



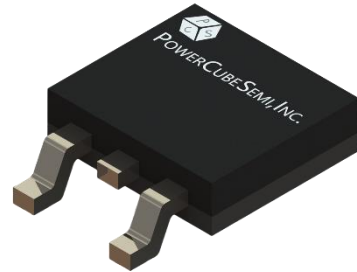
PCD02120C

1200V Silicon Carbide Diode

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

Package Outline

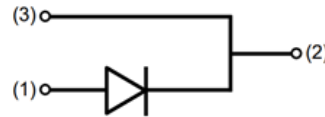


PKG : TO-252



Applications

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction



1. Anode
2. Case
3. Cathode

Absolute Maximum Ratings

$T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
V_{RSM}	Surge Peak Reverse Voltage	1200	V
V_{DC}	DC Blocking Voltage	1200	V
I_F	Continuous Forward Current	$T_C = 25^\circ\text{C}$	9
		$T_C = 135^\circ\text{C}$	4.3
		$T_C = 164^\circ\text{C}$	2
I_{FRM}	Repetitive Peak Forward Current	$T_C = 25^\circ\text{C}$	10
I_{FSM}	Non-Repetitive Forward Surge Current (PW=10ms sinusoidal)	$T_C = 25^\circ\text{C}$	30
$\int i^2 dt$	i^2t Value $T_C = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	4.5	A^2s
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	48
		$T_C = 110^\circ\text{C}$	21
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$

Electrical Characteristics

$T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
V_F	Forward Voltage	$I_F = 2\text{A}, T_C = 25^\circ\text{C}$ $I_F = 2\text{A}, T_C = 175^\circ\text{C}$	- -	1.36 1.78	1.7 2.5	V
I_R	Reverse Current	$V_R = 1200\text{V}, T_C = 25^\circ\text{C}$ $V_R = 1200\text{V}, T_C = 175^\circ\text{C}$	- -	1.2 7.6	50 100	μA
Q_C	Total Capacitive Charge	$V_R = 800\text{V}$	-	12	-	nC
C	Total Capacitance	$V_R = 0\text{V}, f = 1\text{MHz}$ $V_R = 400\text{V}, f = 1\text{MHz}$ $V_R = 800\text{V}, f = 1\text{MHz}$	- - -	177 12 10	- - -	pF
E_c	Capacitance Stored Energy	$V_R = 800\text{V}$	-	6	-	μJ

Thermal Characteristics

$T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Min	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	-	3.1	-	$^\circ\text{C/W}$

Typical Characteristics

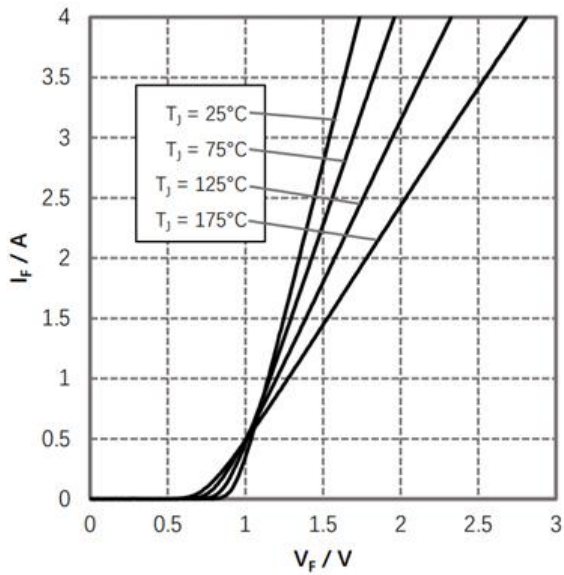


Figure 1. Forward Characteristics

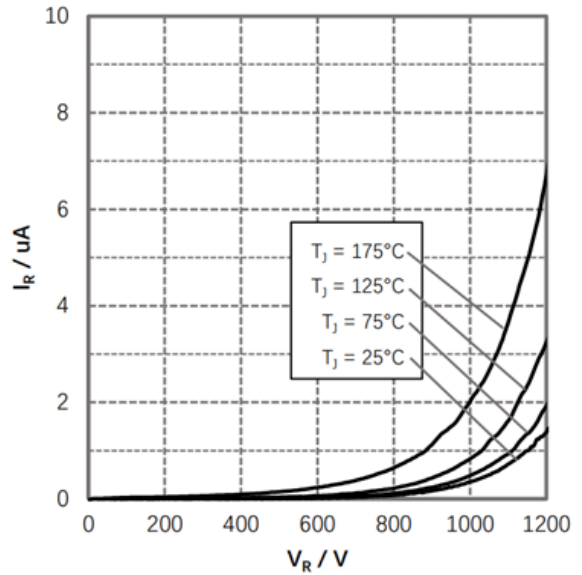


Figure 2. Reverse Characteristics

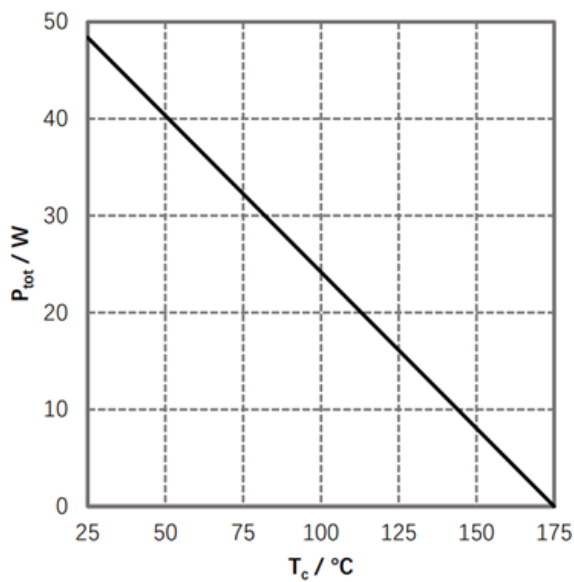


Figure 3. Power Dissipation

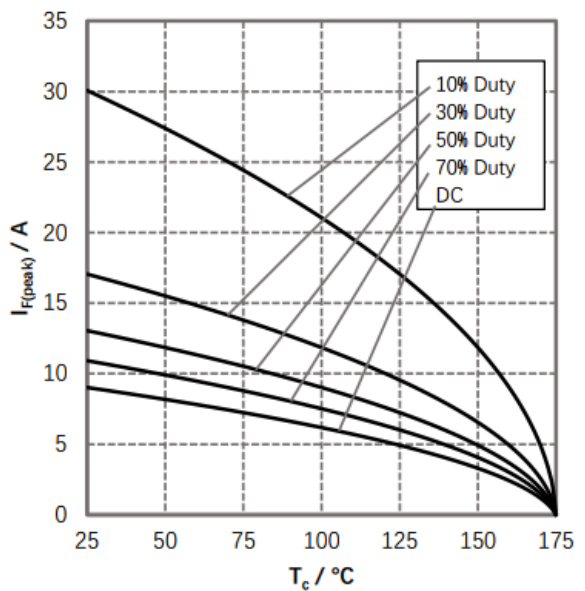


Figure 4. Peak Forward Current Derating

Typical Characteristics

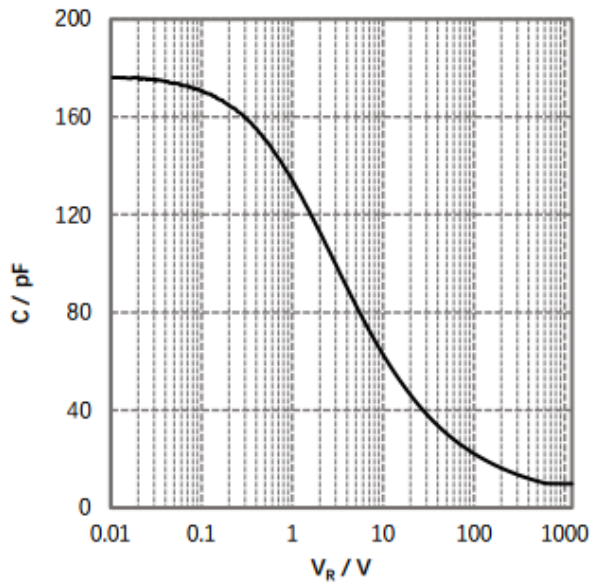


Figure 5. Capacitance VS. Reverse Voltage

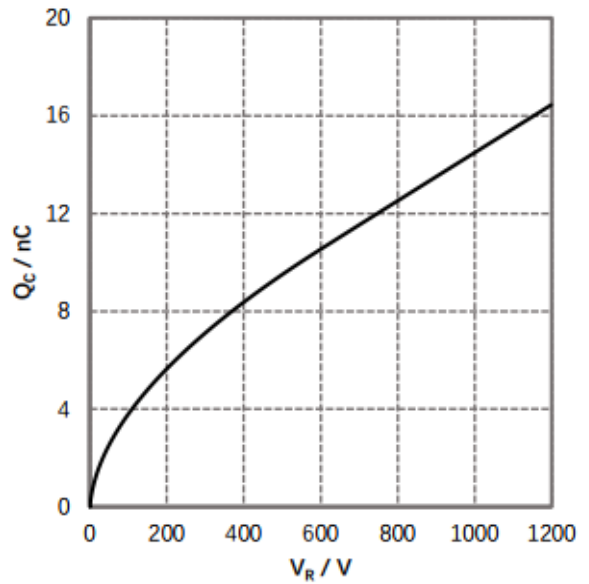


Figure 6. Reverse Charge VS. Reverse Voltage

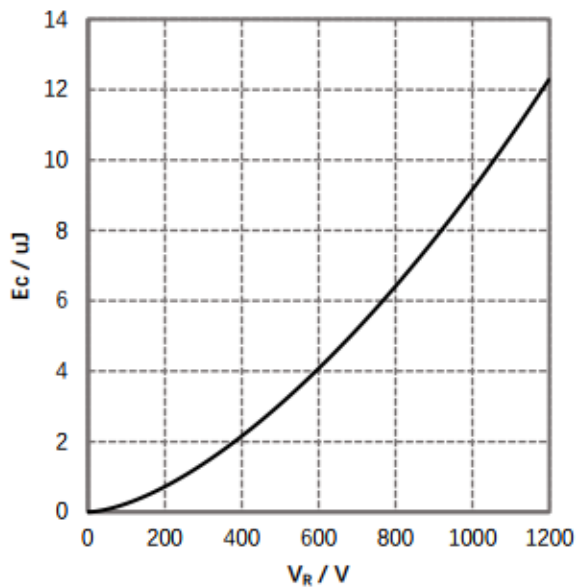


Figure 7. Capacitance Stored Energy

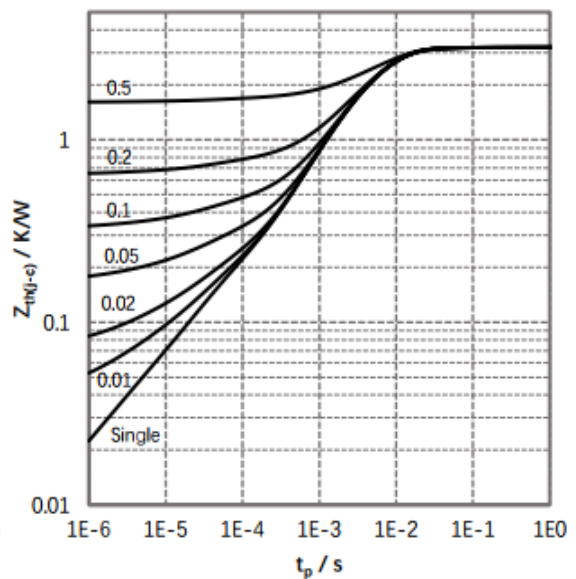
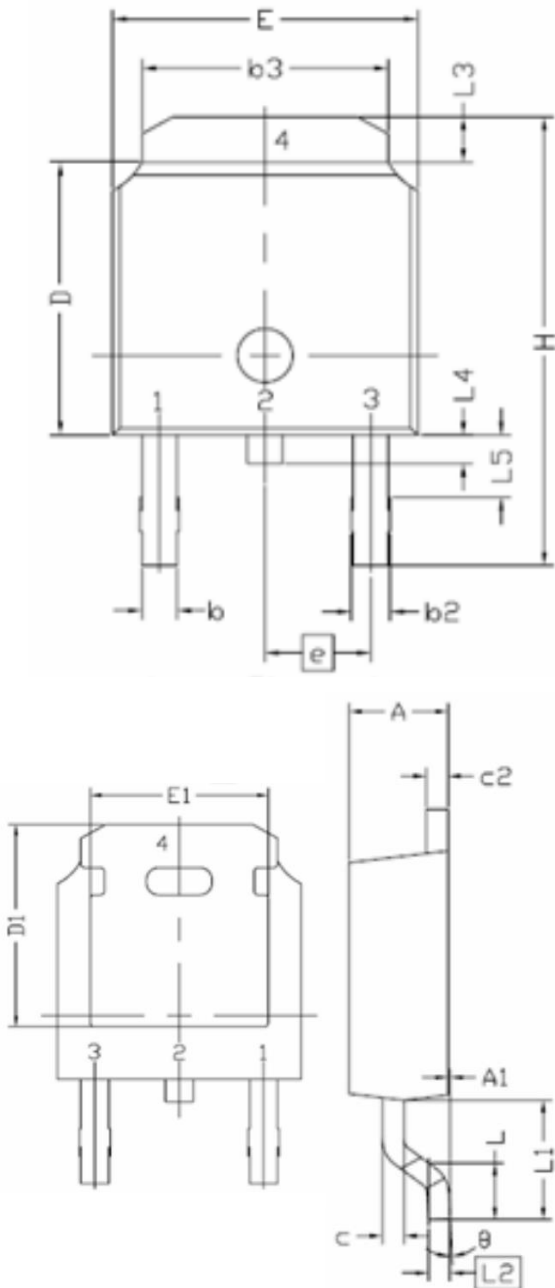


Figure 8. Transient Thermal Impedance

Package Outline

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
E	6.34	6.54	6.74	
L	1.30	1.60	1.90	
L1	2.60	2.90	3.20	
L2	0.5 BSC			
L3	0.82	1.02	1.22	
L4	0.80	1.00	1.20	
L5	2.60	2.90	3.20	
D	5.80	6.10	6.40	
H	8.40	9.00	9.60	
b	1.42	1.52	1.62	
b2	2.35	2.55	2.75	
b3	5.20	5.30	5.40	
e	4.58 BSC			
A	2.08	2.28	2.48	
A1	0.00	0.15	-	
c	0.40	0.50	0.60	
c2	0.40	0.50	0.60	
D1	-	5.25	-	
E1	-	4.8	-	
θ	0.00°	10.00°		