

P2CD05330B

3300V/5A SiC Power Schottky Barrier Diode Product



POWERCUBESEMI, INC.

Potential · Convergence · Smart

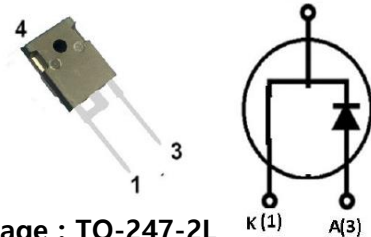
Features

- Positive temperature coefficient for easy parallel use
- Switching characteristics that are not affected by temperature
- Maximum operating temperature 175 °C
- Zero reverse recovery current
- Zero forward recovery voltage

Key Characteristics		
V_{RRM}	3300	V
$I_F, T_C \leq 140^\circ\text{C}$	5	A
Q_C	59	nC

Applications

- Solar inverters
- Switch Mode Power Supply (SMPS)
- Power factor correction
- Induction heating
- Uninterruptible power supply (UPS)
- motor driven



Package : TO-247-2L

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Condition	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		3300	V
V_{RSM}	Surge Peak Reverse Voltage		3300	V
V_{DC}	DC Blocking Voltage		3300	V
I_F	Continuous Forward Current	$T_C=25^\circ\text{C}$	12.3	A
		$T_C=140^\circ\text{C}$	5	A
		$T_C=159^\circ\text{C}$	3	A
I_{FRM}	Repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave, $D=0.3$	15	A
I_{FSM}	Non-repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	21	A
P_{TOT}	Power Dissipation	$T_C=25^\circ\text{C}$	146.5	W
		$T_C=110^\circ\text{C}$	62	
T_C	Maximum ambient temperature		135	$^\circ\text{C}$
T_j	Operating Junction		-55 to 175	$^\circ\text{C}$
T_{stg}	Storage Temperature		-55 to 175	$^\circ\text{C}$



Thermal Characteristics

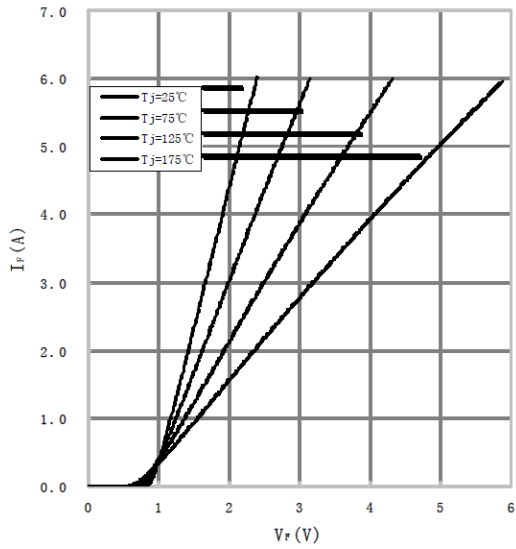
Symbol	Parameter	Test Condition	Value	Unit
			Typ.	
R_{thJc}	Thermal resistance from junction to case		1.024	°C/W

Electrical Characteristics, Nomination temperature $T_j=25^\circ\text{C}$

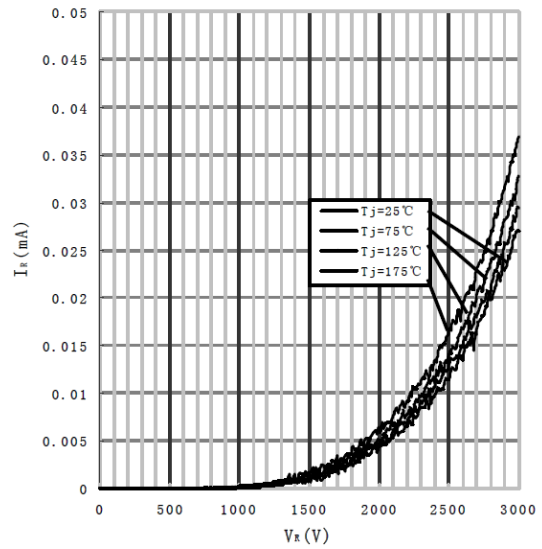
Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
V_F	Forward Voltage	$I_F=5\text{A}, T_j=25^\circ\text{C}$	2.4	3	V
		$I_F=5\text{A}, T_j=175^\circ\text{C}$	4	6	
I_R	Reverse Current	$V_R=3000\text{V}, T_j=25^\circ\text{C}$	20	100	μA
		$V_R=3000\text{V}, T_j=175^\circ\text{C}$	40	200	
Q_C	Total capacitive Charge	$V_R=2200\text{V}, T_j=150^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	59	-	nC
C	Total Capacitance	$V_R=0\text{V}, T_j=25^\circ\text{C}, f=1\text{MHZ}$	413	435	pF
		$V_R=1000\text{V}, T_j=25^\circ\text{C}, f=1\text{MHZ}$	18	19	
		$V_R=2000\text{V}, T_j=25^\circ\text{C}, f=1\text{MHZ}$	13.5	14	

Performance Graphs

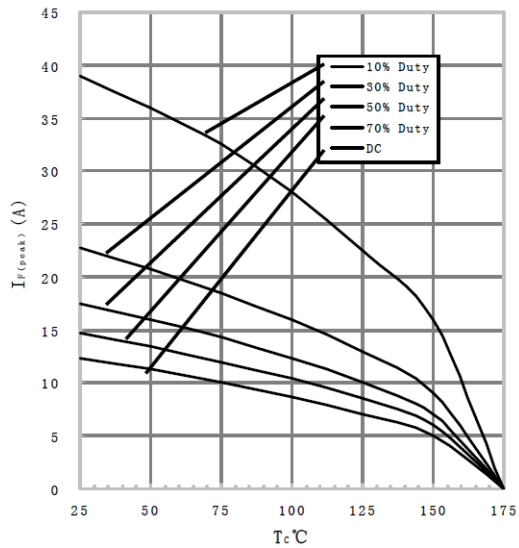
1) Forward IV characteristics as a function of T_j



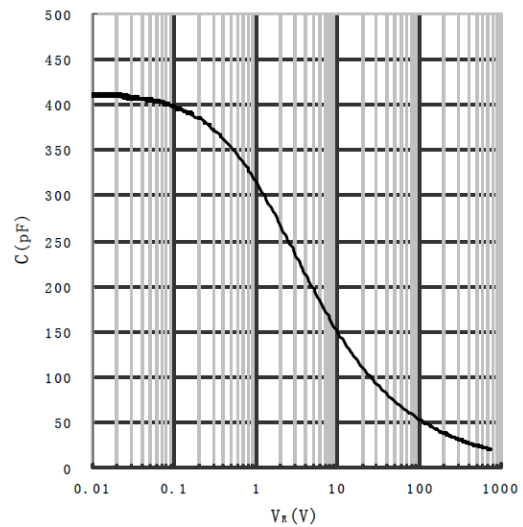
2) Reverse IV characteristics as a function of T_j



3) Current Derating

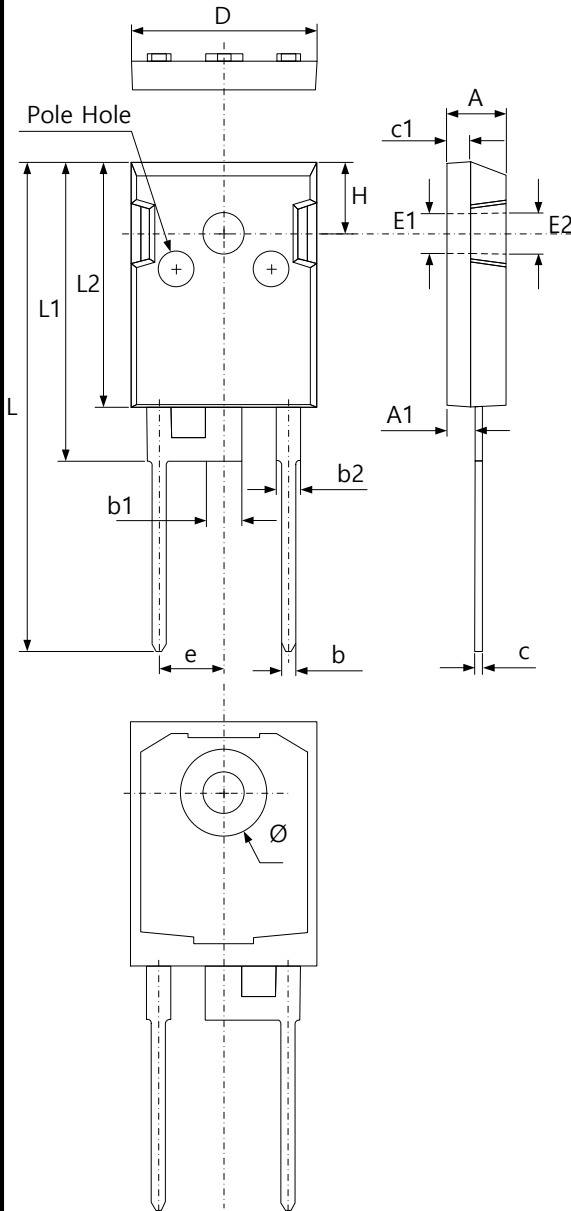


4) Capacitance VS. reverse voltage





Package Outline



SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	4.85	5.10	0.191	0.200
A1	2.20	2.60	0.087	0.102
B	1.00	1.40	0.039	0.055
B1	2.80	3.20	0.110	0.126
B2	1.80	2.20	0.071	0.087
C	0.50	0.70	0.020	0.028
C1	1.90	2.10	0.075	0.083
D	15.45	15.75	0.608	0.620
E1	3.5 REF		0.138REF	
E2	3.6 REF		0.142REF	
L	40.90	41.30	1.610	1.626
L1	24.80	25.10	0.976	0.988
L2	20.30	20.60	0.799	0.811
φ	7.10	7.30	0.280	0.287
e	5.45 TYP		0.215TYP	
H	5.98 REF		0.235REF	
h	0.00	0.30	0.000	0.012

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
M _d	Mounting torque	TO-247-2L M3 Screw 6-32 Screw	1/8.8	-	Nm/lbf.in.