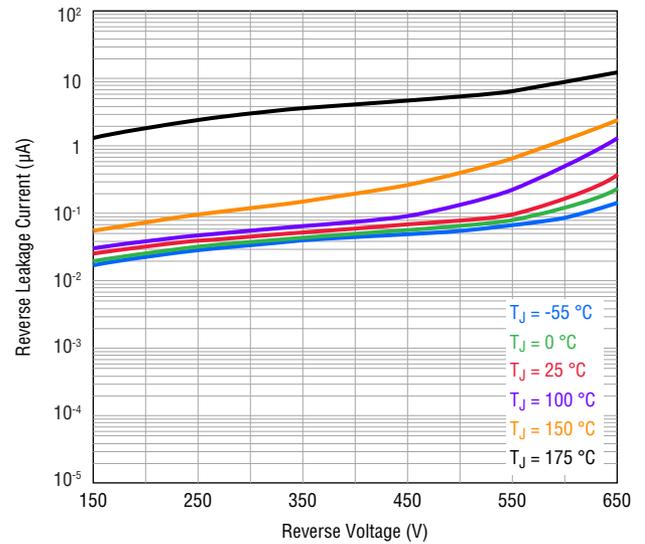


Rating and Characteristic Curves ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)

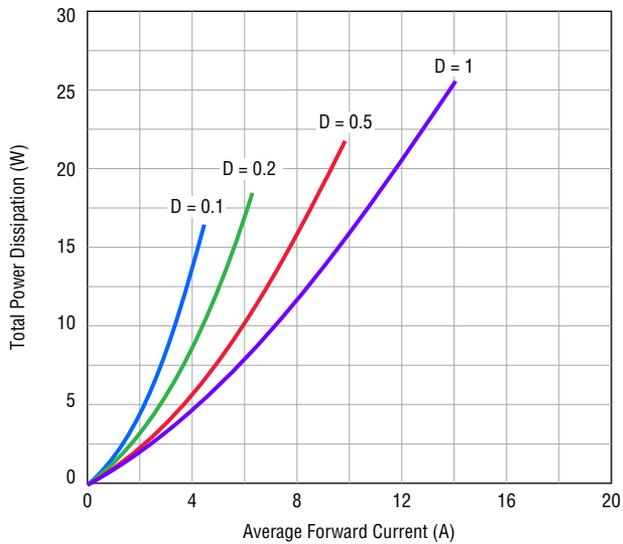
Typical Forward Characteristics, per Diode



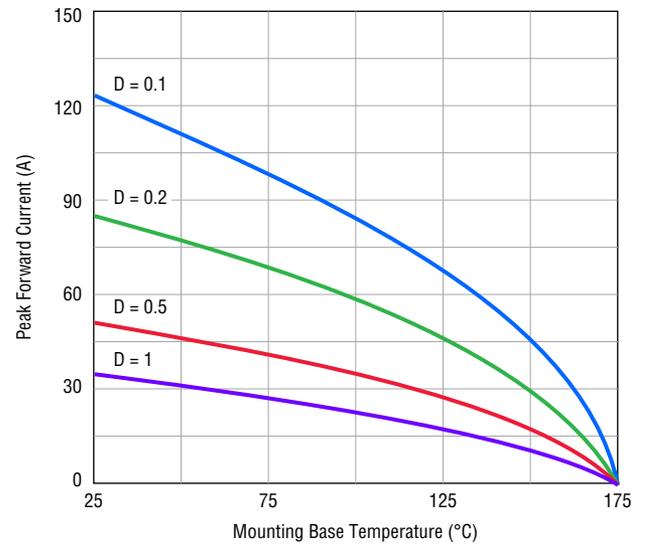
Typical Reverse Characteristics, per Diode



Forward Power Dissipation, per Diode



Forward Current Derating, per Diode

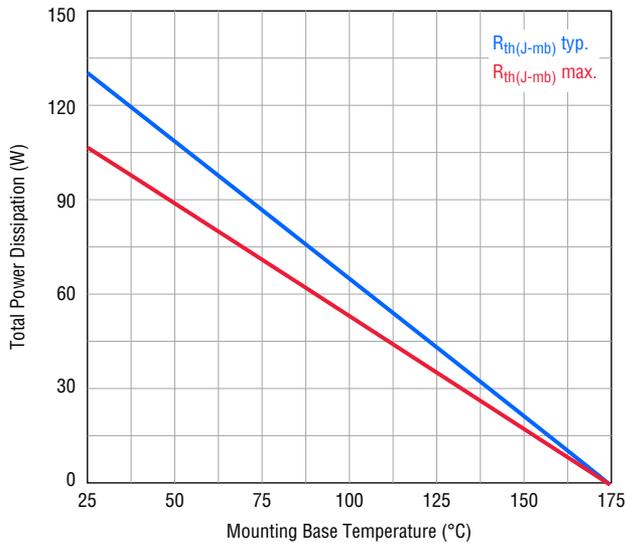


BSDW20S65C6 Silicon Carbide Schottky Diode

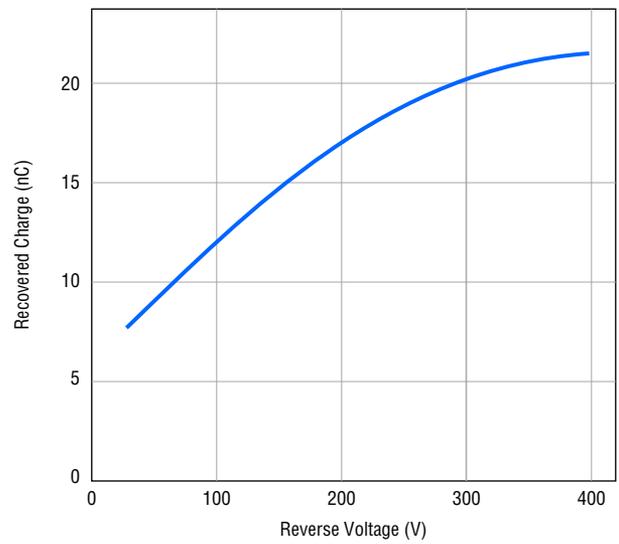


Rating and Characteristic Curves (Continued)

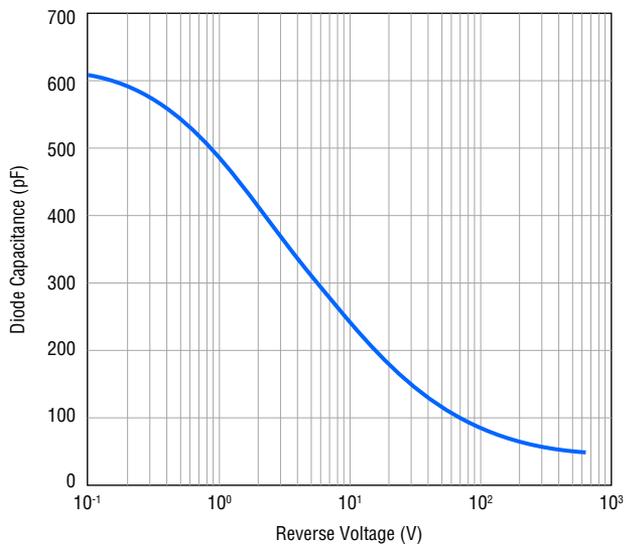
Power Derating, per Diode



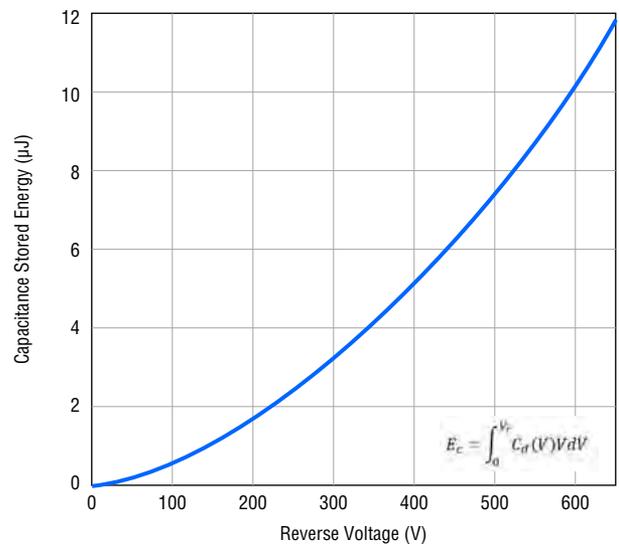
Typical Recovered Charge vs V_R , per Diode



Typical Diode Capacitance vs V_R , per Diode



Typical Capacitance Stored Energy vs V_R , per Diode



Specifications are subject to change without notice.

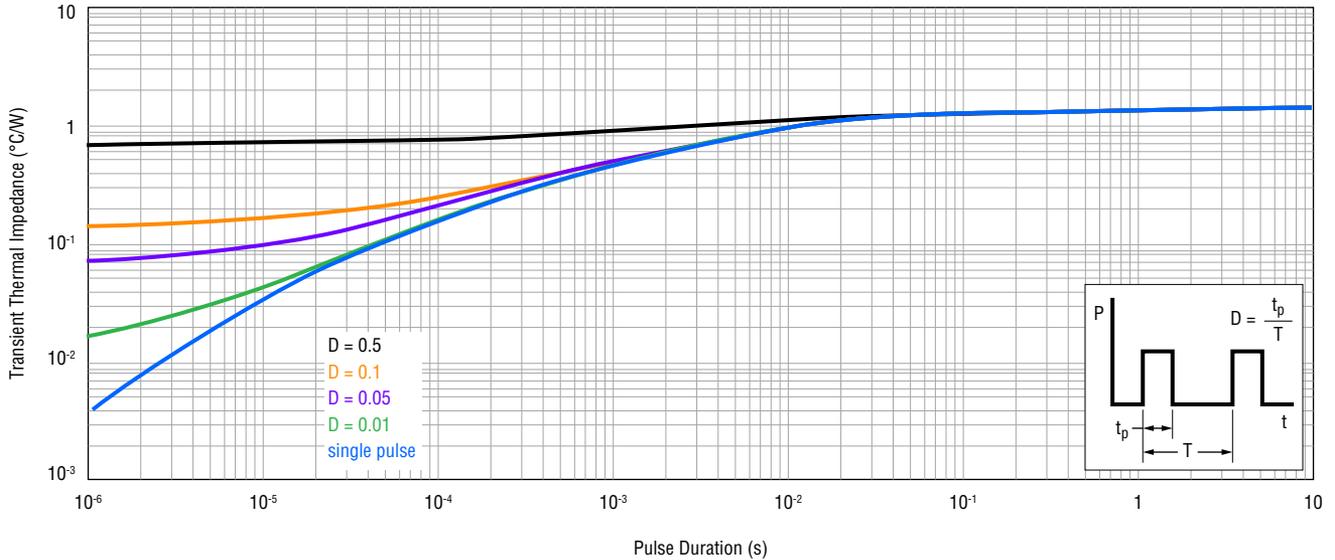
Users should verify actual device performance in their specific applications.

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BSDW20S65C6 Silicon Carbide Schottky Diode

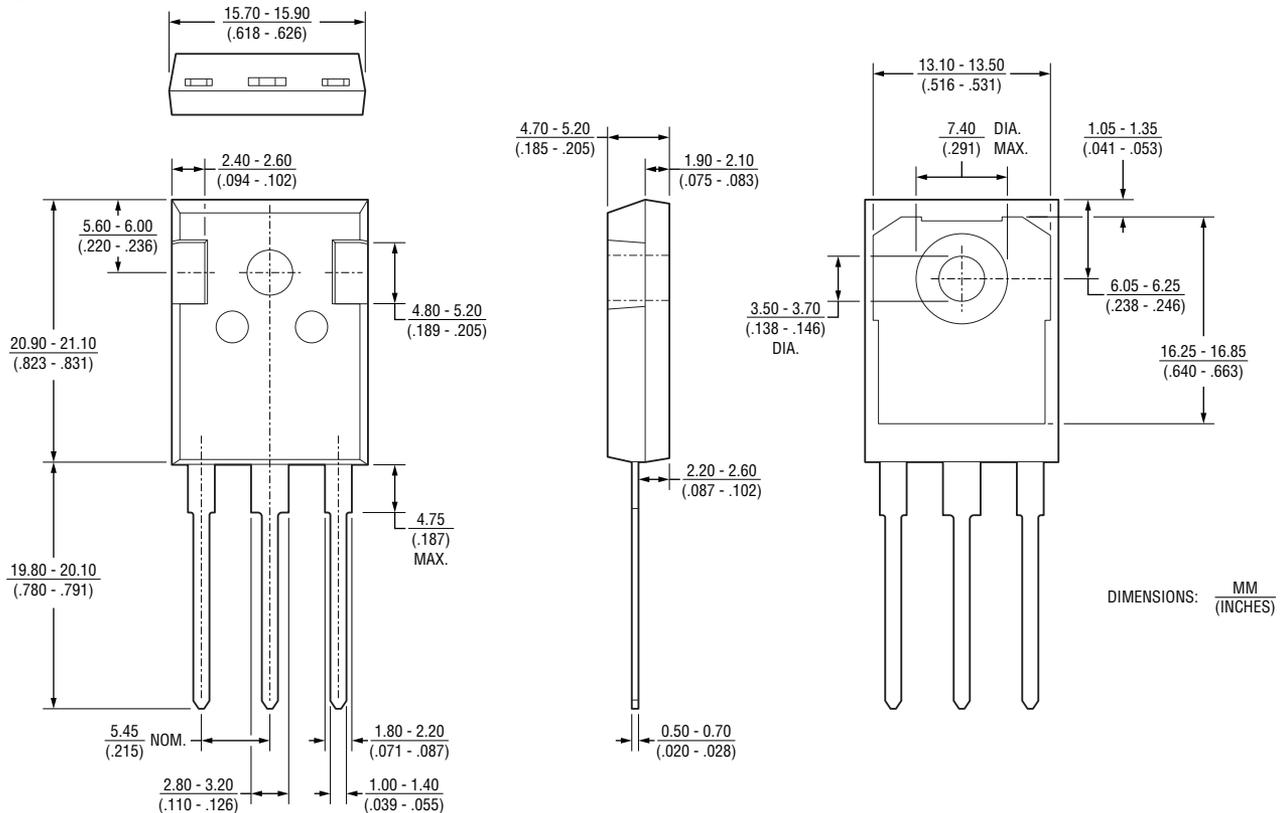
BOURNS®

Transient Thermal Impedance, $Z_{th(J-mb)}$, per Diode



Product Dimensions

Package Version: TO247N-3



Specifications are subject to change without notice.

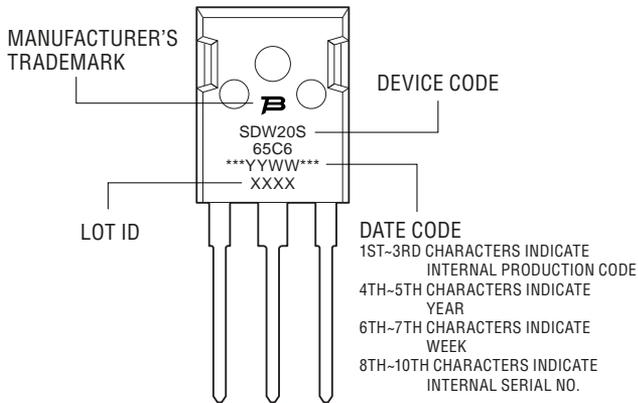
Users should verify actual device performance in their specific applications.

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BSDW20S65C6 Silicon Carbide Schottky Diode



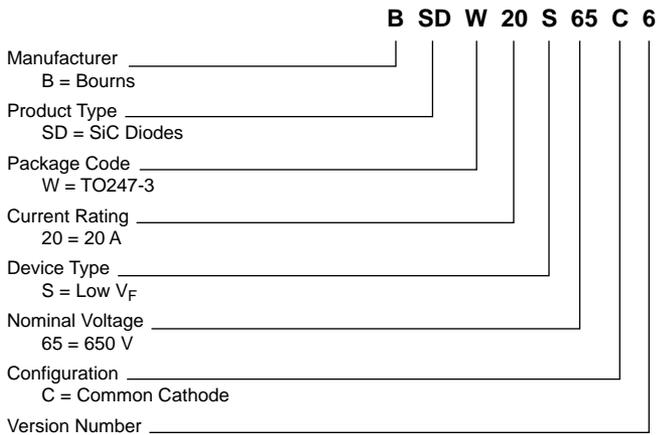
Typical Part Marking



Environmental Specifications

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

How to Order



Asia-Pacific: Tel: +886-2 2562-4117

Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877

Email: eurocus@bourns.com

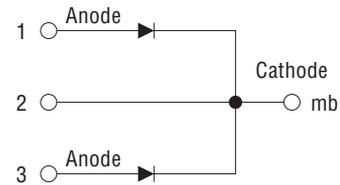
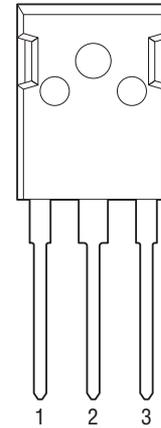
The Americas: Tel: +1-951 781-5500

Email: americus@bourns.com

www.bourns.com

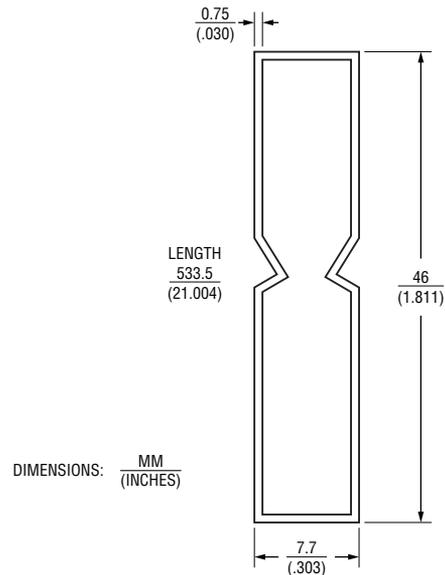
Pin Information

MOUNTING BASE (mb)



Packaging Specifications

30 pcs./tube



REV. 06/23

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