

**Silicon Carbide Power Schottky Diode**

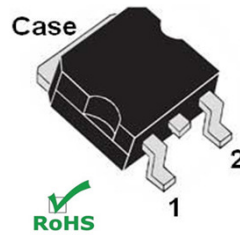
Product Summary		
$V_{DC}$	1200	V
$I_F$	5	A
$Q_C$	20	nC

**Features:**

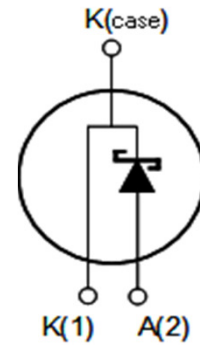
- Positive Temperature Coefficient for Ease of Paralleling
- Temperature Independent Switching Behavior
- 175 °C Maximum Operating Temperature
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage

**Applications:**

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



DPAK (TO-252)



Internal Schematic

**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
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	-	

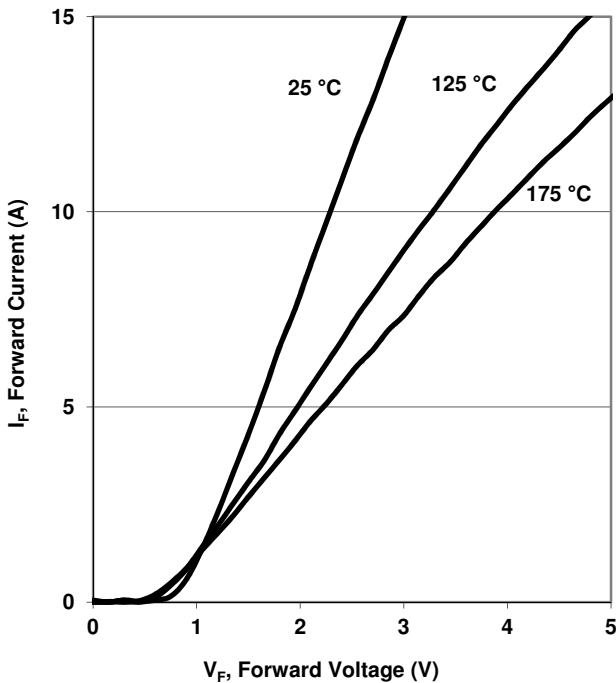


Figure 1. Typ. Forward Characteristics  
 $I_F = f(V_F)$ ; parameter:  $T_j$

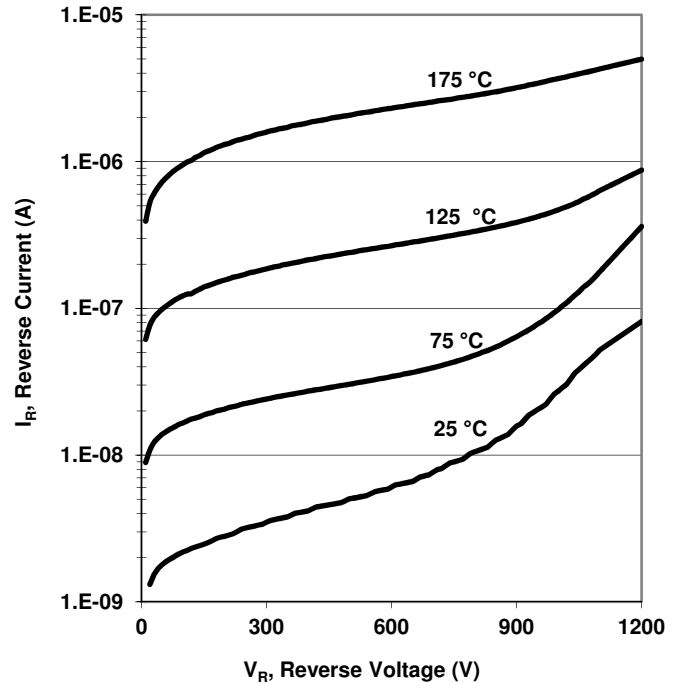


Figure 2. Typ. Reverse Characteristics  
 $I_R = f(V_R)$

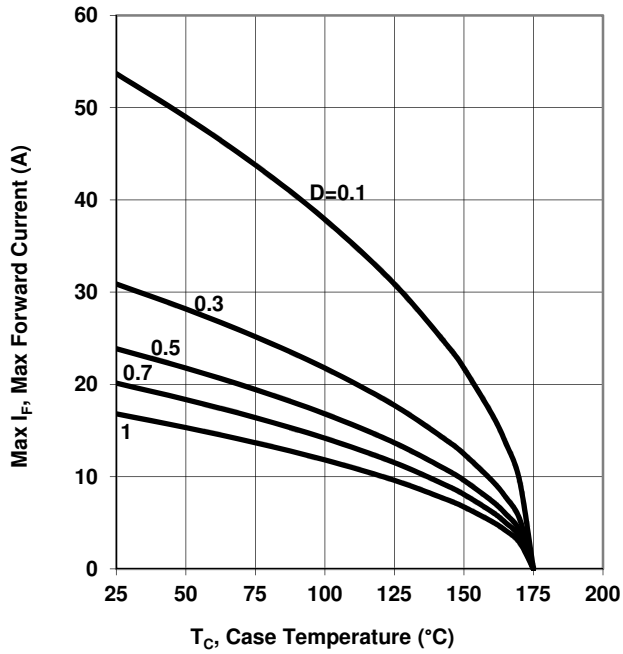


Figure 3. Max Forward Current  
 $I_F = f(T_C); T_j < 175\text{ }^\circ\text{C}; R_{th,JC(max)}$

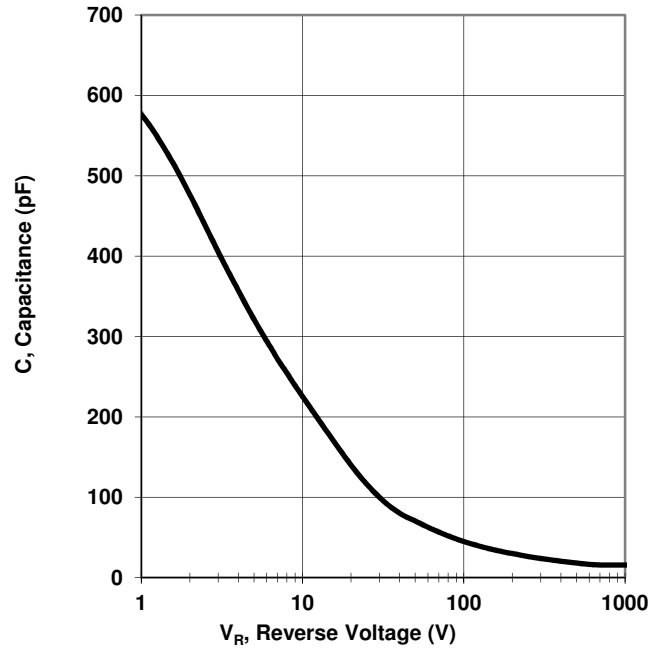
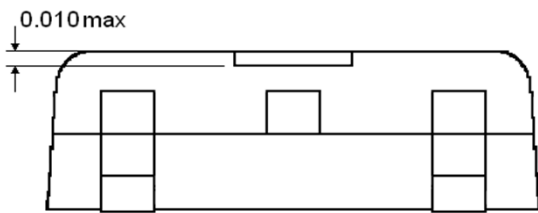
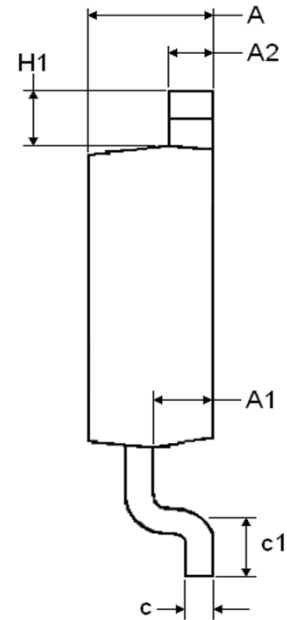
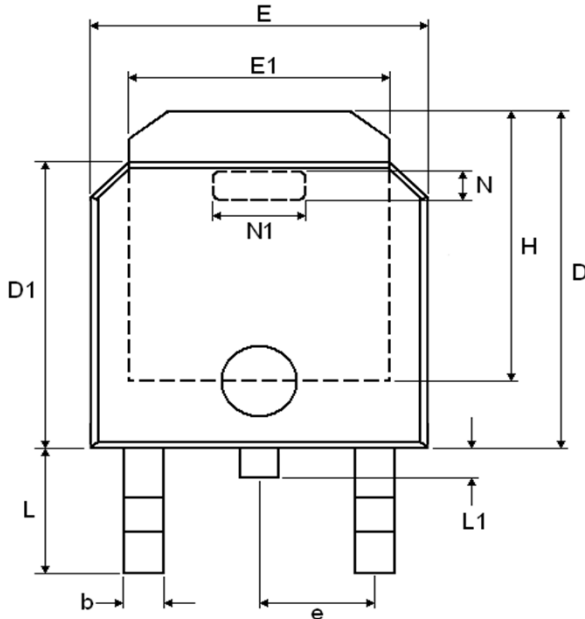


Figure 4. Typ. Capacitance vs. Reverse Voltage  
 $C = f(V_R); T_C = 25\text{ }^\circ\text{C}; f = 1\text{ MHz}$

**Package Dimensions: DPAK (TO-252)**



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.159	2.413	0.085	0.095
A1	1.016	1.118	0.040	0.044
A2	0.762	0.864	0.030	0.034
b	0.771	1.067	0.028	0.042
c	0.457	0.559	0.018	0.022
c1	1.022	1.276	0.040	0.050
D	7.081	7.589	0.279	0.299
D1	5.969	6.223	0.235	0.245
e	2.286		0.090	
E	6.477	6.731	0.255	0.260
E1	5.004	5.207	0.197	0.205
H	5.715		0.225	
H1	1.112	1.366	0.044	0.054
L	2.108	2.997	0.083	0.118
L1	0.254	0.762	0.010	0.030
N	0.483	0.737	0.019	0.029
N1	1.651	1.905	0.065	0.075

Published by  
SemiSouth Laboratories, Inc.  
201 Research Boulevard  
Starkville, MS 39759 USA  
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