ASZD040065C

650V, 40A Silicon Carbide Schottky Diode

Features

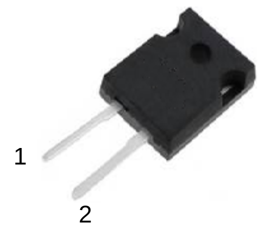
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current
- Halogen free, RoHs compliant

V_{RRM}	=	650	V
I_F (T_C=144°C)	=	40	A
Q_C	=	51	nC

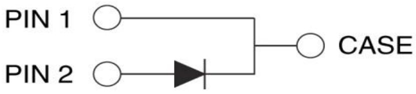
Benefits

- 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
ASZD040065C	TO-247-2	ASZD040065C

Maximum Ratings(T_C =25℃,unless other wise specified)

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
V_{RSM}	Non-repetitive peak reverse voltage		650	V
I_F	Continuous forward current	T_C=25°C T_C=135°C T_C=144°C	108 48 40	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	162 116	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	270 232	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	364.5 269	A^2S
P_{tot}	Power dissipation	T_C=25°C T_C=110°C	300 130	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~150	°C

Electrical Characteristics(T_j =25℃,unless other wise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	T_j=25°C	650			V
V_F	Diode forward voltage	I_F=40A T_j=25°C I_F=40A T_j=175°C		1.38 1.54	1.5	V
I_R	Reverse current	V_R=650V T_j=25°C V_R=650V T_j=175°C		1 4	100 200	μA
Q_C	Total capactive charge	V_R=400V T_j=25°C $Q_C = \int_0^{VR} C(V)dV$		51		nC
C	Total capacitance	V_R=0.1V f=1MHz V_R=200V f=1MHz V_R=400V f=1MHz		1006 98 77		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.5		°C/W

Typical Performance

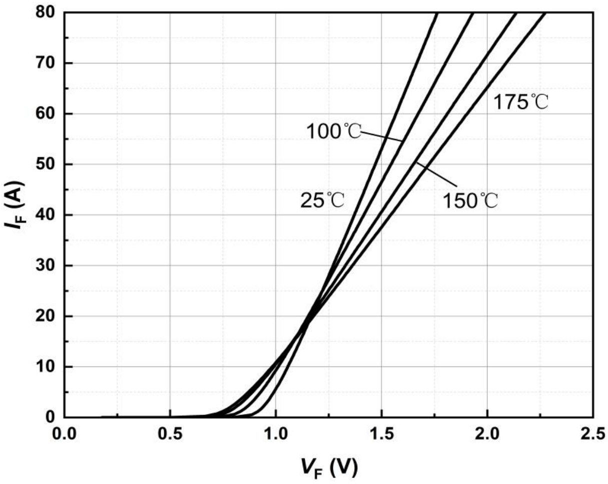


Figure 1. Typical forward characteristics

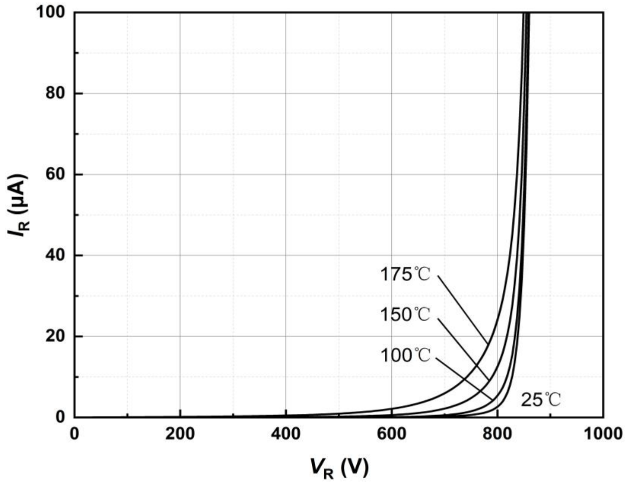


Figure 2. Typical reverse current as function of reverse voltage

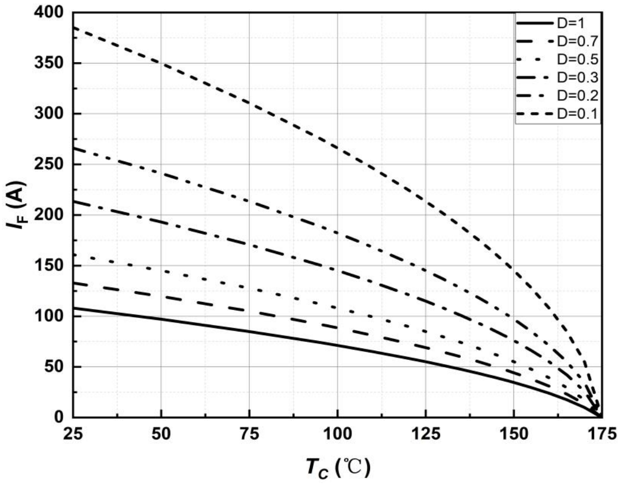


Figure 3. Diode forward current as function of temperature, D=duty cycle

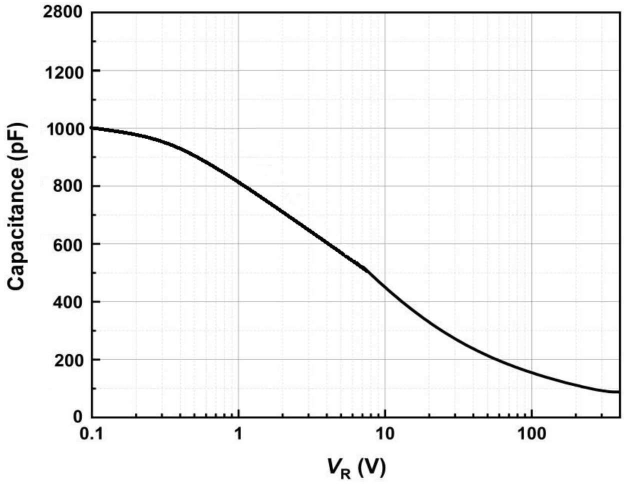


Figure 4. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C

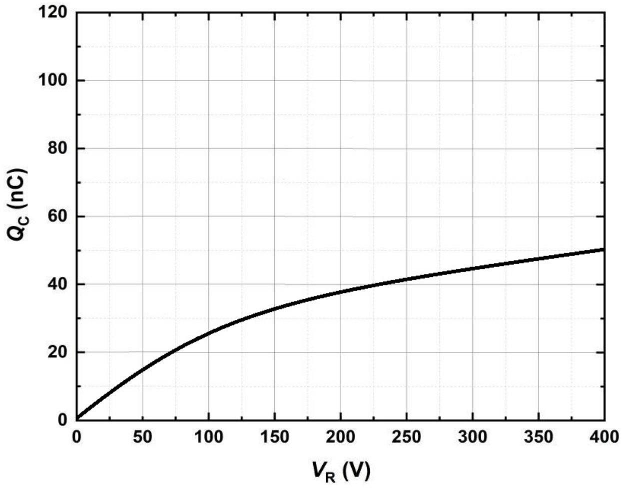


Figure 5. Typical reverse charge as function of reverse voltage

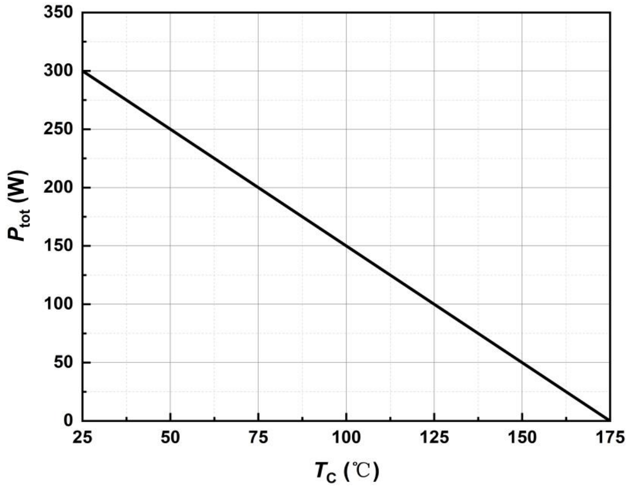


Figure 6. Power dissipation as function of case temperature

Typical Performance

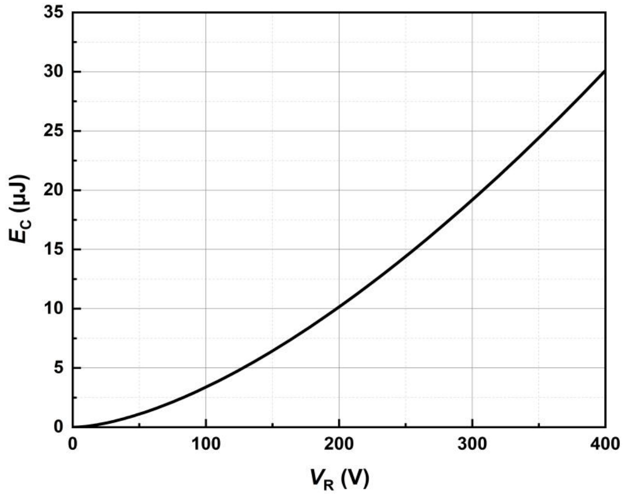


Figure 7.Capacitance stored energy

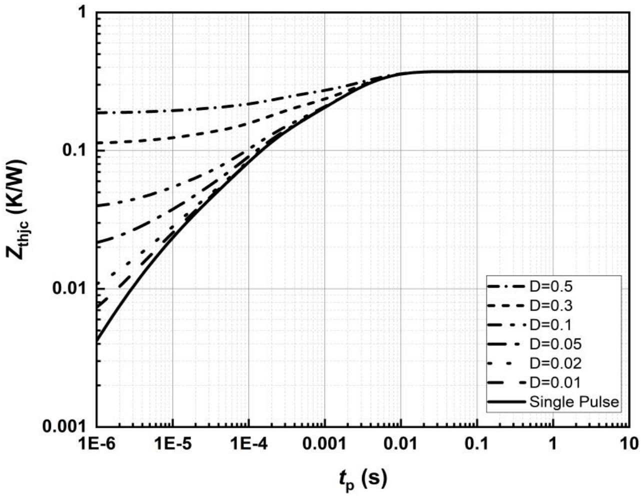


Figure 8. Max. transient thermal impedance

TO-247-2 Package Dimensions