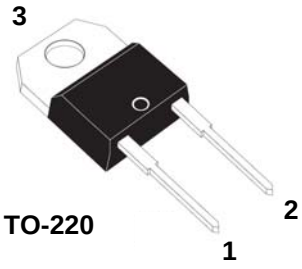
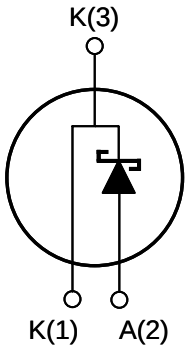
Silicon Carbide Power Schottky Diode

Product Summary		
V_{DC}	1200	V
I_F	10	A
Q_c	64	nC

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





Internal Schematic

Applications:

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

MAXIMUM RATINGS, at T_j = 25 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 °C	10	A
		T_C < 100 °C	18	
Repetitive Peak Forward Current	$I_{F,RM}$	T_j = 125 °C, D = 0.1	46	
Surge Non-Repetitive Forward Current, Half Sine Wave	$I_{F,SM}$	T_C = 25 °C, t_P = 10 ms	33	
Non-Repetitive Peak Forward Current	$I_{F,max}$	T_C = 25 °C, t_P = 10 us	225	
Power Dissipation	P_D	T_C = 25 °C	136	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	$R_{th,JC}$		-	1.1	-	°C / W
Thermal Resistance, junction-ambient	$R_{th,JA}$		-	62	-	

ELECTRICAL CHARACTERISTICS, at T_j = 25 C unless otherwise stated

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Forward Voltage	V_F	I_F = 10 A, T_j = 25 °C	-	1.6	1.8	V
		I_F = 10 A, T_j = 175 °C	-	2.4	2.9	
Reverse Current	I_R	V_R = 1200 V, T_j = 25 °C	-	10	100	uA
		V_R = 1200 V, T_j = 175 °C	-	200	-	
Total Capacitive Charge	Q_C	V_R = 1200 V, I_F = 10 A, di/dt = 500A/us	-	64	-	nC
Total Capacitance	C	V_R = 0 V, f = 100kHz	-	1137	-	pF
		V_R = 300 V, f = 100kHz	-	42	-	
		V_R = 600 V, f = 100KHz	-	35	-	

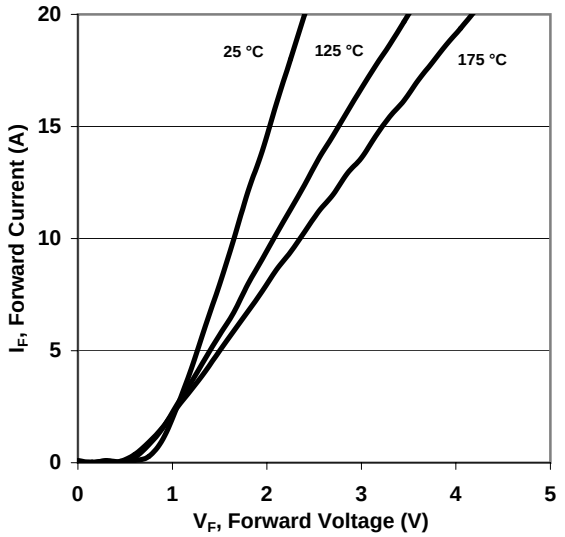


Figure 1. Typ. Forward Characteristics
$I_F = f(V_F)$; parameter: T_j

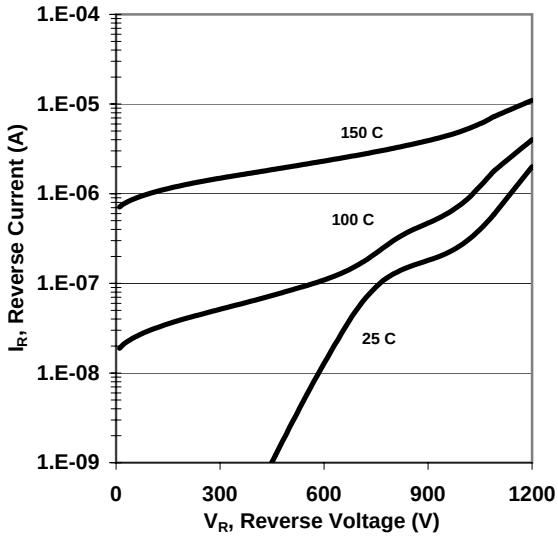


Figure 2. Typ. Reverse Characteristics
$I_R = f(V_R)$

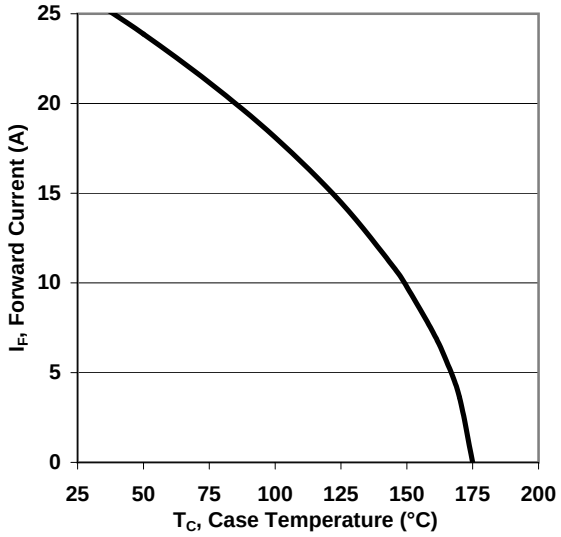


Figure 3. Diode Forward Current
$I_F = f(T_C)$; $T_j < 175$ °C; $R_{th,JC(max)}$

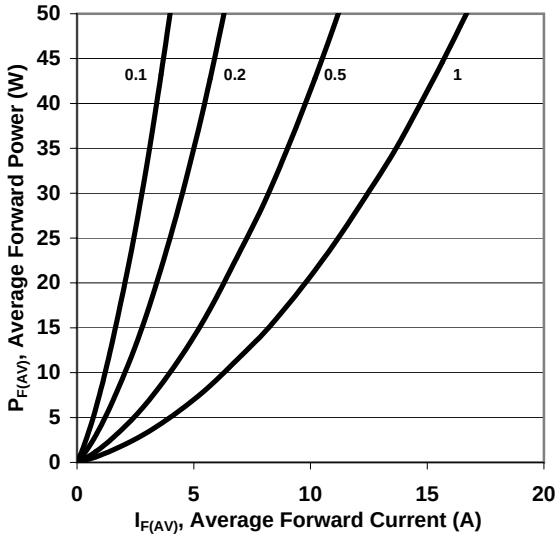


Figure 4. Typ. Forward Power Dissipation vs. Average Forward Current
$P_F = f(I_F)$; $T_C = 100$ °C; parameter: $D = t_P/T$

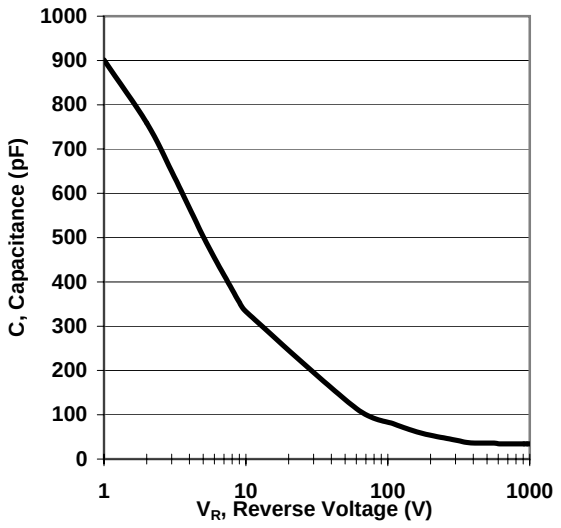


Figure 5. Typ. Capacitance vs. Reverse Voltage
$C = f(V_R)$; $T_C = 25$ °C; $f = 1$ MHz

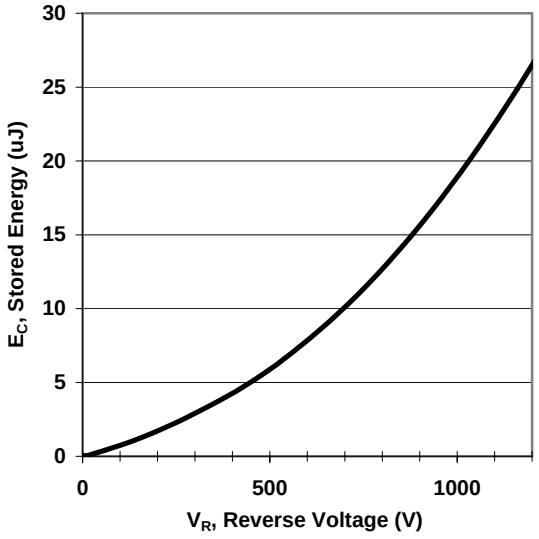


Figure 6. Typical Stored Energy vs. Reverse Voltage
$E_C = f(V_R)$

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