

**Silicon Carbide Power Schottky Diode**

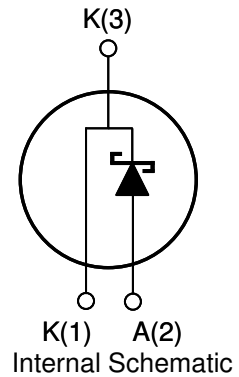
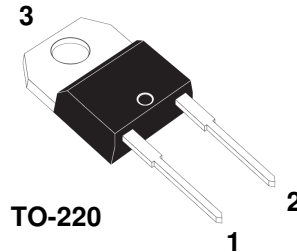
**Features:**

- Positive Temperature Coefficient for Ease of Paralleling
- Temperature Independent Switching Behavior
- 175 °C Maximum Operating Temperature
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage

Product Summary		
$V_{DC}$	1200	V
$I_F$	8	A
$Q_c$	35	nC

**Applications:**

- Solar Inverter
- SMPS
- Power Factor Correction
- Induction Heating
- UPS
- Motor Drive



**MAXIMUM RATINGS, at  $T_j = 25\text{ C}$  unless otherwise stated**

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$		1200	V
DC Blocking Voltage	$V_{DC}$		1200	
Continuous Forward Current	$I_F$	$T_C < 145\text{ °C}$	8	A
		$T_C < 100\text{ °C}$	12	
Repetitive Peak Forward Current	$I_{F,RM}$	$T_j = 125\text{ °C}, D = 0.1$	25	
Surge Non-Repetitive Forward Current, Half Sine Wave	$I_{F,SM}$	$T_C = 25\text{ °C}, t_p = 10\text{ ms}$	26	
Non-Repetitive Peak Forward Current	$I_{F,max}$	$T_C = 25\text{ °C}, t_p = 10\text{ us}$	100	
Power Dissipation	$P_D$	$T_C = 25\text{ °C}$	115	W
Operating and Storage Temperature	$T_j, T_{j,stg}$		-55 to +175	°C

**THERMAL CHARACTERISTICS**

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Thermal Resistance, junction-case	$R_{th,JC}$		-	1.31	-	°C / W
Thermal Resistance, junction-ambient	$R_{th,JA}$		-	62	-	

**ELECTRICAL CHARACTERISTICS, at  $T_j = 25\text{ C}$  unless otherwise stated**

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Forward Voltage	$V_F$	$I_F = 5\text{ A}, T_j = 25\text{ °C}$	-	1.6	1.8	V
		$I_F = 5\text{ A}, T_j = 175\text{ °C}$	-	2.4	2.9	
Reverse Current	$I_R$	$V_R = 1200\text{ V}, T_j = 25\text{ °C}$	-	5	50	uA
		$V_R = 1200\text{ V}, T_j = 175\text{ °C}$	-	100	-	
Total Capacitive Charge	$Q_C$	$V_R = 1200\text{ V}, I_F = 5\text{ A}, di/dt = 500\text{ A/us}$	-	35	-	nC
Total Capacitance	C	$V_R = 0\text{ V}, f = 100\text{ kHz}$	-	614	-	pF
		$V_R = 300\text{ V}, f = 100\text{ kHz}$	-	23	-	
		$V_R = 600\text{ V}, f = 100\text{ kHz}$	-	19	-	

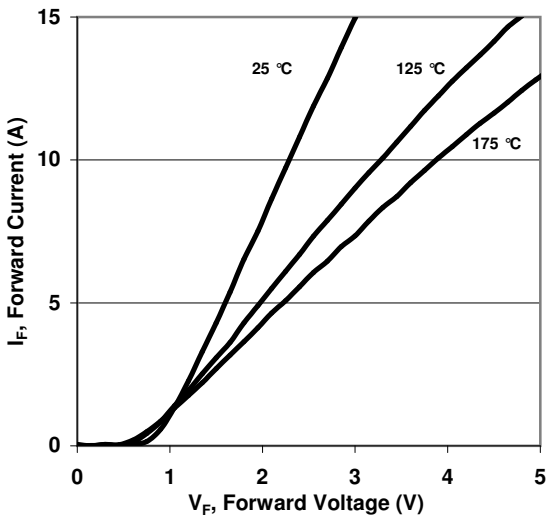


Figure 1. Typ. Forward Characteristics  
 $I_F = f(V_F)$ ; parameter:  $T_j$

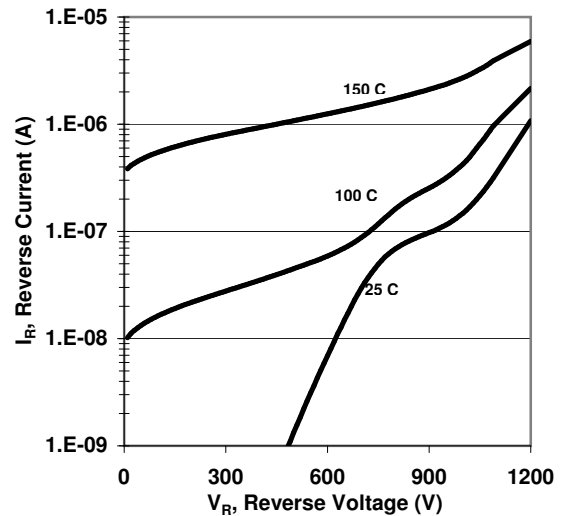


Figure 2. Typ. Reverse Characteristics  
 $I_R = f(V_R)$

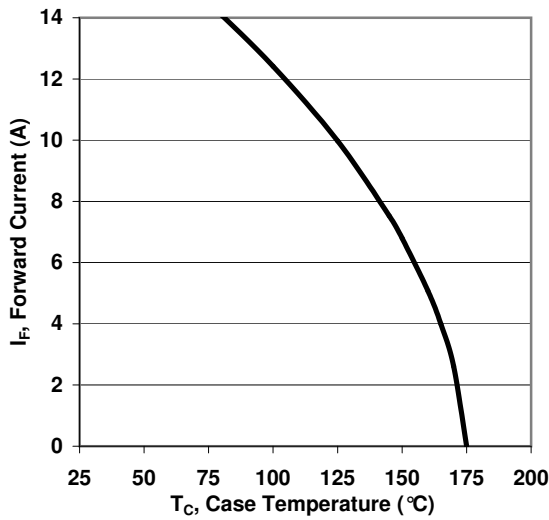


Figure 3. Diode Forward Current  
 $I_F = f(T_C); T_j < 175\text{ }^\circ\text{C}; R_{th,Jc(max)}$

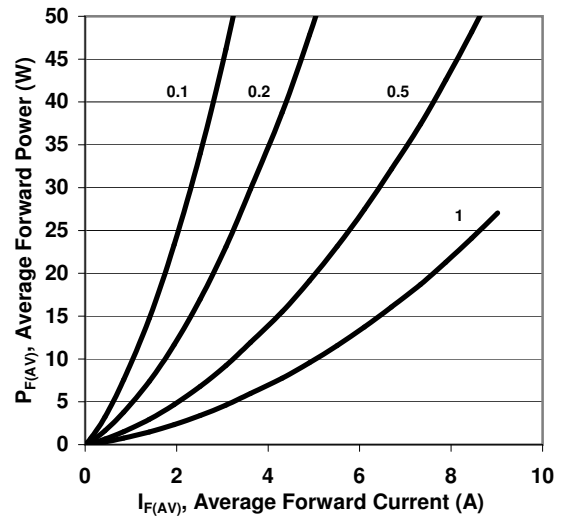


Figure 4. Typ. Forward Power Dissipation vs. Average Forward Current  
 $P_F = f(I_F); T_C = 100\text{ }^\circ\text{C}; \text{parameter: } D = t_P/T$

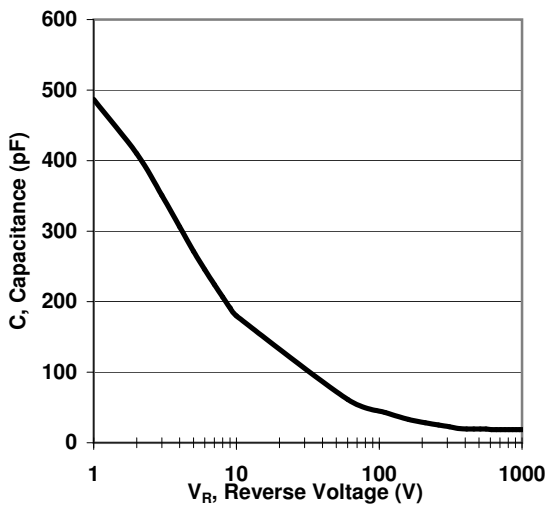


Figure 5. Typ. Capacitance vs. Reverse Voltage  
 $C = f(V_R); T_C = 25\text{ }^\circ\text{C}; f = 1\text{ MHz}$

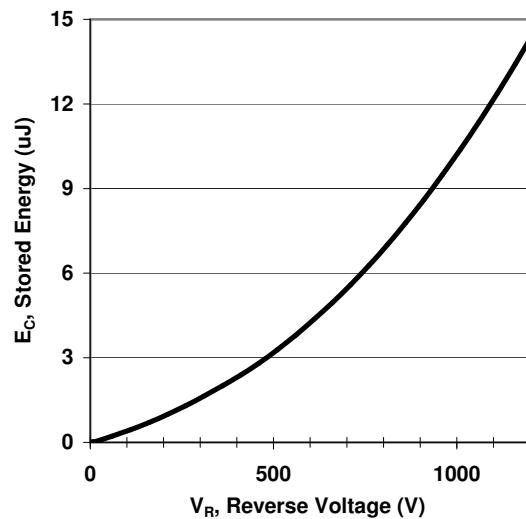


Figure 6. Typical Stored Energy vs. Reverse Voltage  
 $E_C = f(V_R)$

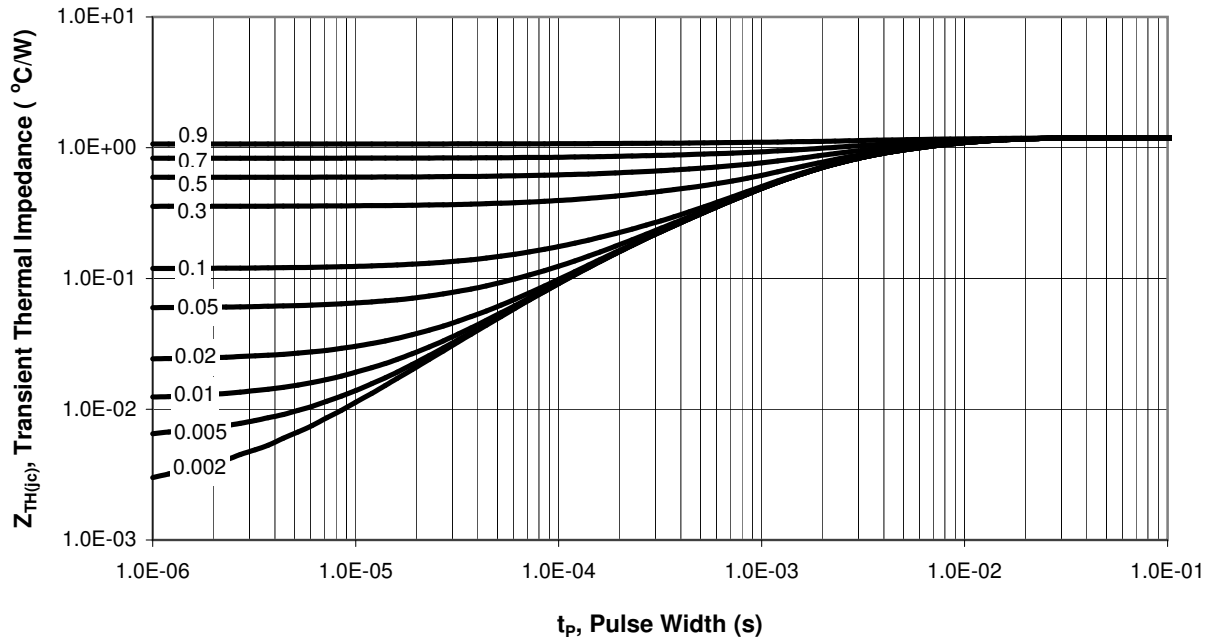


Figure 7. Transient Thermal Impedance  
 $Z_{th(jc)} = f(t_p)$ ; parameter: Duty Ratio

<b><u>Revision History</u></b>		
Date	Revision	Changes
12/1/2008	1.0	Initial publication.

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