S4D065V008E

SiC Schottky Diode

Features:

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

Benefits:

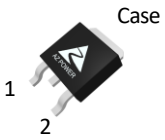
- Unipolar Rectifier
- Minimal switching loss
- Higher Efficiency
- Low cooling requirement

Symbol	Value	Unit
V_{RRM}	650	V
$I_{F\ (Tc=121ºC)}$	8	A
Q_C	28	nC

Applications:

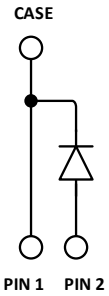
- Switch Mode Power Supply
- Booster diodes in PFC, DC/DC
- AC/DC converters

Outline



TO-252-2

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 Voltage	650	V	T_J =25°C
V_{RSM}	Surge Peak Reverse Voltage	650	V	T_J =25°C
I_F	Continuous Forward Current	13.7 10.8 8	A	T_C =25°C T_C =75°C T_C =121°C
I_{FRM}	Repetitive Peak Forward Surge Current	56 50	A	T_C =25°C, T_P=10ms, Half Sine Wave Tc=125°C, T_P =10ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	74 67	A	T_C =25°C, T_P =10ms, Half Sine Wave Tc=125°C, T_P =10ms, Half Sine Wave
P_D	Power Dissipation	44 19	W	T_C =25°C Tc=110°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		3.4		℃/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		1.4 2.0	1.7 2.4	V	I_F=8A, T_J=25°C I_F=8A, T_J=175°C
I_R	Reverse Current		1 10	30 100	μA	V_R=650V, T_J =25°C V_R=650V, T_J =175°C
Q_C	Total Capacitive Charge		28		nC	I_F=8A, dI/dt=400A/μs T_J =25°C, V_R=400V
C	Total Capacitance		329 45 43		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

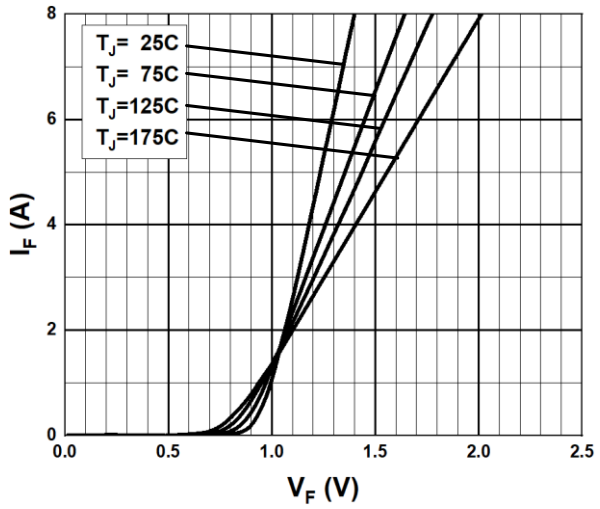


Fig. 1 Forward Characteristics

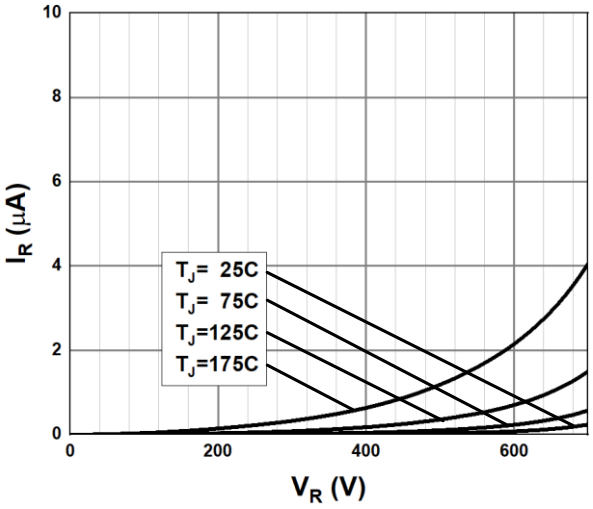


Fig. 2 Reverse Characteristics

Typical Performance

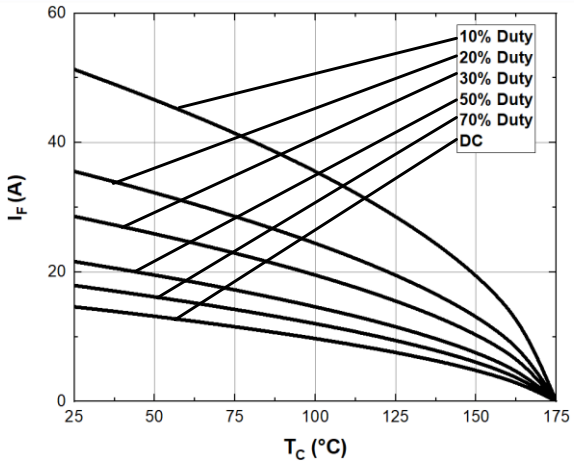


Fig. 3 Current Derating

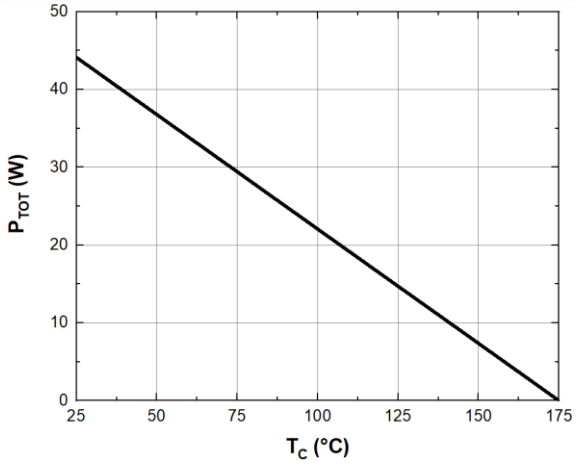


Fig. 4 Power Derating

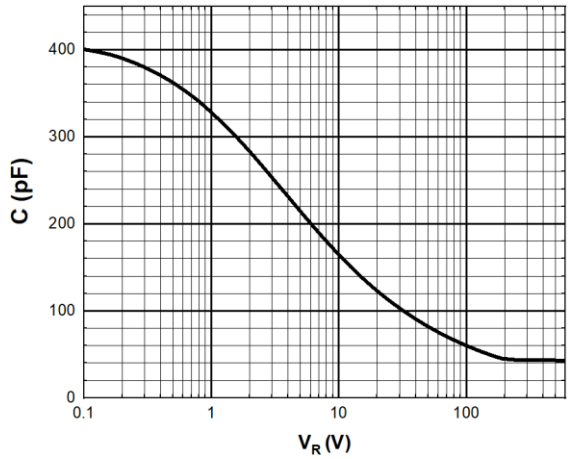


Fig. 5 Capacitance vs. Reverse Voltage

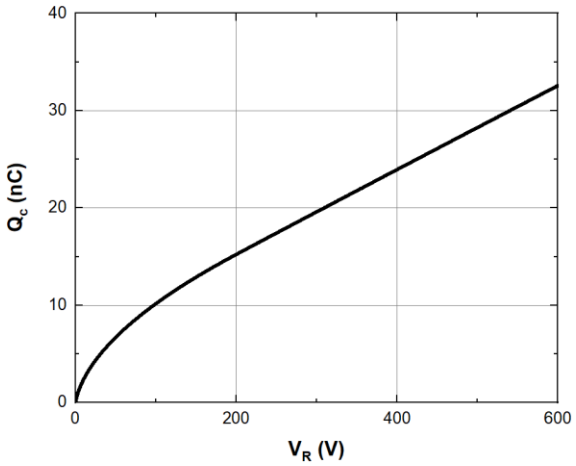


Fig. 6 Recovery Charge vs. Reverse Voltage

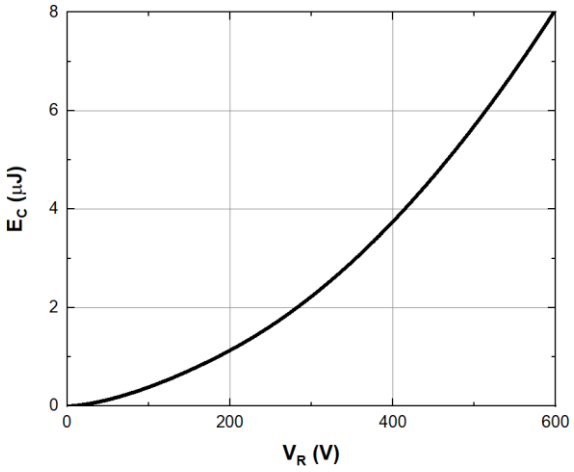
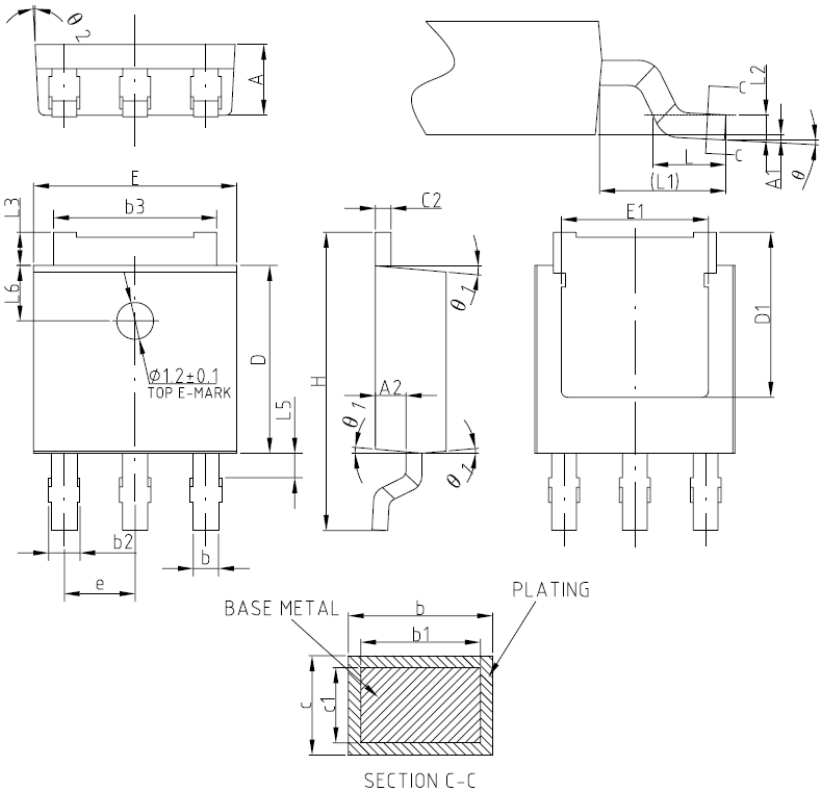


Fig. 7 Capacitance stored Energy

Package TO-252-2 （Unit: mm）



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0	–	0.10
A2	0.90	1.00	1.10
b	0.77	–	0.89
b1	0.76	0.81	0.86
b2	0.77	–	1.10
b3	5.23	5.33	5.43
c	0.47	–	0.60
c1	0.46	0.51	0.56
c2	0.47	–	0.60
D	6.00	6.10	6.20
D1	5.25	–	–
E	6.50	6.60	6.70
E1	4.70	–	–
e	2.28BSC		
H	9.80	10.10	10.40
L	1.40	1.50	1.70
L1	2.90REF		
L2	0.51BSC		
L3	0.90	–	1.25
L5	0.90	–	1.50
L6	1.80REF		
θ	0°	–	8°
θ1	3°	5°	7°
θ2	1°	3°	5°

NOTES:
ALL DIMENSIONS REFER TO JEDEC STANDARD TO-252 AA DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.

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Providing A to Z Power Solutions

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