

**Silicon Carbide Power Schottky Diode**

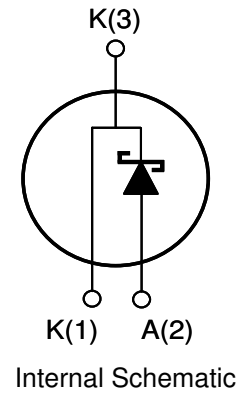
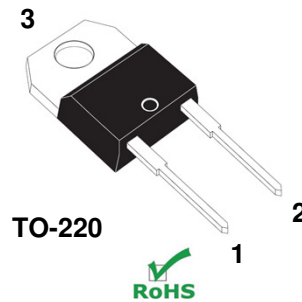
**Features:**

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

**Applications:**

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

Product Summary		
$V_{DC}$	1200	V
$I_F$	5	A
$Q_c$	20	nC



**MAXIMUM RATINGS**

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	$T_j = 25\text{ °C}$	1200	V
DC Blocking Voltage	$V_{DC}$		1200	
Continuous Forward Current	$I_F$	$T_C < 160\text{ °C}$	5	A
		$T_C < 100\text{ °C}$	12	
Peak Repetitive Forward Current	$I_{FRM}$	$T_C = 125\text{ °C}, D = 0.1$	30	
Non-Repititive Forward Surge Current	$I_{FSM}$	$T_C = 25\text{ °C}, t_p = 10\text{ ms}$	26	
		$T_C = 25\text{ °C}, t_p = 10\text{ us}$	100	
Power Dissipation	$P_{TOT}$	$T_C = 25\text{ °C}$	115	W
Operating and Storage Temperature	$T_j, T_{stg}$		-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	$Q_C$	$V_R = 400\text{ V}, I_F = 5\text{ A}, di/dt = 500\text{A/us}$	-	20	-	nC
Total Capacitance	C	$V_R = 1\text{ V}, f = 100\text{kHz}$	-	580	-	pF
		$V_R = 300\text{ V}, f = 100\text{kHz}$	-	24	-	
		$V_R = 600\text{ V}, f = 100\text{KHz}$	-	17	-	

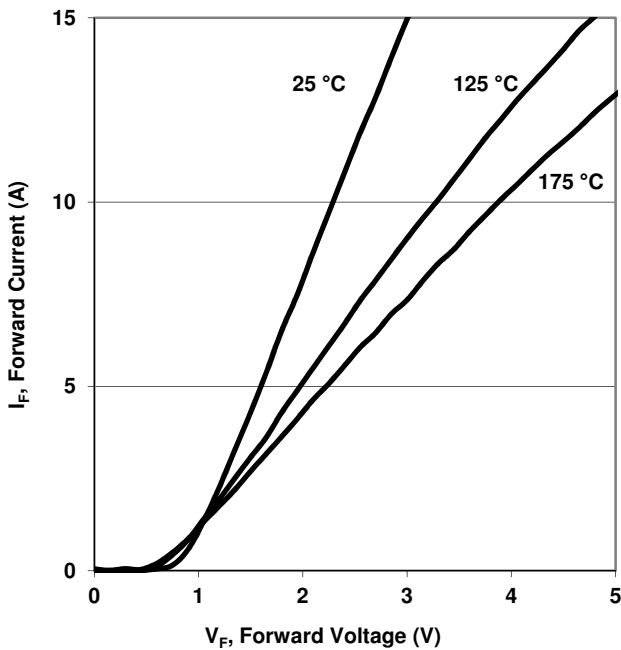


Figure 1. Typ. Forward Characteristics  
 $I_F = f(V_F)$ ; parameter:  $T_j$

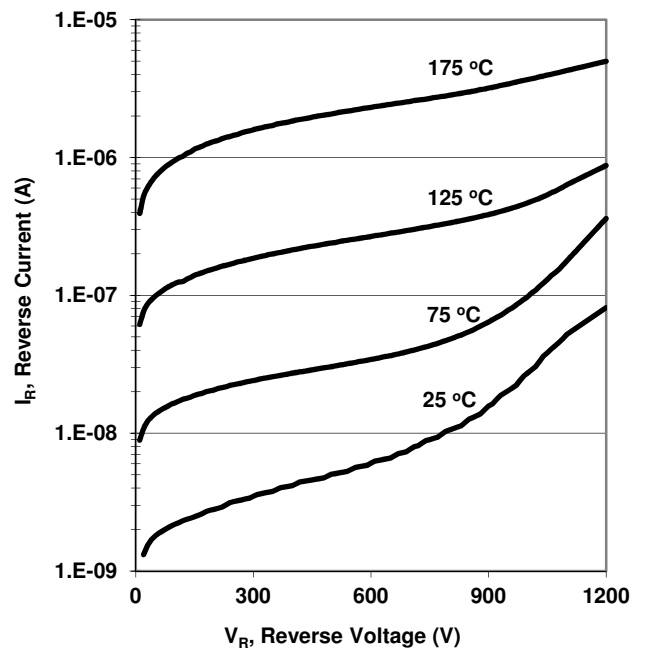


Figure 2. Typ. Reverse Characteristics  
 $I_R = f(V_R)$

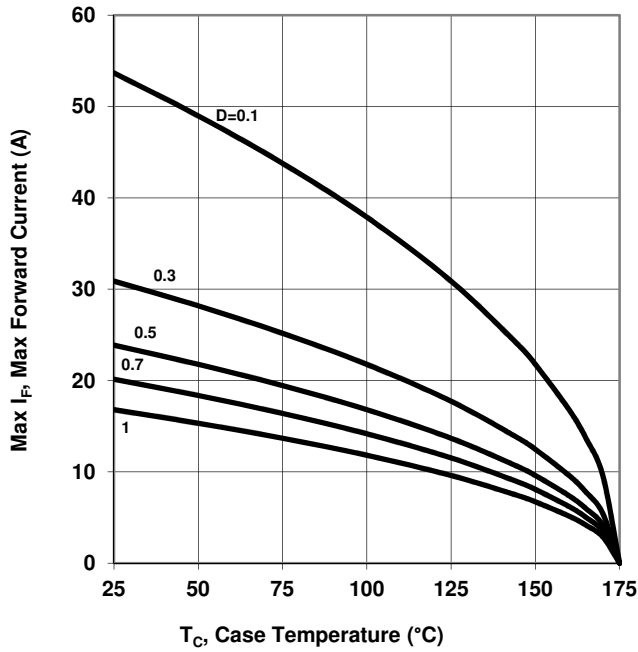


Figure 3. Max Forward Current  
 $I_F = f(T_C); T_j < 175\text{ }^\circ\text{C}; R_{th,jc(max)}$

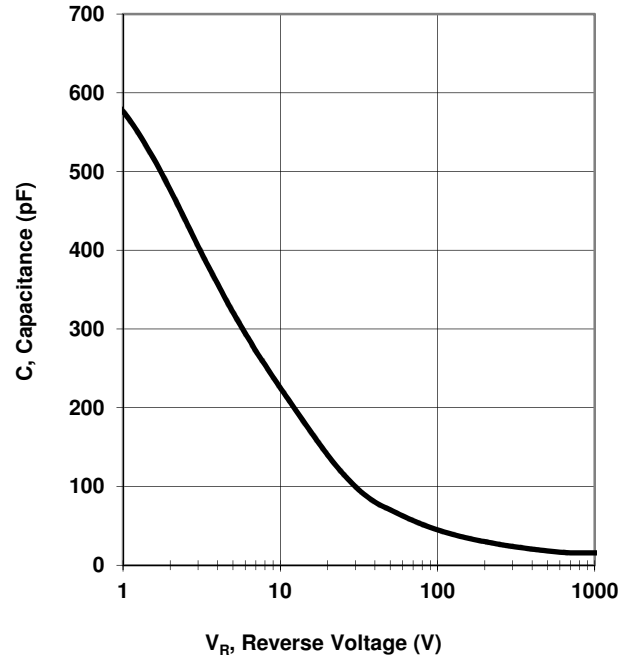


Figure 4. Typ. Capacitance vs. Reverse Voltage  
 $C = f(V_R); T_C = 25\text{ }^\circ\text{C}; f = 1\text{ MHz}$

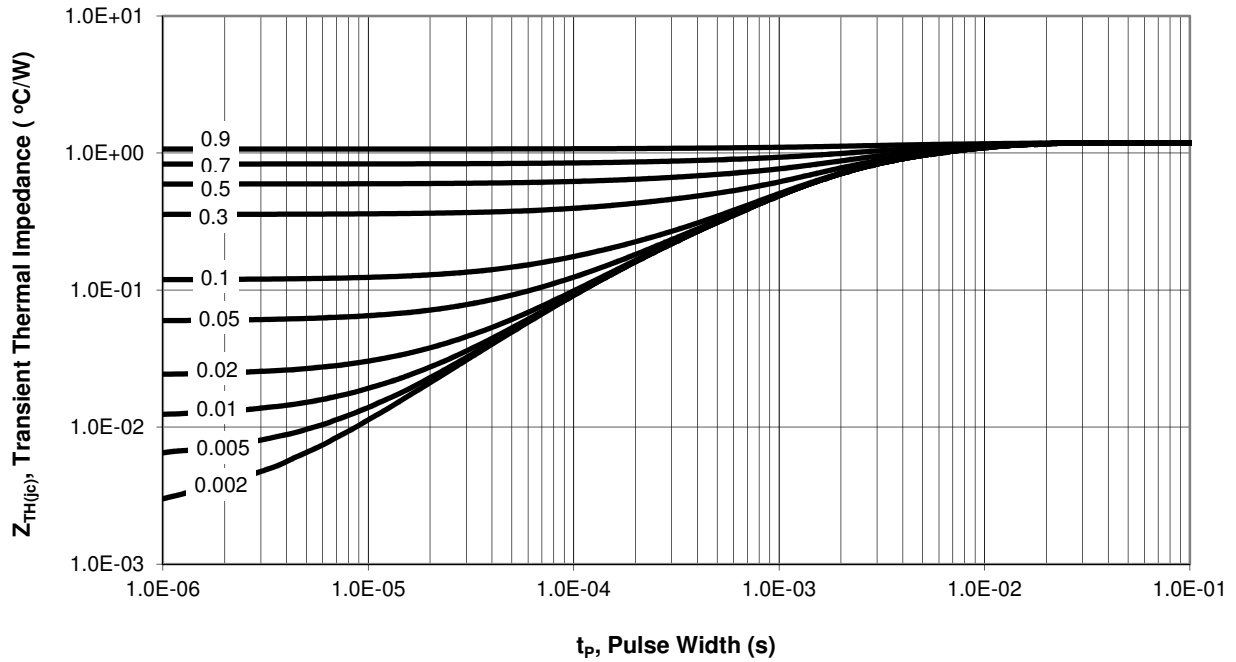
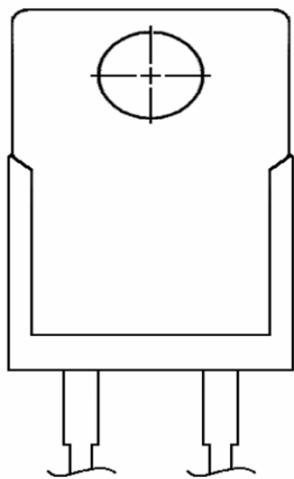
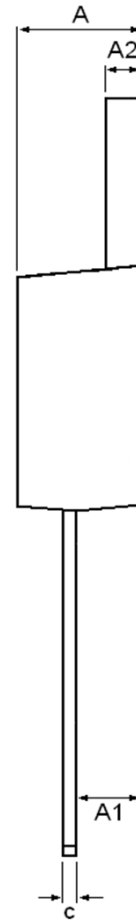
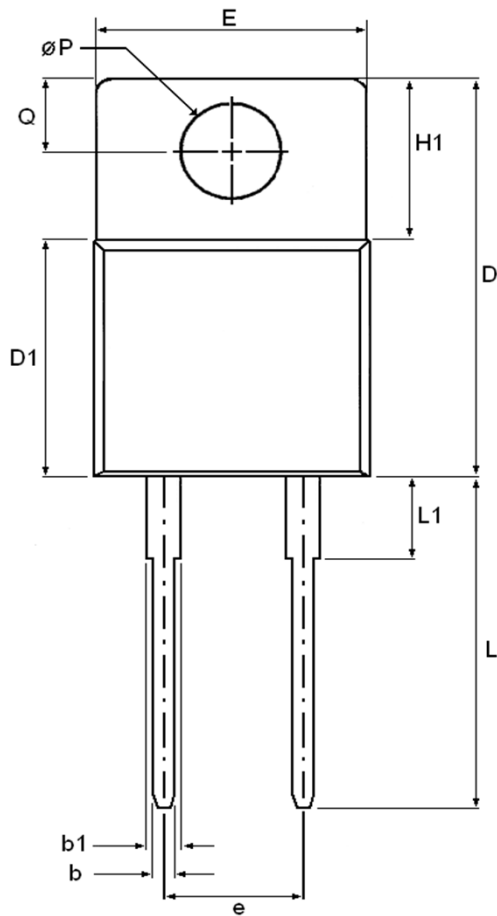


Figure 5. Transient Thermal Impedance  
 $Z_{th(jc)} = f(t_P); \text{parameter: Duty Ratio}$

**Package Dimensions: TO-220**



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.191	4.699	0.165	0.185
A1	2.387	2.489	0.094	0.098
A2	1.219	1.321	0.048	0.052
b	0.635	0.889	0.025	0.035
b1	1.143	1.397	0.145	0.055
c	0.458	0.635	0.018	0.025
D	15.113	16.621	0.595	0.615
D1	9.017	9.271	0.355	0.365
e	5.080		0.200	
E	9.677	9.931	0.381	0.391
H1	6.096	6.350	0.240	0.250
L	12.700	12.954	0.500	0.510
L1	3.048	3.302	0.120	0.130
Q	2.540	3.048	0.100	0.120
ØP	3.632	3.734	0.143	0.147

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