ASZD050120C

1200V,50A Silicon Carbide Schottky Diode

Features

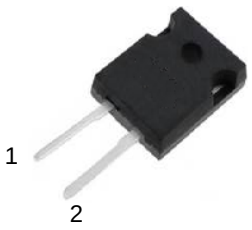
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current

V_{RRM}	=	1200	V
I_F (T_C =145 ℃)	=	50	A
Q_C	=	303	nC

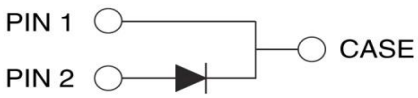
Benefits

- System efficiency improvement over Si diodes
- Higher switching frequency
- Increased power density
- Essentially no switching losses

Package



TO-247-2



Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- On Board Charger
- UPS

Part Number	Package	Marking
ASZD050120C	TO-247-2	ASZD050120C

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1200V,50A Silicon Carbide Schottky Diode

Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		1200	V
V_{RSM}	Non-repetitive peak reverse voltage		1200	V
I_F	Continuous forward current	T_C=25°C T_C=135°C T_C=145°C	130 60 50	A
I_{FRM}	Repetitive forward surge current	T_C=25°C , t_p=10ms, Half Sine Pulse T_C=110°C , t_p=10ms, Half Sine Pulse	200 175	A
I_{FSM}	Non-Repetitive forward surge current	T_C=25°C , t_p=10ms, Half Sine Pulse T_C=110°C , t_p=10ms, Half Sine Pulse	400 350	A
$\int i^2dt$	i^2t value	T_C=25°C , t_p=10ms, Half Sine Pulse T_C=110°C , t_p=10ms, Half Sine Pulse	800 612.5	A^2S
P_{tot}	Power dissipation	T_C=25°C T_C=110°C	469 203	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~175	°C

Electrical Characteristics (T_j=25°C unless otherwise specified)

Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	T_j=25°C	1200			V
V_F	Diode forward voltage	I_F=50A T_j=25°C I_F=50A T_j=175°C		1.4 1.9	1.8	V
I_R	Reverse current	V_R=1200V T_j=25°C V_R=1200V T_j=175°C		1 10	100 200	μA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capactive charge	V_R=800V T_j=25°C $Q_C = \int_0^{VR} C(V)dV$		303		nC
C	Total capacitance	V_R=1V f=1MHz V_R=400V f=1MHz V_R=800V f=1MHz		4060 282 204		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.32		°C/W

Typical Performance

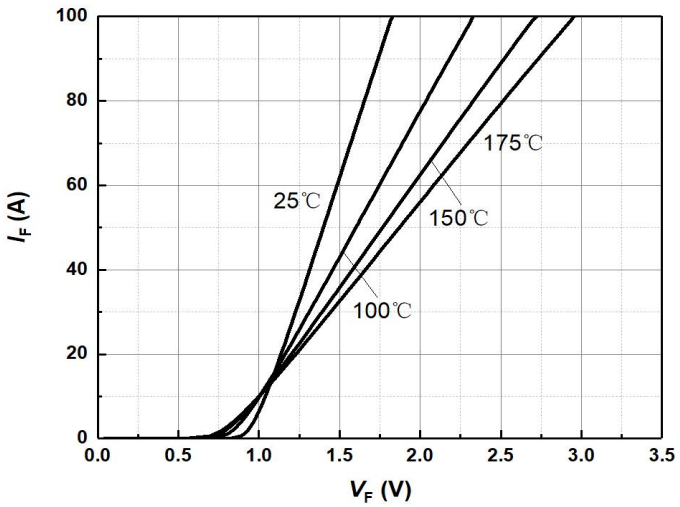

Figure 1. Typical forward characteristics

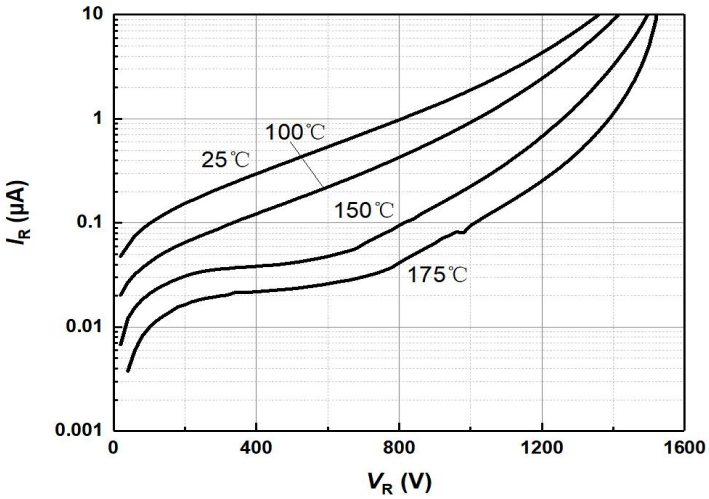

Figure 2. Typical reverse current as function of reverse voltage

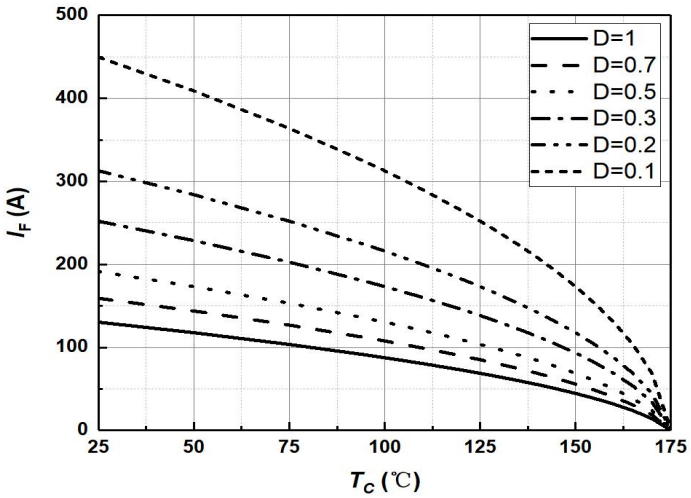

Figure 3. Diode forward current as function of temperature

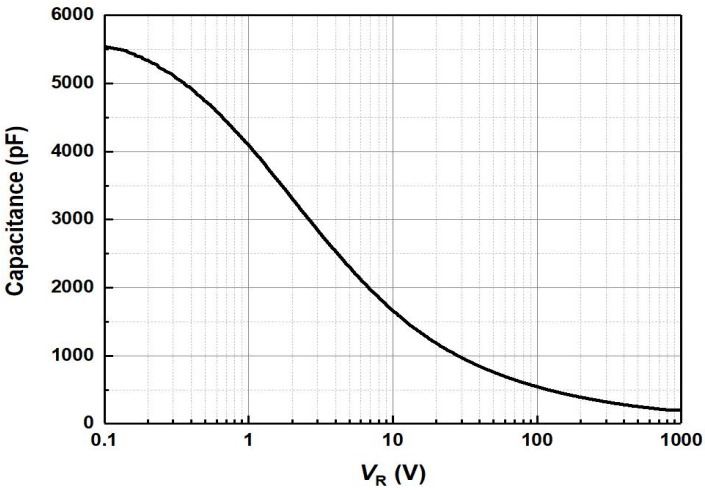

Figure 4. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C

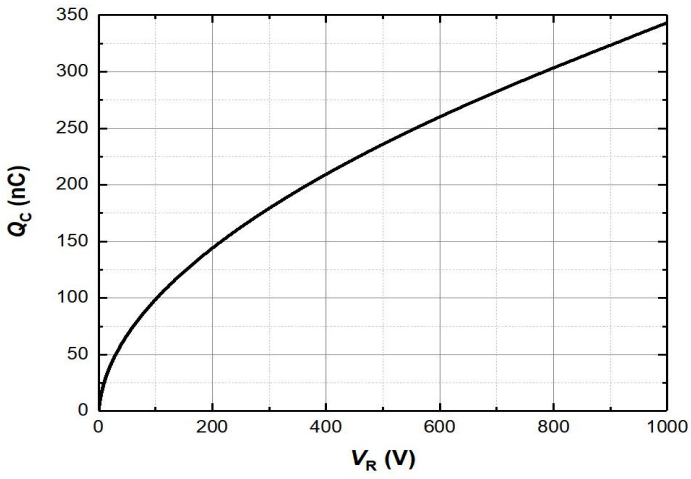

Figure 5. Typical reverse charge as function of reverse voltage

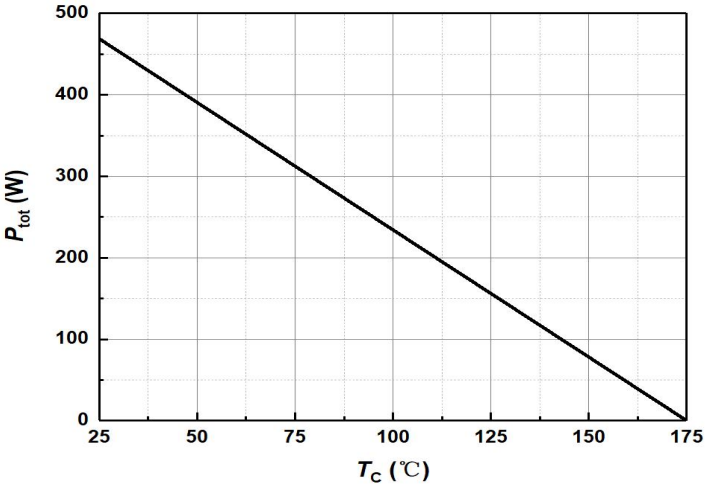

Figure 6. Power dissipation as function of case temperature

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AS-3270072	2024/04/23	2025/04/08	A1	5

Typical Performance

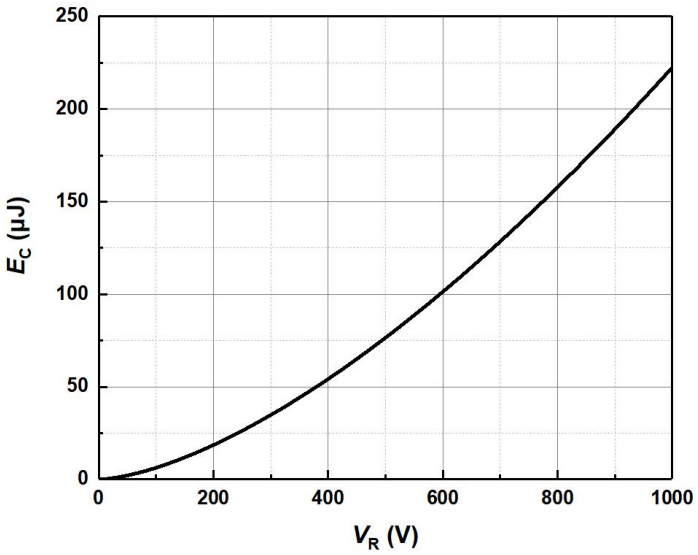


Figure 7.Capacitance stored energy

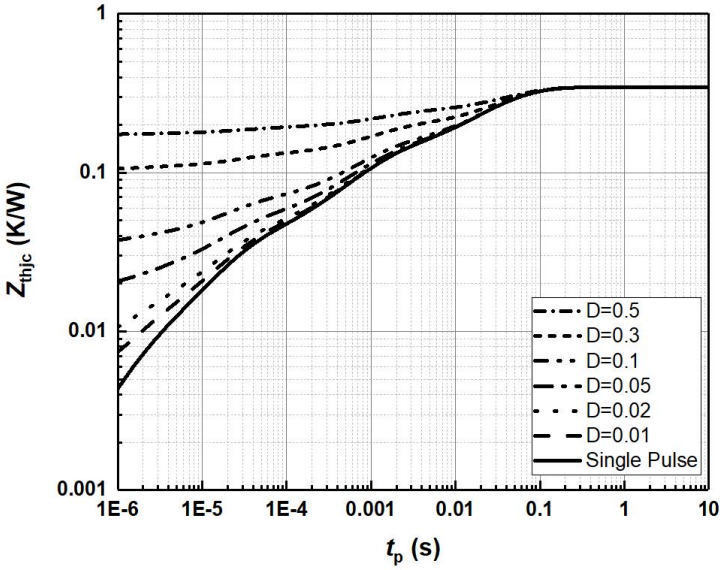
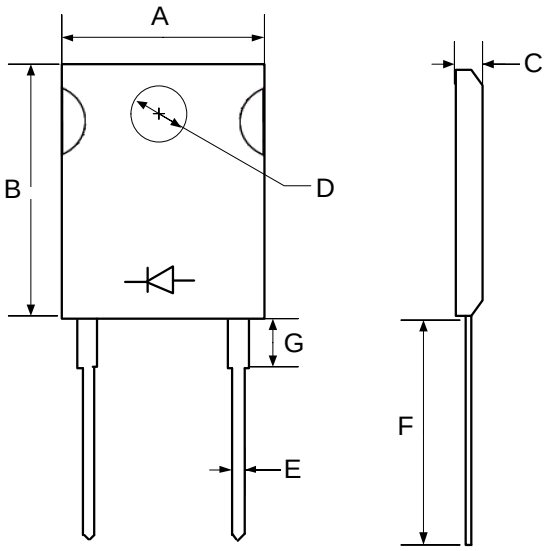


Figure 8. Max. transient thermal impedance

Package Dimensions

Package TO-247-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	14.18	15.75	17.33
B	18.45	20.5	22.55
C	4.50	5.00	5.50
D	3.15	3.50	3.85
E	1.08	1.20	1.33
F	18.27	20.30	22.33
G	4.21	4.68	5.15