

Silicon Carbide Power Schottky Diode

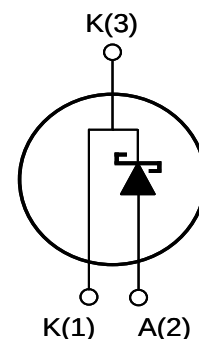
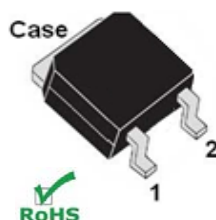
Features:

- 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	10	A
Q_c	40	nC

Applications:

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



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	$T_C < 145\text{ °C}$	10	A
		$T_C < 100\text{ °C}$	17	
Peak Repetitive Forward Current	I_{FRM}	$T_C = 125\text{ °C}, D = 0.1$	50	
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25\text{ °C}, t_p = 10\text{ ms}$	45	
		$T_C = 25\text{ °C}, t_p = 10\text{ us}$	250	
Power Dissipation	P_{TOT}	$T_C = 25\text{ °C}$	136	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	$R_{th\ JC}$		-	TBD	-	$^{\circ}\text{C} / \text{W}$
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	$I_F = 10\text{ A}, T_j = 25\text{ }^{\circ}\text{C}$	-	1.6	1.8	V
		$I_F = 10\text{ A}, T_j = 175\text{ }^{\circ}\text{C}$	-	2.4	2.9	
Reverse Current	I_R	$V_R = 1200\text{ V}, T_j = 25\text{ }^{\circ}\text{C}$	-	10	100	μA
		$V_R = 1200\text{ V}, T_j = 175\text{ }^{\circ}\text{C}$	-	200	-	
Total Capacitive Charge	Q_C	$V_R = 400\text{ V}, I_F = 10\text{ A},$ $di/dt = 500\text{ A/us}$	-	40	-	nC
Total Capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}$	-	1153	-	pF
		$V_R = 300\text{ V}, f = 1\text{ MHz}$	-	48	-	
		$V_R = 600\text{ V}, f = 1\text{ MHz}$	-	33	-	

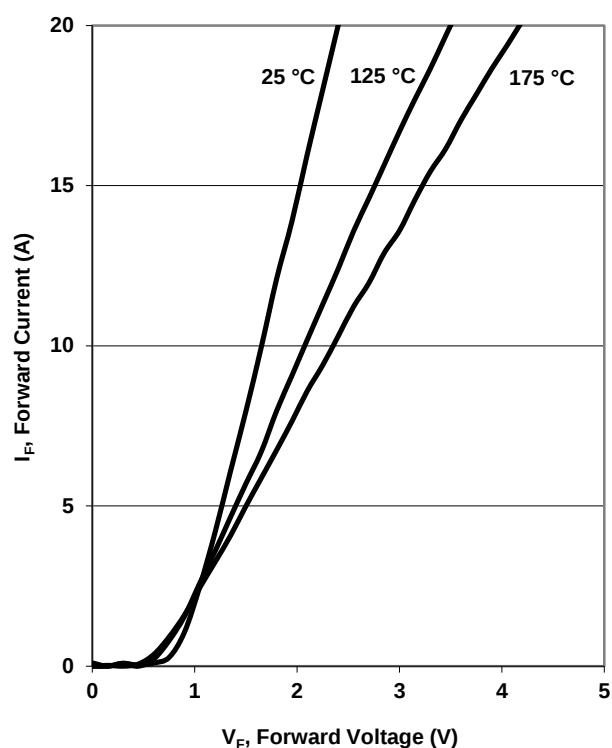


Figure 1. Typ. Forward Characteristics
 $I_F = f(V_F)$; parameter: T_j

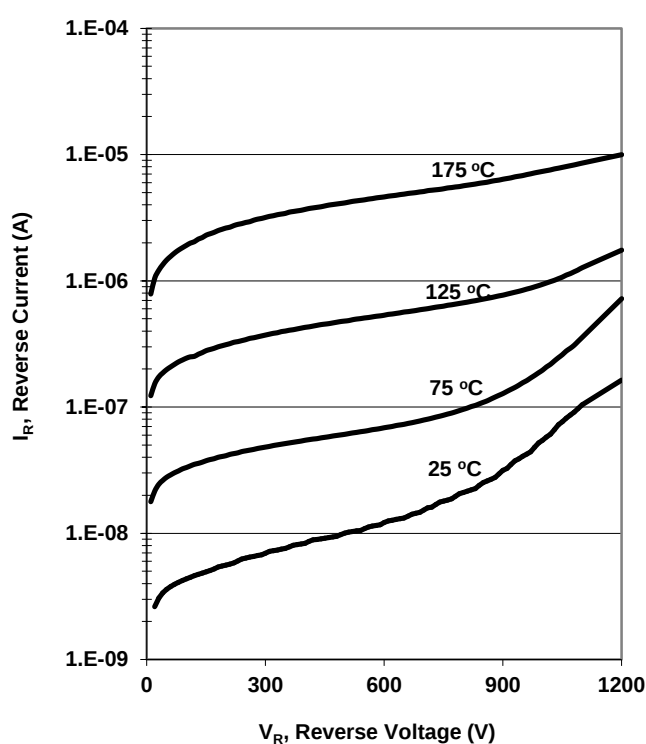


Figure 2. Typ. Reverse Characteristics
 $I_R = f(V_R)$

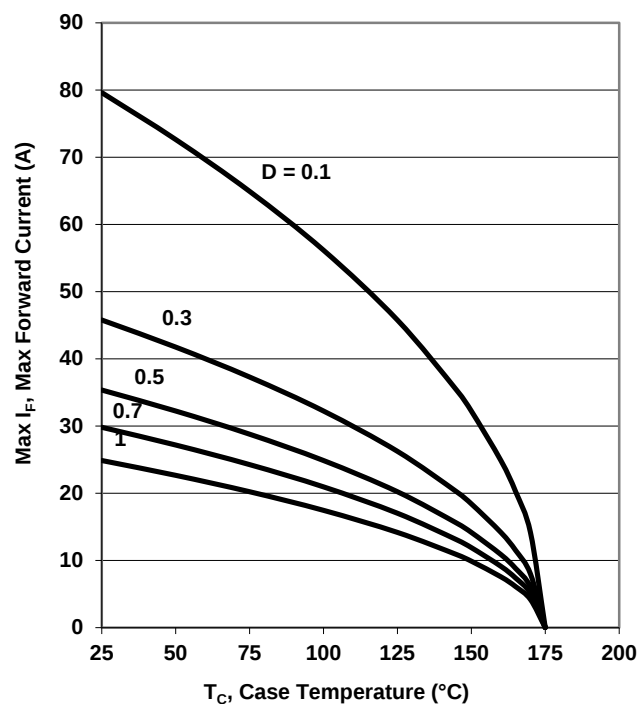


Figure 3. Max Forward Current
 $I_F = f(T_C); T_j < 175\text{ }^{\circ}\text{C}; R_{th,JC(max)}$

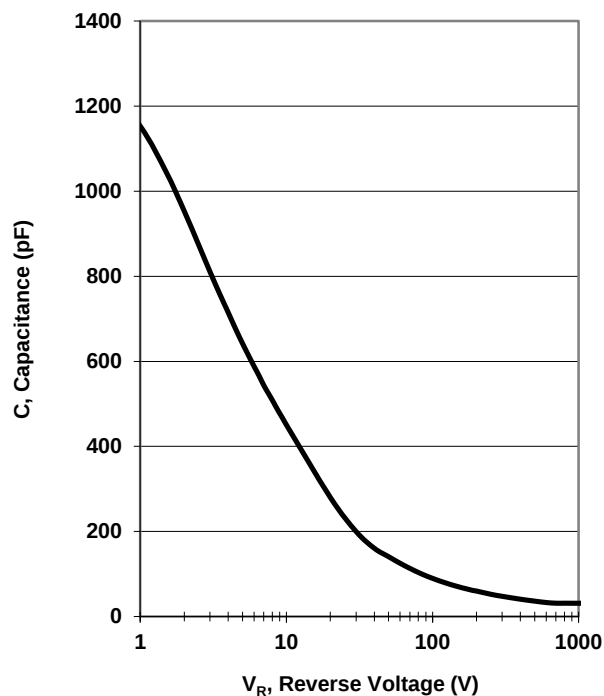
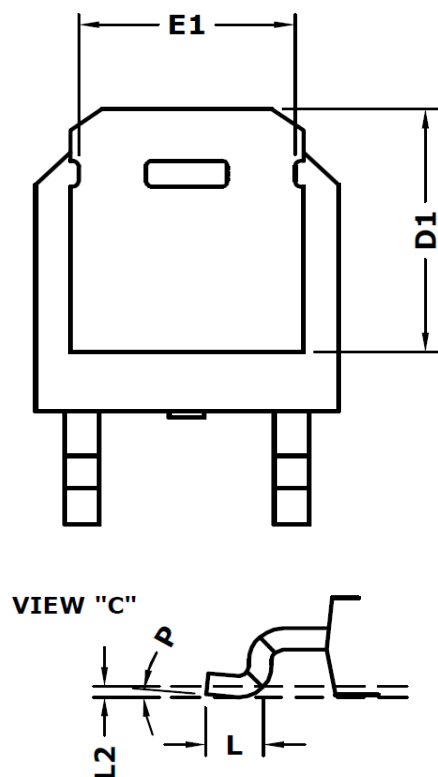
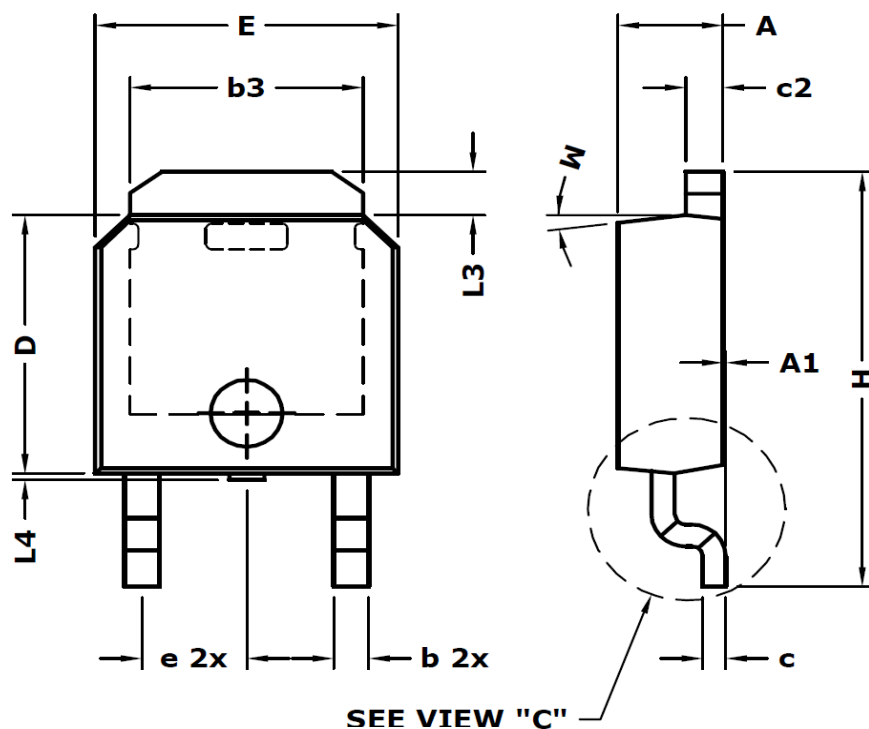


Figure 4. Typ. Capacitance vs.
 Reverse Voltage
 $C = f(V_R); T_C = 25\text{ }^{\circ}\text{C}; f = 1\text{ MHz}$

Package Dimensions: 2L DPAK



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.159	2.413	0.085	0.095
A1	0.025	0.127	0.001	0.005
b	0.711	1.067	0.028	0.042
b3	5.004	5.207	0.197	0.205
c	0.457	0.559	0.018	0.022
c2	0.762	0.864	0.030	0.034
D	5.969	6.223	0.235	0.245
D1	0.584		.230 REF.	
E	6.477	6.731	0.255	0.265
E1	4.648	4.851	0.183	0.191
e	2.286		.090 REF.	
H	9.703	10.084	0.382	0.397
L	1.016	1.270	0.040	0.050
L2	0.254		.010 REF.	
L3		1.143	-	0.045
L4	0.000	0.152	0.000	0.006
M	7°			
P	5°			

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