

# P2CD01330B

3300V/1A SiC Power Schottky Barrier Diode Product



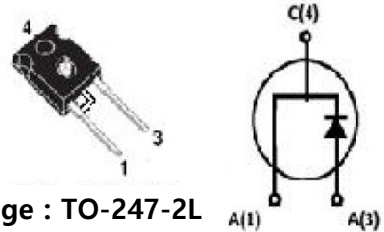
## Features

- 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
$I_F, T_C=164^\circ\text{C}$	1	A
$Q_C$	19	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	$T_C=25^\circ\text{C}$	5.1	A
		$T_C=135^\circ\text{C}$	2.7	A
		$T_C=164^\circ\text{C}$	1	A
$I_{FRM}$	Repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Wave, $D=0.3$	5	A
$I_{FSM}$	Non-repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Wave	7	A
$P_{TOT}$	Power Dissipation	$T_C=25^\circ\text{C}$	89.5	W
		$T_C=110^\circ\text{C}$	40	
$T_C$	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**

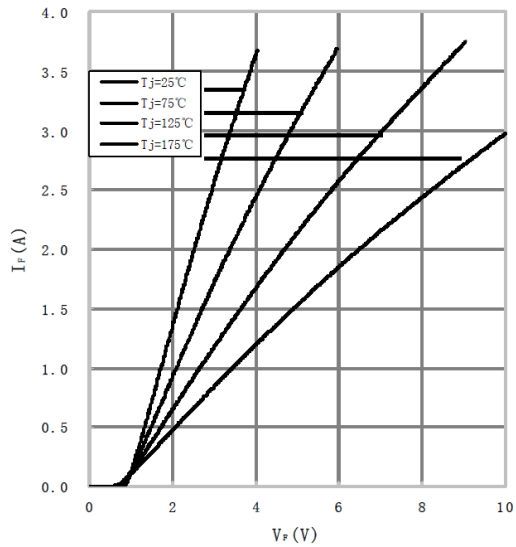
Symbol	Parameter	Test Condition	Value	Unit
			Typ.	
$R_{thJc}$	Thermal resistance from junction to case		1.676	°C/W

**Electrical Characteristics, Nomination temperature Tj=25°C**

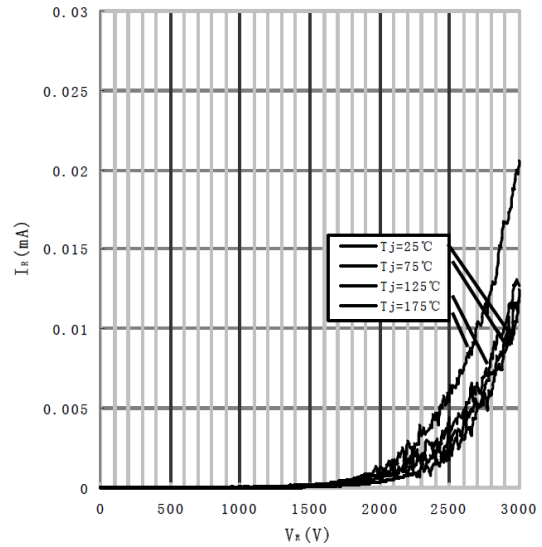
Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$V_F$	Forward Voltage	$I_F=1A, T_j=25^{\circ}C$	1.74	1.8	V
		$I_F=1A, T_j=175^{\circ}C$	3.5	3.7	
$I_R$	Reverse Current	$V_R=3300V, T_j=25^{\circ}C$	10	100	$\mu A$
		$V_R=3300V, T_j=175^{\circ}C$	15	200	
$Q_C$	Total capacitive Charge	$V_R=2200V, T_j=150^{\circ}C$ $Q_C = \int_0^{V_R} C(V)dV$	19	-	nC
C	Total Capacitance	$V_R=0V, T_j=25^{\circ}C, f=1MHZ$	124	138	pF
		$V_R=1000V, T_j=25^{\circ}C, f=1MHZ$	6.2	6.6	
		$V_R=2000V, T_j=25^{\circ}C, f=1MHZ$	4.8	5	

## Performance Graphs

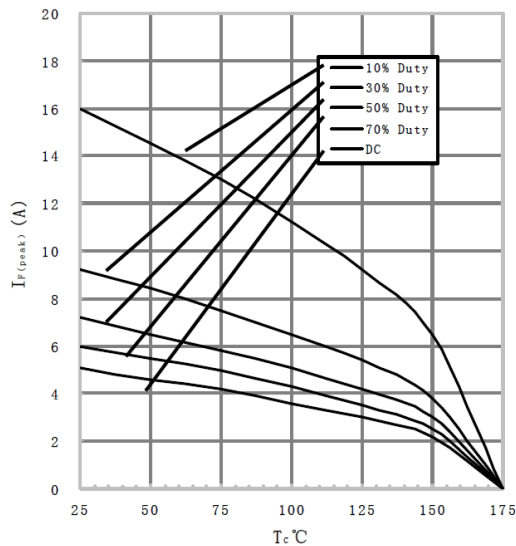
1) Forward IV characteristics as a function of  $T_j$



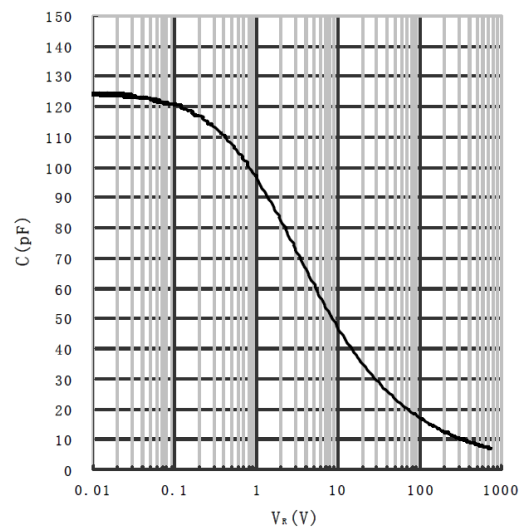
2) Reverse IV characteristics as a function of  $T_j$



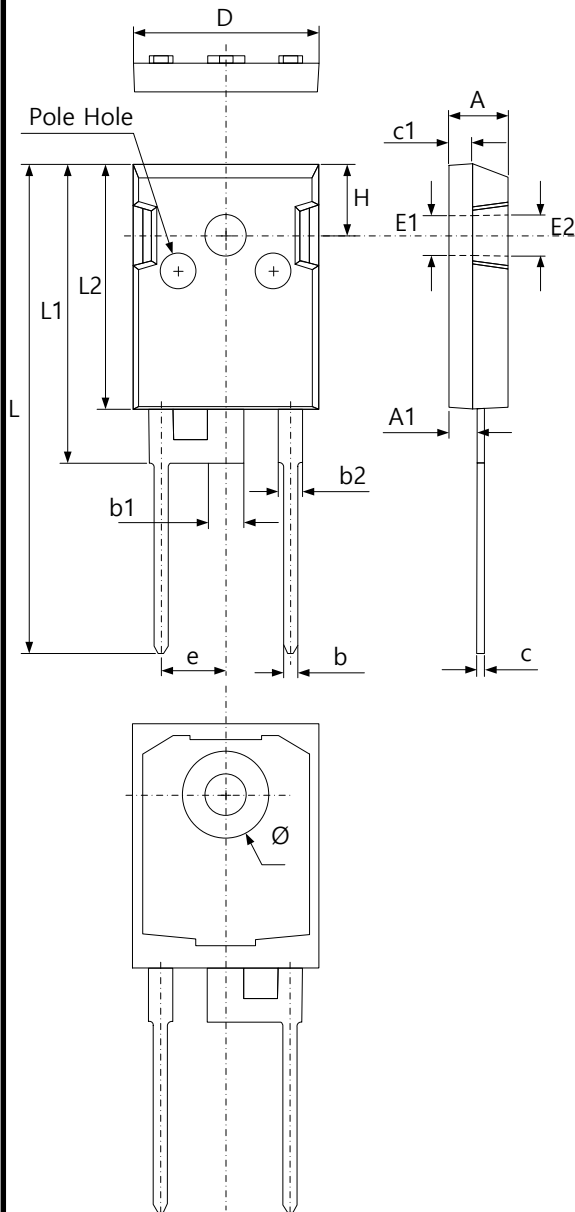
3) Current Derating



4) Capacitance VS. reverse voltage



### Package Outline



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

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