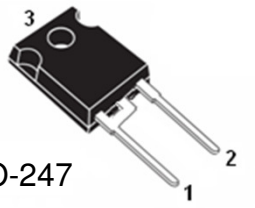
Silicon Carbide Power Schottky Diode

Product Summary		
V_{DC}	1200	V
I_F	30	A
Q_c	130	nC

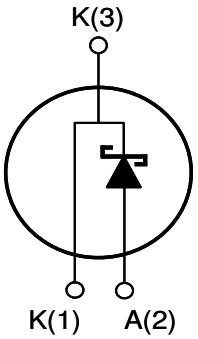
Features:

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



2 Lead TO-247

RoHS



Internal Schematic

Applications:

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

MAXIMUM RATINGS

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	T_j = 25 ℃	1200	V
DC Blocking Voltage	V_{DC}		1200	
Continuous Forward Current (1)	I_F	T_C = 145 ℃	30	A
		T_C = 100 ℃	46	
Peak Repetitive Forward Current (1)	I_{FRM}	T_C = 125 ℃, D = 0.1	120	
Non-Repetitive Surge Forward Current (1)	I_{FSM}	T_C = 25 ℃, t_P = 10 ms	110	
		T_C = 25 ℃, t_P = 10 us	700	
Power Dissipation (1)	P_D	T_C = 25 ℃	313	W
Operating and Storage Temperature	T_j, T_{stg}		-55 to +175	℃

(1) Limited by maximum junction temperature, $T_{j,max}$

THERMAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Thermal Resistance, junction-case	$R_{th,JC}$		-	0.48	-	℃ / W
Thermal Resistance, junction-ambient	$R_{th,JA}$		-	62	-	

ELECTRICAL CHARACTERISTICS, at T_j = 25 ℃ unless otherwise stated

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Forward Voltage	V_F	I_F = 30 A, T_j = 25 ℃	-	1.6	1.8	V
		I_F = 30 A, T_j = 175 ℃	-	2.4	2.9	
Reverse Current	I_R	V_R = 1200 V, T_j = 25 ℃	-	30	300	uA
		V_R = 1200 V, T_j = 175 ℃	-	600	-	
Total Capacitive Charge	Q_C	V_R = 400 V, I_F = 30 A, di/dt = 500 A/us	-	130	-	nC
Total Capacitance	C	V_R = 1 V, f = 1 MHz	-	3700	-	pF
		V_R = 300 V, f = 1 MHz	-	150	-	
		V_R = 600 V, f = 1 MHz	-	110	-	

Figure 1. Typical Forward Characteristics

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

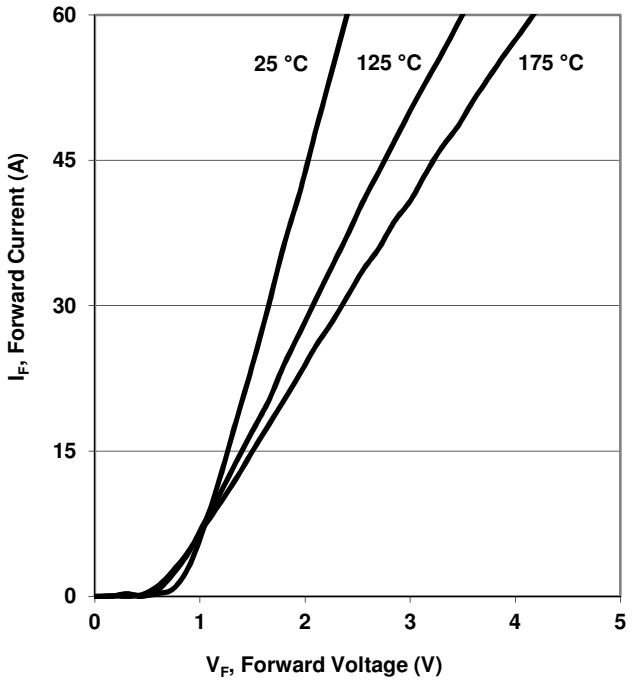


Figure 2. Typical Reverse Characteristics

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

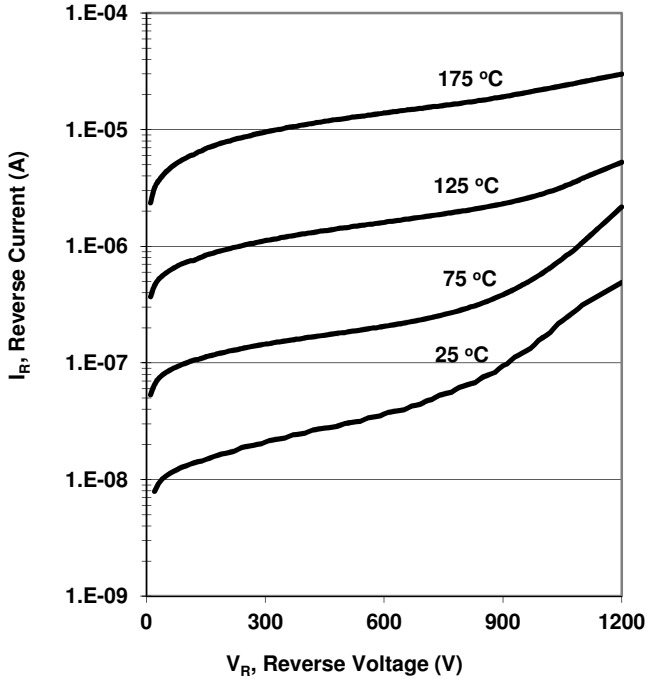


Figure 3. Diode Forward Current

$I_F = f(T_C)$; parameter: duty cycle, D

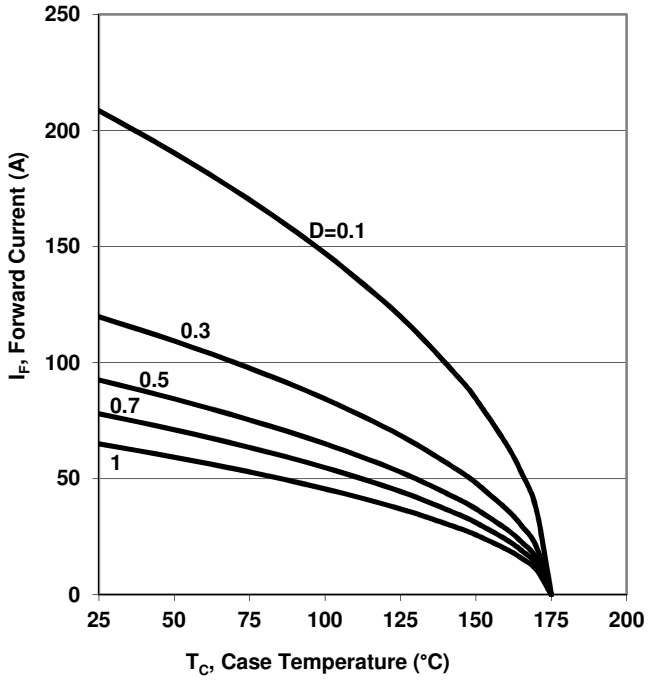


Figure 4. Typical Capacitance

$C = f(V_R)$; $T_C = 25℃$; f = 1 MHz

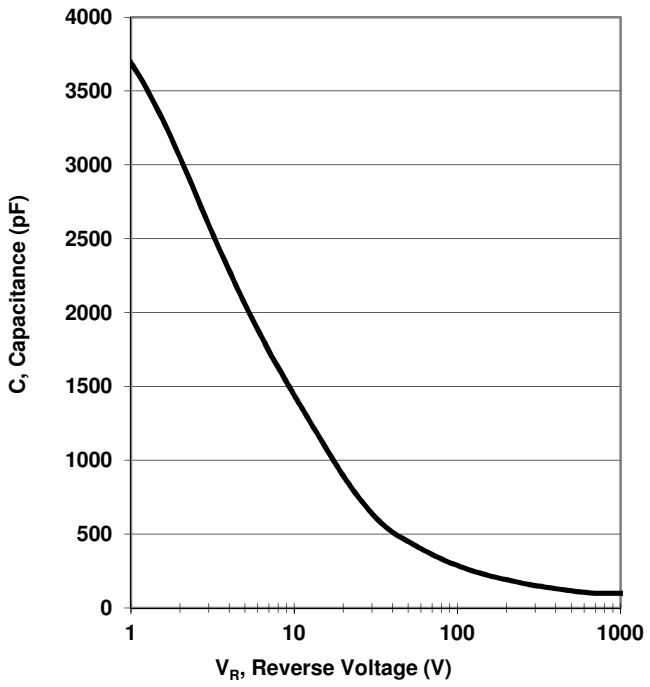
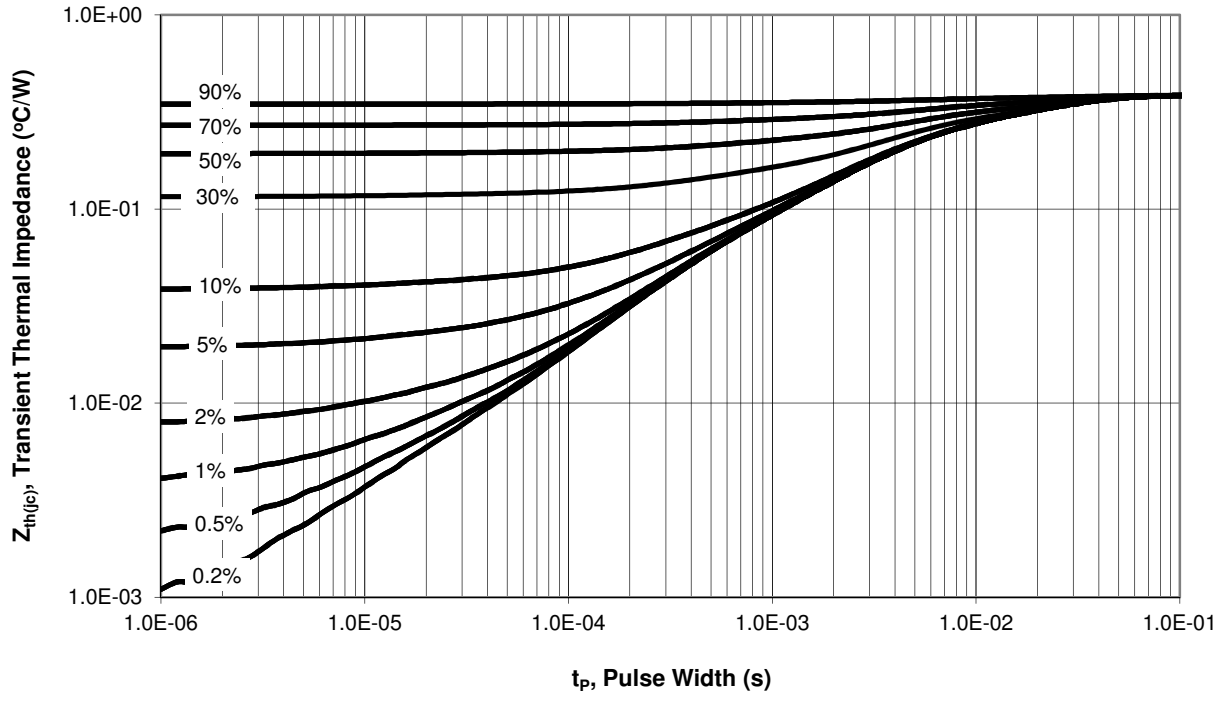
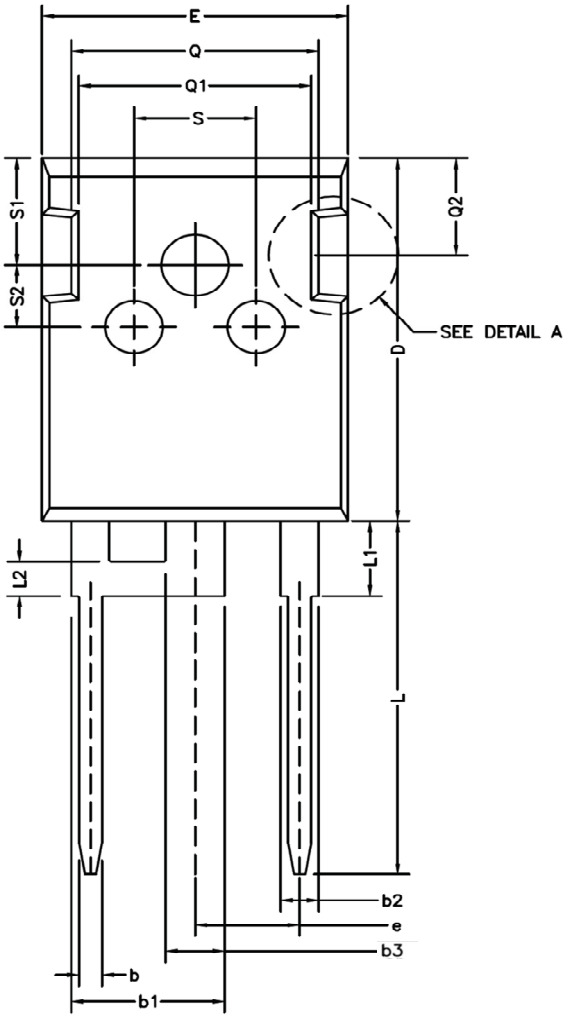


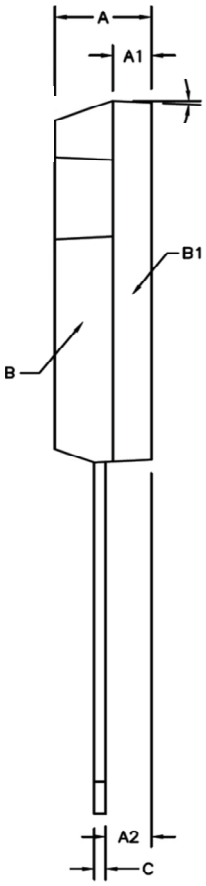
Figure 5. Transient Thermal Impedance

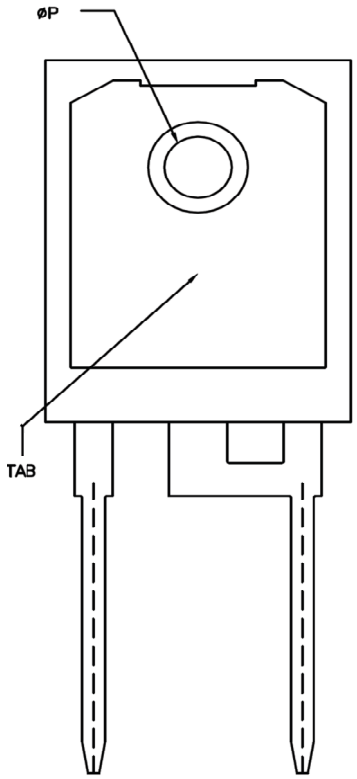
$Z_{th(jc)} = f(t_P)$; parameter: duty cycle, D

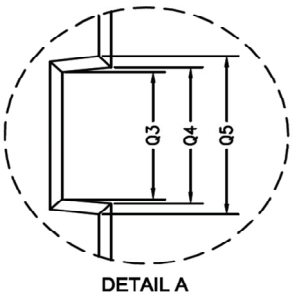


Package Dimensions: 2 Lead TO-247









DIM	INCHES		
	MIN	NOM	MAX
A	0.082	0.825	0.830
A1	0.077	0.079	0.081
A2	0.092	0.094	0.096
b	0.042	0.047	0.052
b1	0.310	0.315	0.320
b2	0.077	0.078	0.079
c		0.024	0.027
D	0.820	0.825	0.830
E	0.621	0.626	0.631
e		0.215	
L	0.789	0.794	0.799
L1	0.164	0.170	0.176
L2	0.077	0.078	0.079
ØP	0.138	0.139	0.140
Q	0.504	0.506	0.508
Q3	0.145	0.160	0.175

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