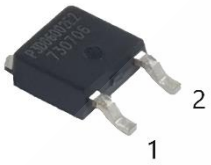
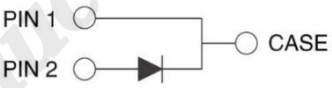
SiC SBD P6D12002E2

1200V SiC Schottky Diode



TO-252-2

Cathode	1
Anode	2



Features

- Ultra-Fast Switching
- Zero Reverse Recovery Current
- High-Frequency Operation
- Positive Temperature Coefficient on V_F
- High Surge Current
- 100% UIS tested

Standards Benefits

- Improve System Efficiency
- Reduction of Heat Sink Requirement
- Essentially No Switching Losses
- Parallel Devices Without Thermal Runaway

RoHS

Applications

- Consumer SMPS
- Boost Diodes in PFC or DC/DC Stages
- AC/DC Converters

Halogen

Order Information

Part Number	Package	Marking
P6D12002E2	TO-252-2	P6D12002E2

PN Junction Semiconductor

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1. Maximum Ratings

At T_J= 25℃, unless specified otherwise

Parameter	Symbol	Value	Unit	Test condition
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V	T_C= 25℃
Surge Peak Reverse Voltage	V_{RSM}	1200	V	T_C= 25℃
DC Blocking Voltage	V_R	1200	V	T_C= 25℃
Forward Current	I_F	6 4 2	A	T_C= 25℃ T_C= 125℃ T_C= 155℃
Repetitive Peak Forward Surge Current	I_{FRM}	11 6	A	T_C= 25℃, t_p= 10ms T_C= 125℃, t_p= 10ms
Non-Repetitive Forward Surge Current	I_{FSM}	18 12	A	T_C= 25℃, t_p= 10ms T_C= 125℃, t_p= 10ms
Power Dissipation	P_{tot}	40	W	T_C= 25℃
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 to +175	℃	

2. Thermal Characteristics

Parameter	Symbol	Values	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.7	℃/W

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3. Electrical Characteristics

At T_J= 25℃, unless specified otherwise

Parameter	Symbol	Values			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	/	1.5	1.8	V	I_F= 2A, T_J= 25℃
			2.3	/		I_F= 2A, T_J= 175℃
Reverse Current	I_R	/	17	50	μA	V_R= 1200V, T_J= 25℃
			384	/		V_R= 1200V, T_J= 175℃
Total Capacitance	C	/	124	/	pF	V_R= 0V, T_J= 25℃ f= 1MHz
			29.5			V_R= 400V, T_J= 25℃ f= 1MHz
			28.6			V_R= 800V, T_J= 25℃ f= 1MHz
Total Capacitive Charge	Q_C	/	25.2	/	nC	V_R= 800V, I_F= 2A di/dt= 100A/μs T_J= 25℃
Capacitance Stored Energy	E_C	/	9.14	/	μJ	V_R= 800V

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4. Typical Performance

At T_J= 25℃, unless specified otherwise

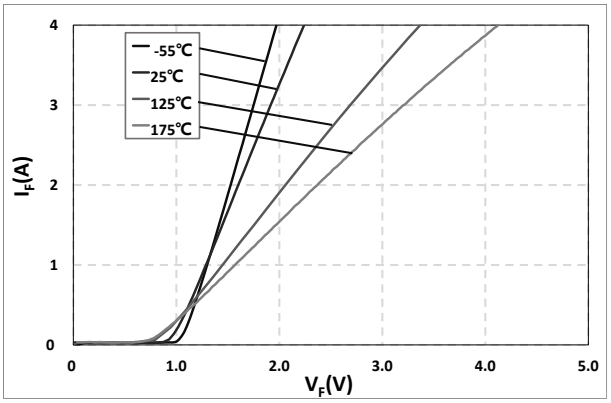

Fig. 1 Typical Forward Characteristics
$I_F = f(V_F)$; T_J = -55℃, 25℃, 125℃, 175℃

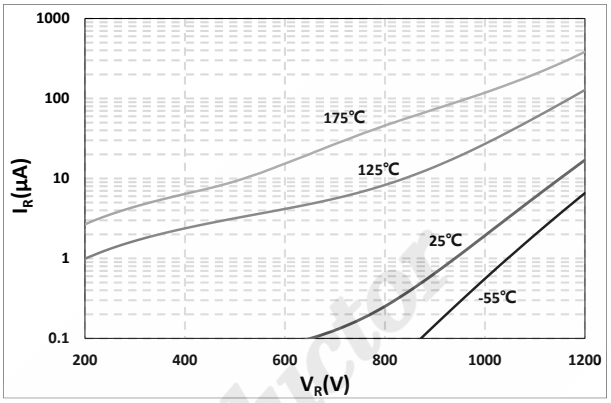

Fig. 2 Reverse Characteristics
$I_R=f(V_R)$; T_J = -55℃, 25℃, 125℃, 175℃

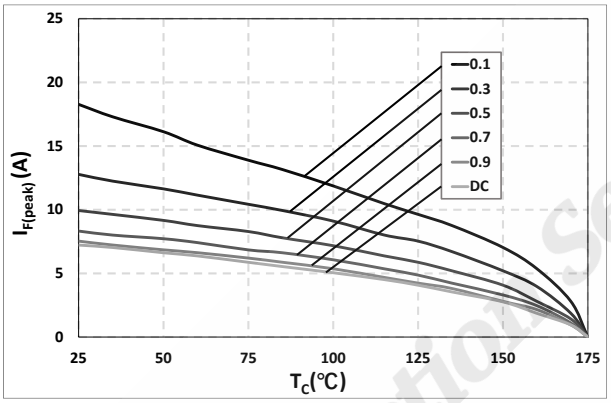

Fig. 3 Current Derating

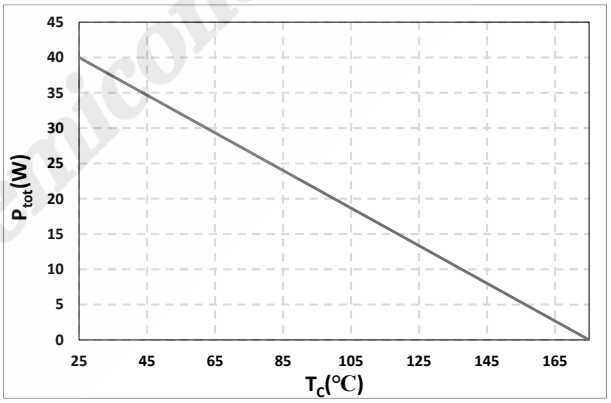

Fig. 4 Typical Power Derating
$P_{tot} = f(T_C)$

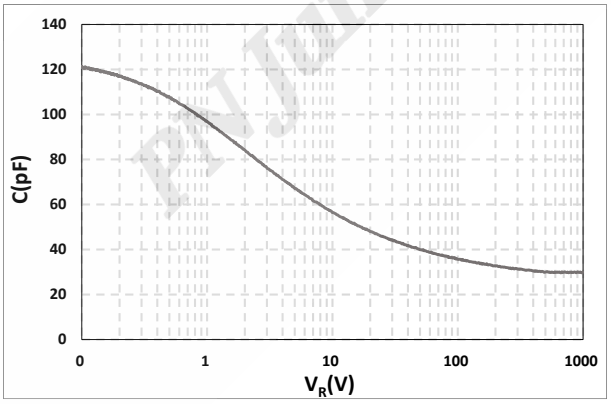

Fig. 5 Typical Total Capacitance
$C=f(V_R)$

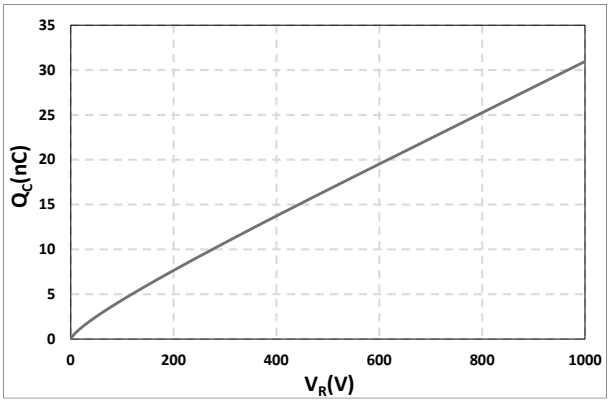

Fig. 6 Typical Total Capacitive Charge
$Q_C = f(V_R)$

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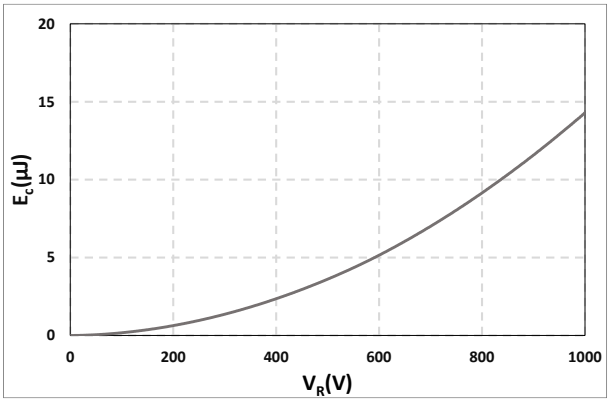


Fig. 7 Capacitance Stored Energy
$E_C = f(V_R)$

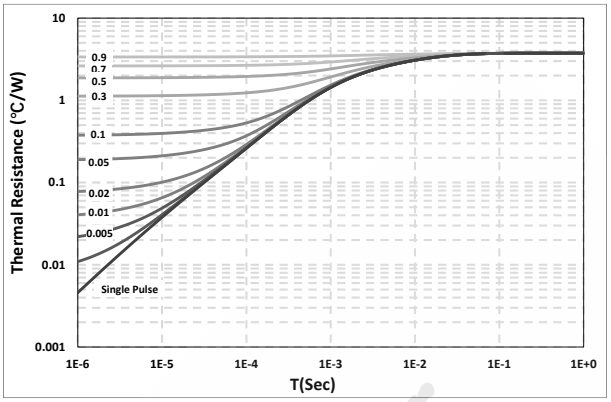
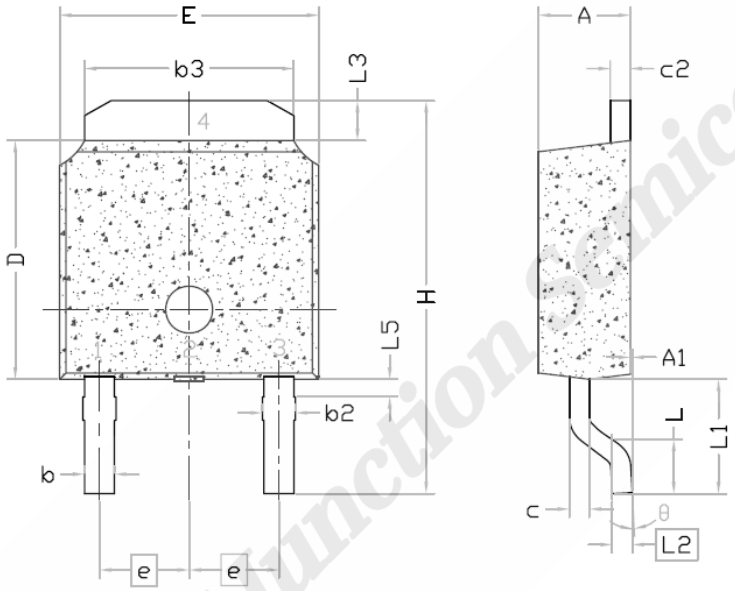


Fig. 8 Transient Thermal Impedance

5. Package Outlines



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	1.40	1.52	1.77
L1	2.743 REF		
L2	0.508 BSC		
L3	0.89	--	1.27
L5	--	--	--
D	6.00	6.10	6.223
H	9.40	10.00	10.40
b	0.64	0.76	0.88
b2	0.77	0.84	1.14
b3	5.21	5.34	5.46
e	2.286 BSC		
A	2.20	2.30	2.38
A1	0	--	0.127
c	0.46	0.50	0.60
c2	0.46	0.50	0.58
D1	5.21	--	--
E1	4.40	--	--
F	--	--	0.45
θ	0°	--	10°

Drawing and Dimensions

PN Junction Semiconductor