S4D065V015S

SiC Schottky Diode

Features:

- 650V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent Switching

Benefits:

- Unipolar Rectifier
- Minimal switching loss
- Higher Efficiency
- Low cooling requirement

Symbol	Value	Unit
V_{RRM}	650	V
$I_{F\ (Tc=152^oC)}$	15	A
Q_C	34	nC

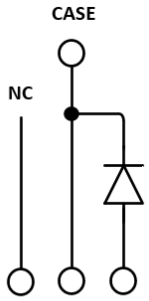
Applications:

- Switch Mode Power Supply
- Booster diodes in PFC, DC/DC
- AC/DC converters

Outline

TO-247-3

Circuit



Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions
V_R	DC Peak Reverse Voltage	650	V	T_J =25°C
V_{RRM}	Repetitive Peak Reverse	650	V	T_J =25°C
V_{RSM}	Surge Peak Reverse Voltage	650	V	T_J =25°C
I_F	Continuous Forward Current	47 22 15	A	T_C =25°C T_C =135°C T_C =152°C
I_{FRM}	Repetitive Peak Forward Surge Current	91 81	A	T_C =25°C, T_P=10ms, Half Sine Wave Tc=110°C, T_P =10ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	120 109	A	T_C =25°C, T_P =10ms, Half Sine Wave Tc=110°C, T_P =10ms, Half Sine Wave
P_D	Power Dissipation	187 62.5	W	T_C =25°C Tc=125°C
$T_{J,max}$	Operating Junction Temperature	175	°C	
T_{stg}	Storage Temperature Range	-55 to 175	°C	

Thermal characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Thermal resistance		0.80		°C/W

Electrical Characteristics

Symbol	Parameter	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
V_{DC}	DC Blocking Voltage	650			V	I_R = 100μA, T_J = 25°C
V_F	Forward Voltage		1.45 1.8	1.7 2.1	V	I_F = 15A, T_J = 25°C I_F = 15A, T_J = 175°C
I_R	Reverse Current		5 10	100 200	μA	V_R = 650V, T_J = 25°C V_R = 650V, T_J = 175°C
Q_C	Total Capacitive Charge		34		nC	I_F = 15A, dI/dt = 350A/μs T_J = 25°C, V_R = 400V
C	Total Capacitance		644 88 85		pF	V_R = 1V, T_J = 25°C, f = 1 MHz V_R = 200V, T_J = 25°C, f = 1 MHz V_R = 400V, T_J = 25°C, f = 1 MHz

Typical Performance

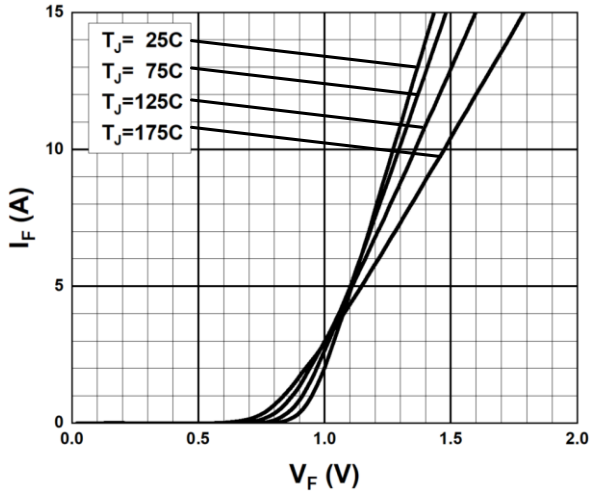


Fig. 1 Forward Characteristics

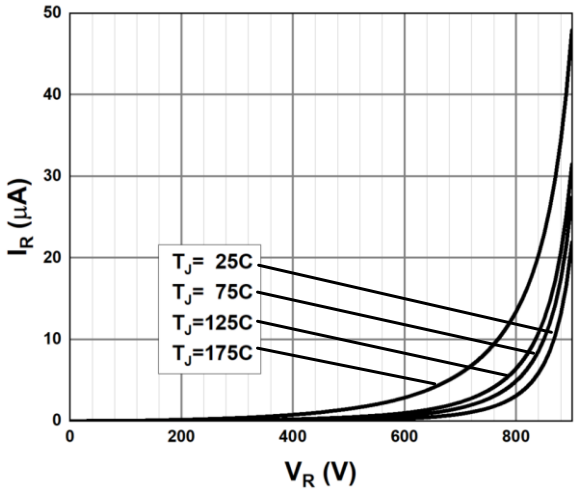


Fig. 2 Reverse Characteristics

Typical Performance

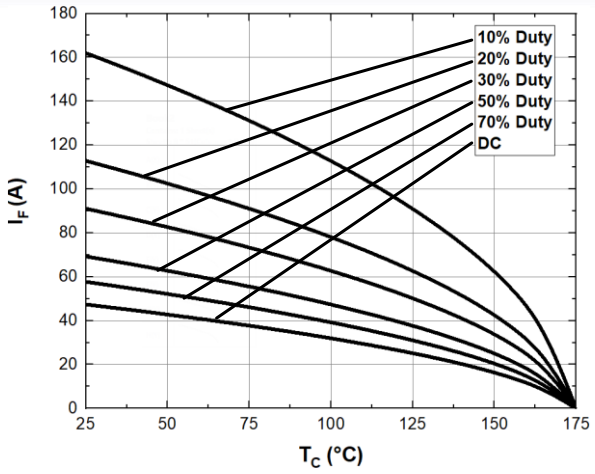


Fig. 3 Current Derating

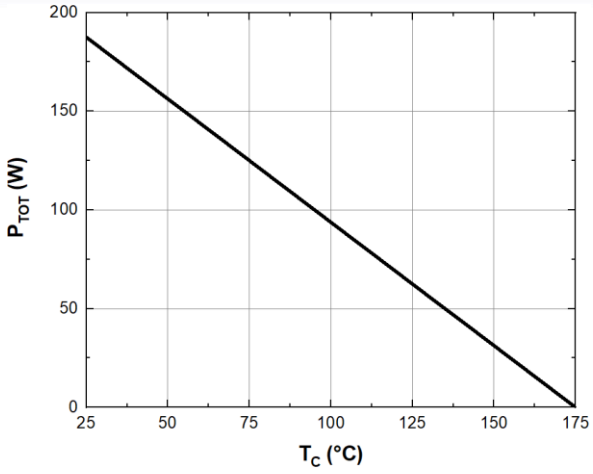


Fig. 4 Power Derating

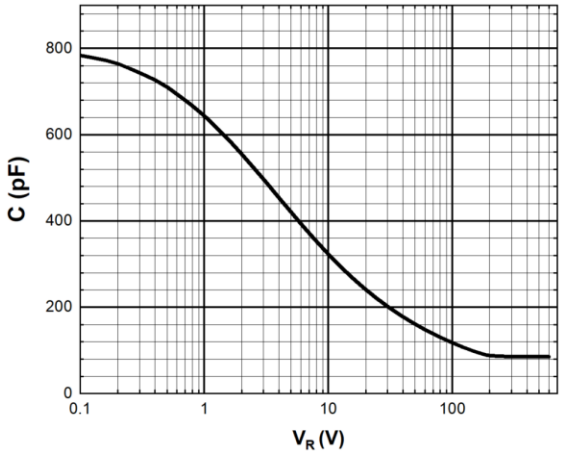


Fig. 5 Capacitance vs. Reverse Voltage

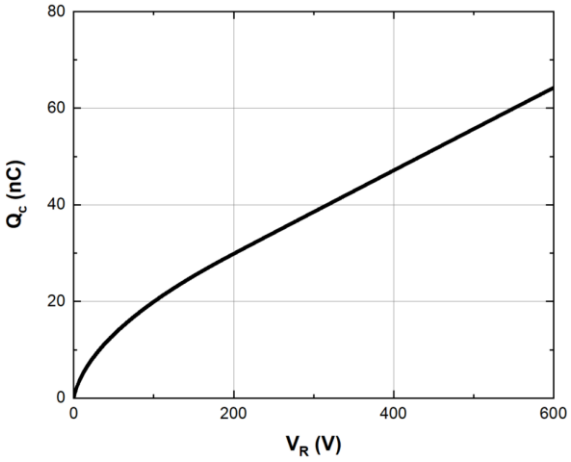


Fig. 6 Recovery Charge vs. Reverse Voltage

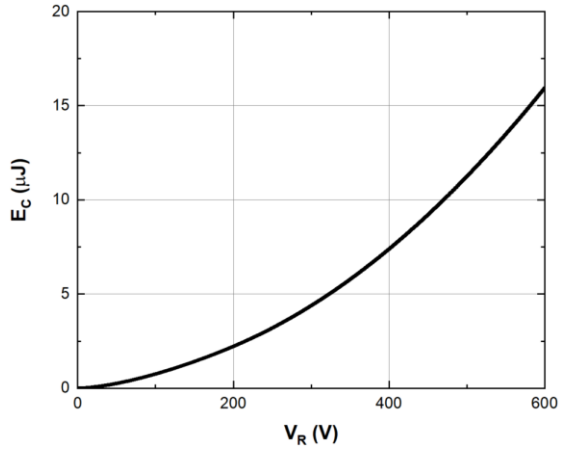


Fig. 7 Capacitance stored Energy

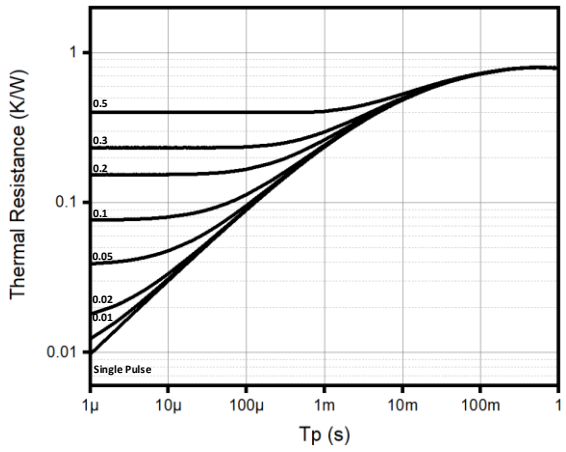
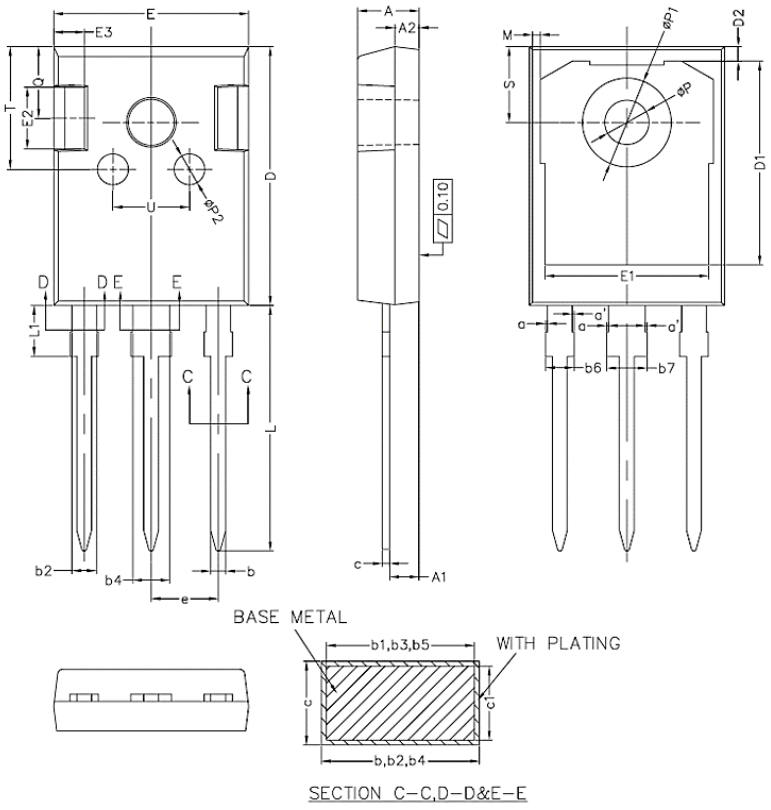


Fig. 8 Thermal Impendance

Package TO-247-3 （Unit: mm）



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	4.90	5.00	5.10
A1	2.31	2.41	2.51
A2	1.90	2.00	2.10
a	0	–	0.15
a'	0	–	0.15
b	1.16	–	1.26
b1	1.15	1.2	1.22
b2	1.96	–	2.06
b3	1.95	2.00	2.02
b4	2.96	–	3.06
b5	2.95	3.00	3.02
b6	–	–	2.25
b7	–	–	3.25
c	0.59	–	0.66
c1	0.58	0.60	0.62
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.20	1.35
E	15.70	15.80	15.90
E1	13.10	13.30	13.50
E2	4.90	5.00	5.10
E3	2.40	2.50	2.60
e	5.34	5.44	5.54
L	19.80	19.92	20.10
L1	–	–	4.30
M	0.35	–	0.95
P	3.50	3.60	3.70
P1	7.00	–	7.40
P2	2.40	2.50	2.60
Q	5.60	–	6.00
S	6.05	6.15	6.25
T	9.80	–	10.20
U	6.00	–	6.40

NOTES:
1.ALL DIMENSIONS REFER TO JEDEC STANDARD TO-247 AD DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.
2.EJECTION MARK DEPTH $0.10^{+0.15}_{0.05}$

AZ Power Inc.
Providing A to Z Power Solutions

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