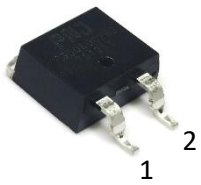
SiC SBD P3D06002G2

650V SiC Schottky Diode

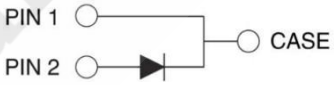


Features

- Qualified to AEC-Q101
- Ultra-Fast Switching
- Zero Reverse Recovery Current
- High-Frequency Operation
- Positive Temperature Coefficient on VF
- High Surge Current
- 100% UIS Tested

TO-263-2

Cathode	1
Anode	2



Standards Benefits

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

RoHS

Application

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

Halogen

Order Information

Part Number	Package	Marking
P3D06002G2	TO-263-2	P3D06002G2

PNJ Preliminary

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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}	650	V	T_C= 25℃
Surge Peak Reverse Voltage	V_{RSM}	650	V	T_C= 25℃
DC Blocking Voltage	V_R	650	V	T_C= 25℃
Forward Current	I_F	7 4 2	A	T_C= 25℃ T_C= 125℃ T_C= 158℃
Repetitive Peak Forward Surge Current	I_{FRM}	13 6	A	T_C= 25℃, t_p= 10ms T_C= 125℃, t_p= 10ms
Non-Repetitive Forward Surge Current	I_{FSM}	23 20	A	T_C= 25℃, t_p= 10ms T_C= 125℃, t_p= 10ms
Non-Repetitive Forward Surge Current	$I_{F, MAX}$	172 174	A	T_C= 25℃, t_p= 10μs T_C= 125℃, t_p= 10μs
Power Dissipation	P_{tot}	36	W	T_C= 25℃
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 to +175	℃	

PNJ Preliminary

2. Thermal Characteristics

Parameter	Symbol	Values	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	4.18	℃/W

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	1.7	V	I_F= 2A, T_J= 25℃
			2.0	/		I_F= 2A, T_J= 175℃
Reverse Current	I_R	/	1.5	10	μA	V_R= 650V, T_J= 25℃
			104	/		V_R= 650V, T_J= 175℃
Total Capacitance	C	/	63.3	/	pF	V_R= 0V, T_J= 25℃ f= 1MHz
			5.61			V_R= 200V, T_J= 25℃ f= 1MHz
			4.23			V_R= 400V, T_J= 25℃ f= 1MHz
Total Capacitive Charge	Q_C	/	3.02	/	nC	V_R= 400V, I_F= 2A di/dt= 500A/μs T_J= 25℃

PNJ Preliminary

4. Typical Performance

At T_J= 25℃, unless specified otherwise

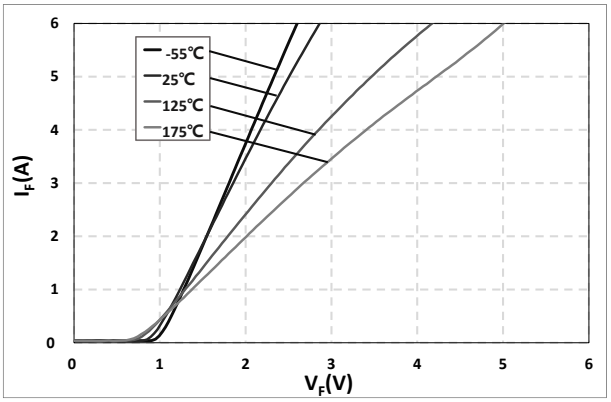


Fig. 1 Typical Forward Characteristics
$I_F = f(V_F)$; T_J = -55℃, 25℃, 125℃, 175℃

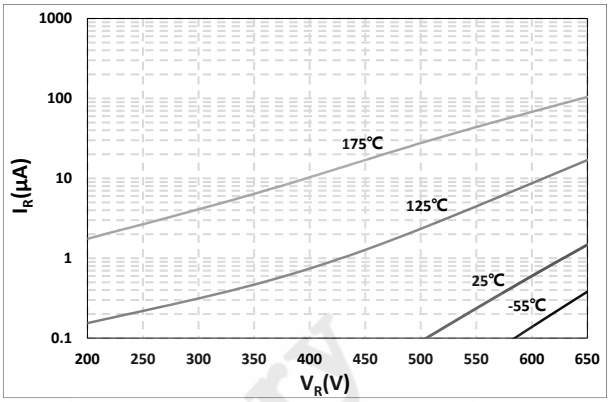


Fig. 2 Reverse Characteristics
$I_R=f(V_R)$; T_J = -55℃, 25℃, 125℃, 175℃

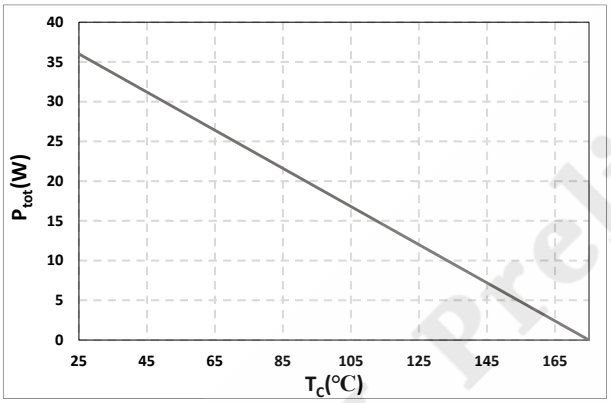


Fig. 3 Typical Power Derating
$P_{tot} = f(T_C)$

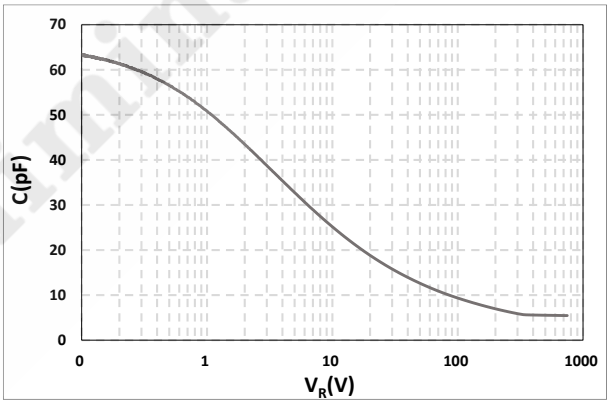


Fig. 4 Typical Total Capacitance
$C=f(V_R)$

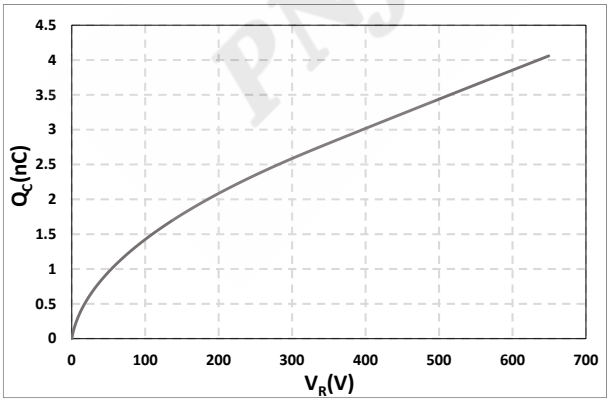


Fig. 5 Typical Total Capacitive Charge
$Q_C = f(V_R)$

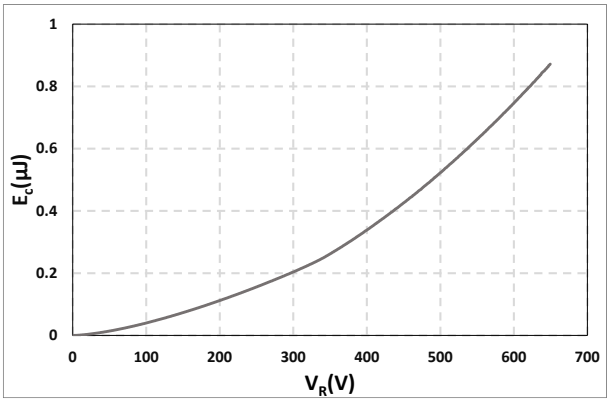
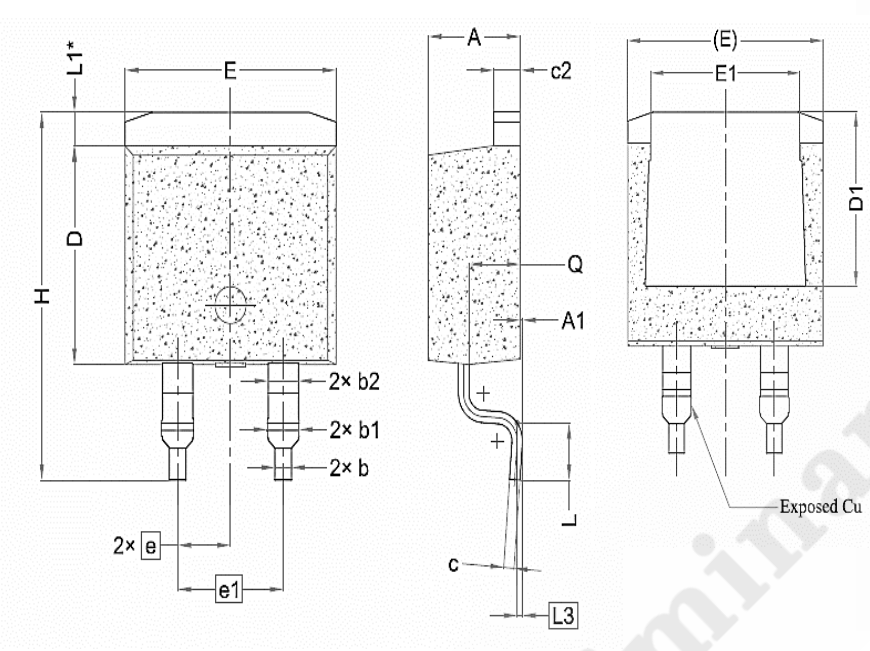


Fig. 6 Capacitance Stored Energy
$E_C = f(V_R)$

PNJ Preliminary

5. Package Outlines



SYMBOL	DIMENSIONS		
	MIN.	NOM.	MAX.
A	4.24	4.44	4.64
A1	0.00	0.10	0.25
b	0,70	0,80	0,90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0,40	0,50	0,60
c2	1,15	1,27	1,40
D	8.82	8.92	9.02
D1	6,86	7,65	—
E	9.96	10.16	10.36
E1	6.89	7.77	7.89
e	2,54 BSC		
e1	5.08 BSC		
H	14.61	15.00	15.88
L	1,78	2,32	2,79
L1	1.36 REF.		
L3	0.25 BSC		
Q	2,30	2,48	2,70

Drawing and dimensions

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