

Silicon Carbide Power Schottky Diode

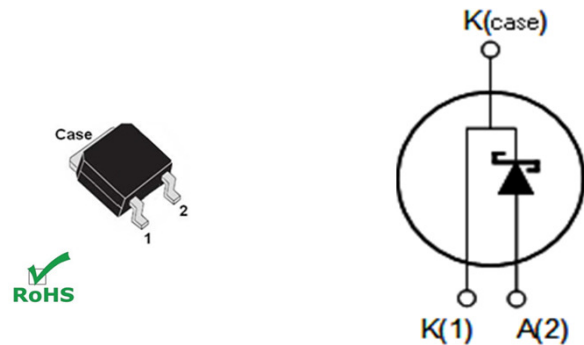
Features:

- 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	5	A
Q_c	20	nC

Applications:

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



True 2 Lead 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-Repetitive 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_D	$T_C = 25\text{ °C}$	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	$V_R = 1\text{ V}, f = 1\text{ MHz}$	-	580	-	pF
		$V_R = 300\text{ V}, f = 1\text{ MHz}$	-	24	-	
		$V_R = 600\text{ V}, f = 1\text{ MHz}$	-	17	-	

Figure 1. Typical Forward Characteristics

$I_F = f(V_F)$; parameter: T_j

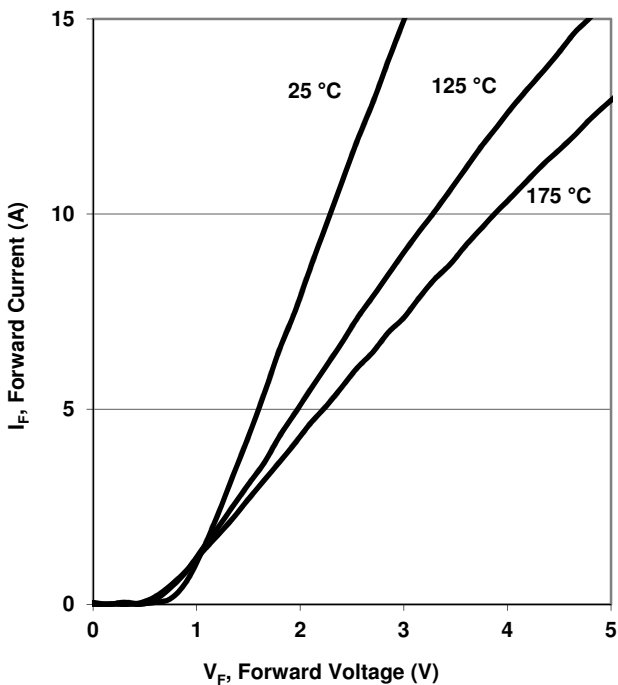


Figure 2. Typical Reverse Characteristics

$I_R = f(V_R)$; parameter: T_j

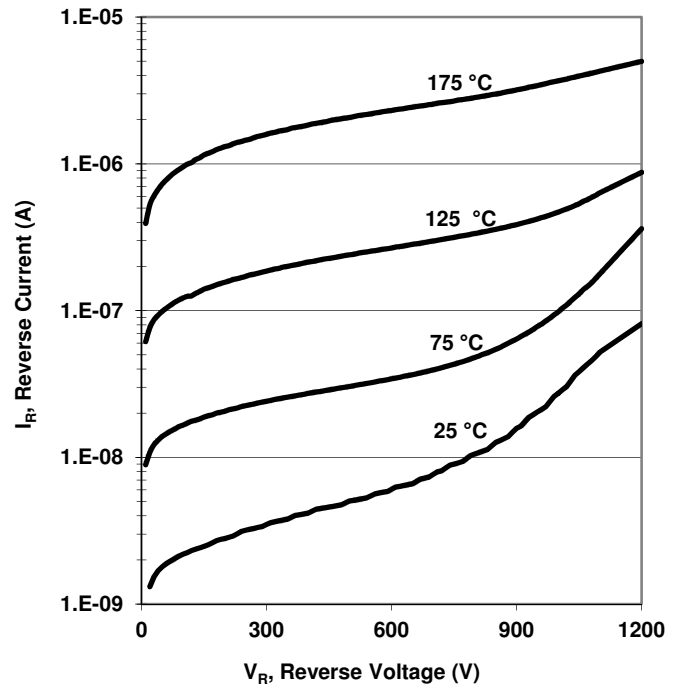


Figure 3. Maximum Forward Current

$I_F = f(T_C)$; $T_j < 175\text{ °C}$; parameter: duty cycle, D

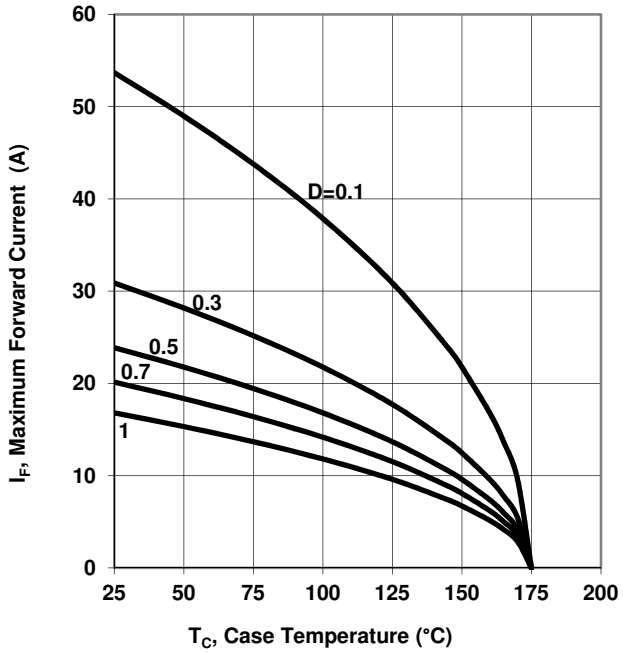
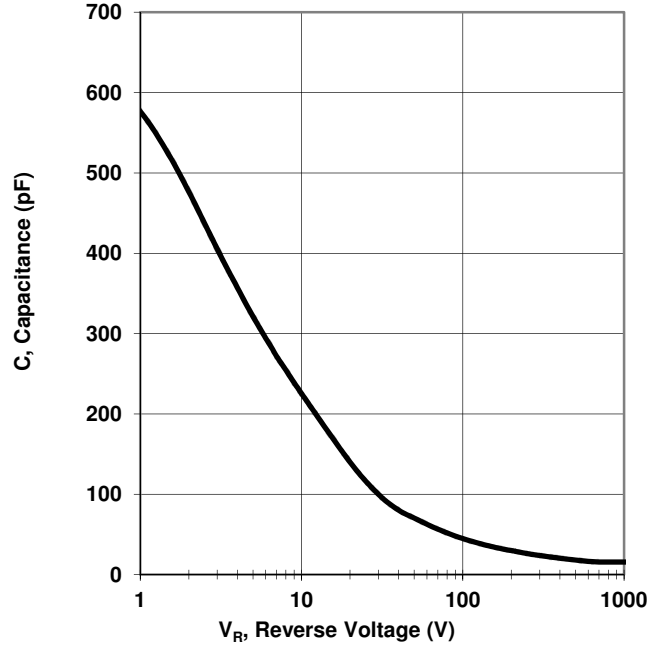
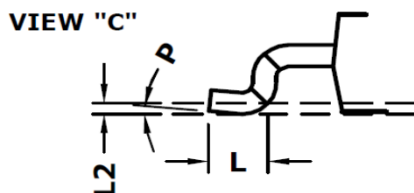
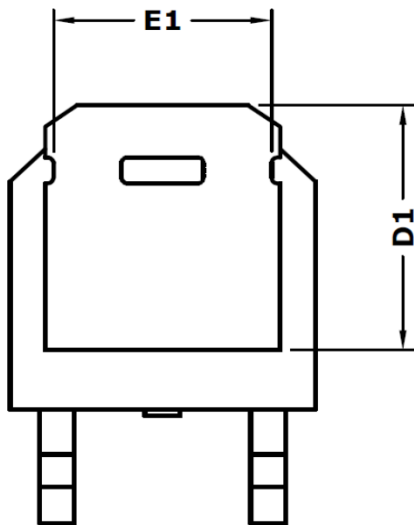
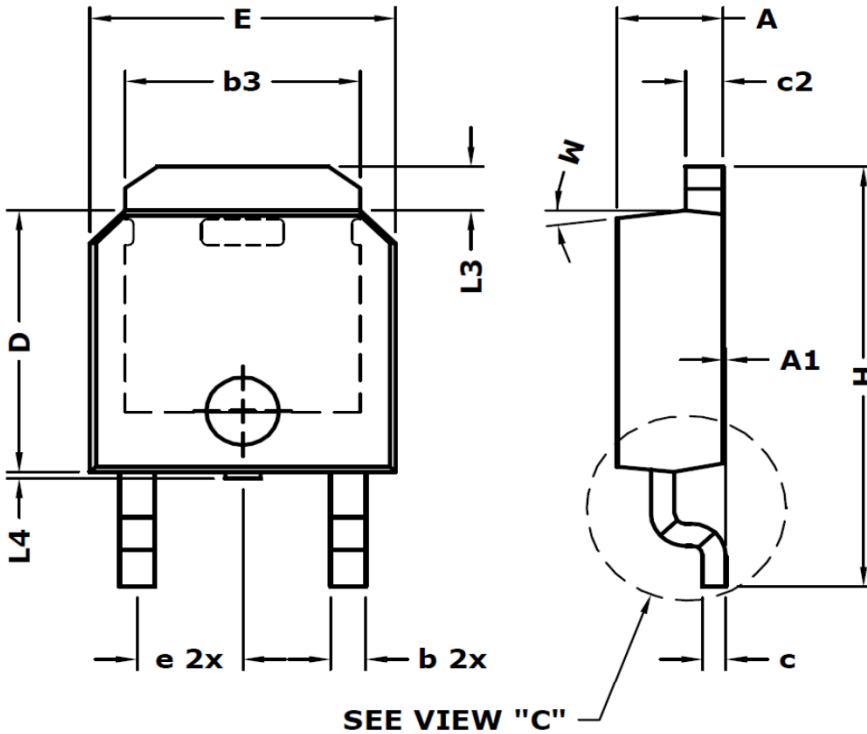


Figure 4. Typical Capacitance

$C = f(V_R)$; $T_C = 25\text{ °C}$; $f = 1\text{ MHz}$



Package Dimensions: DPAK (TO-252)



All units in inches

SYMBOL	MIN	NOM	MAX
A	.085	.090	.095
A1	.001	.003	.005
b	.028	.030	.042
b3	.197	.201	.205
c	.018	.020	.022
c2	.030	.032	.034
D	.235	.240	.245
D1	.230 REF.		
E	.255	.260	.265
E1	.183	.186	.191
e	.090 REF.		
H	.382	.385	.397
L	.040	.045	.050
L2	.010 REF.		
L3	-	-	.045
L4	.000	-	.006
M	7°		
P	-	-	5°

NOTE:
- L4- MAXIMUM PLASTIC PROTRUSION.
- L2- REFERENCE FOR FOOT LENGTH MEASUREMENT.

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