

Features

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

V_{RRM}	=	680	V
$I_F (T_C=138^{\circ}C)$	=	100	A
Q_C	=	301	nC

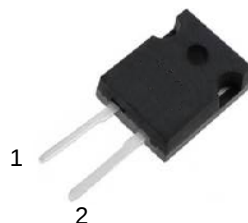
Benefits

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

Applications

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

Package



TO-247-2



Package Pin Definitions

- Pin1- Cathode
- Pin2- Anode

Part Number	Package	Marking
ASZD100068C	TO-247-2	ASZD100068C

Maximum Ratings ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		680	V
V_{RSM}	Non-repetitive peak reverse voltage		680	V
I_F	Continuous forward current	$T_C=25^{\circ}\text{C}$ $T_C=110^{\circ}\text{C}$ $T_C=138^{\circ}\text{C}$	205 135 100	A
I_{FRM}	Repetitive forward surge current	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse $T_C=110^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	450 360	A
I_{FSM}	Non-Repetitive forward surge current	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse $T_C=110^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	750 570	A
$\int i^2 dt$	$i^2 t$ value	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse $T_C=110^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	2812 1624	A^2S
P_{tot}	Power dissipation	$T_C=25^{\circ}\text{C}$ $T_C=110^{\circ}\text{C}$	405 175	W
T_j	Operating junction temperature		-55~175	$^{\circ}\text{C}$
T_{stg}	Storage temperature		-55~150	$^{\circ}\text{C}$

Electrical Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	$T_j=25^{\circ}\text{C}$	680			V
V_F	Diode forward voltage	$I_F=100\text{A}$ $T_j=25^{\circ}\text{C}$ $I_F=100\text{A}$ $T_j=175^{\circ}\text{C}$		1.3 1.5	1.5	V
I_R	Reverse current	$V_R=680\text{V}$ $T_j=25^{\circ}\text{C}$ $V_R=680\text{V}$ $T_j=175^{\circ}\text{C}$			100 200	μA

AC Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capacitive charge	$V_R=400\text{V}$ $T_j=25^{\circ}\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$		301		nC
C	Total capacitance	$V_R=0\text{V}$ $f=1\text{MHz}$ $V_R=200\text{V}$ $f=1\text{MHz}$ $V_R=400\text{V}$ $f=1\text{MHz}$		5705 581 479		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.37		$^{\circ}\text{C/W}$

Typical Performance

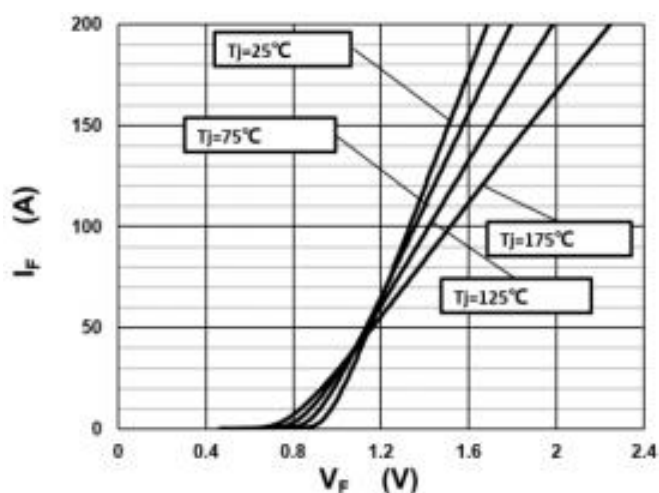


Figure 1. Typical forward characteristics

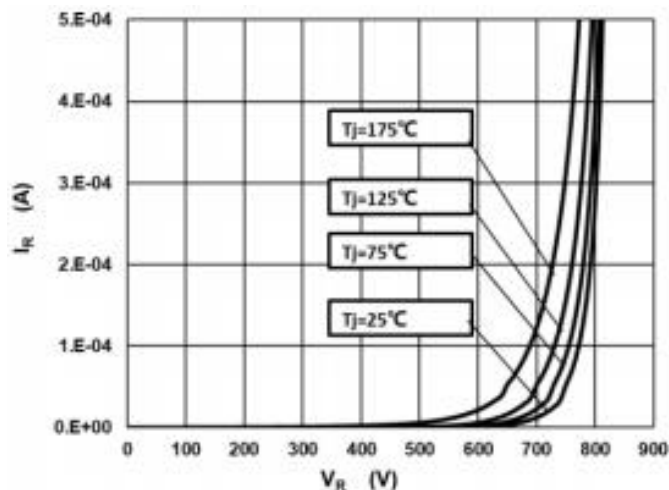


Figure 2. Typical reverse current as function of reverse voltage

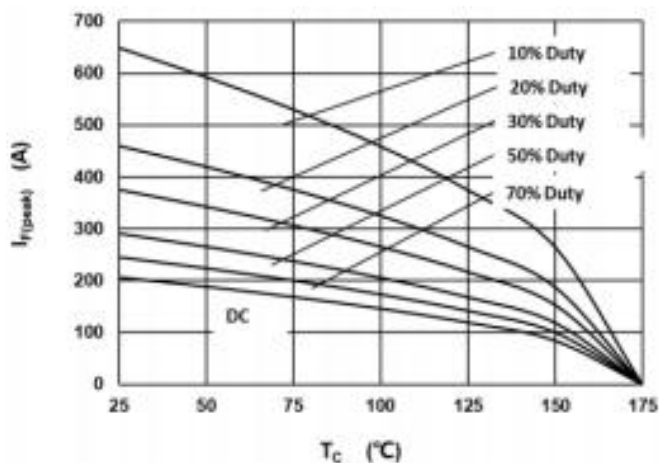


Figure 3. Diode forward current as function of temperature, Duty=duty cycle

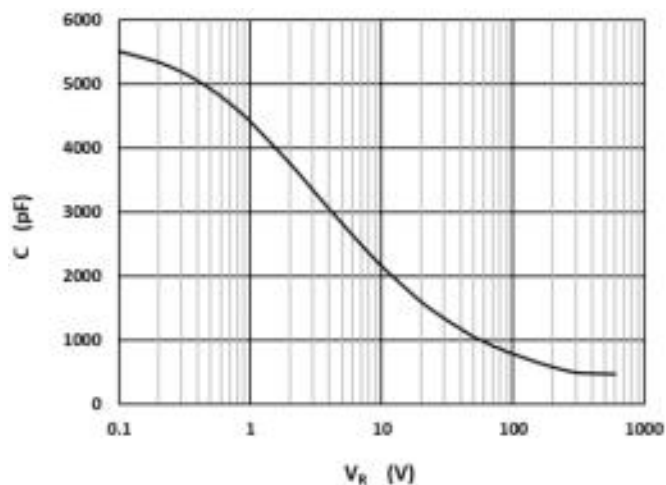


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_J=25^\circ\text{C}$

Typical Performance

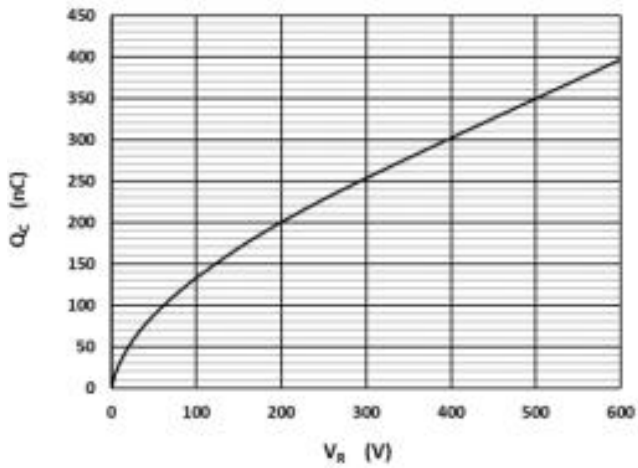


Figure 5. Typical reverse charge as function of reverse voltage

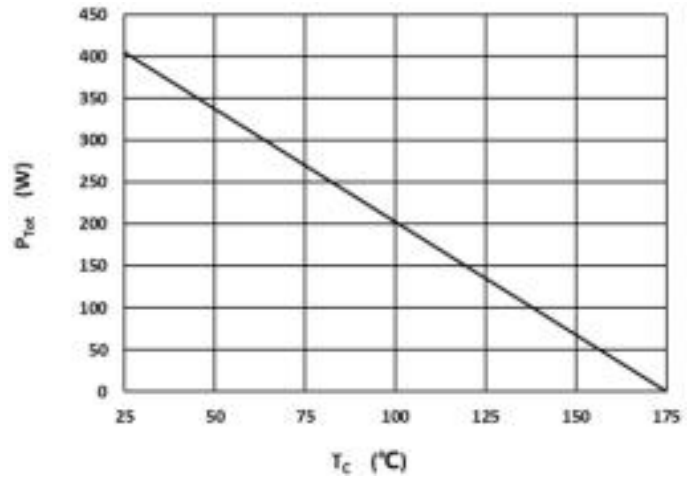


Figure 6. Power dissipation as function of case temperature

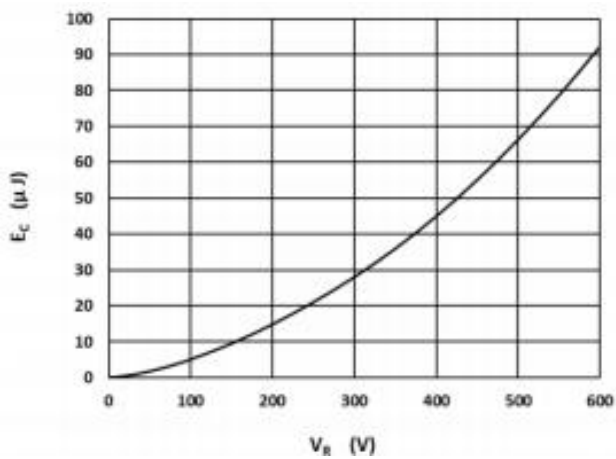
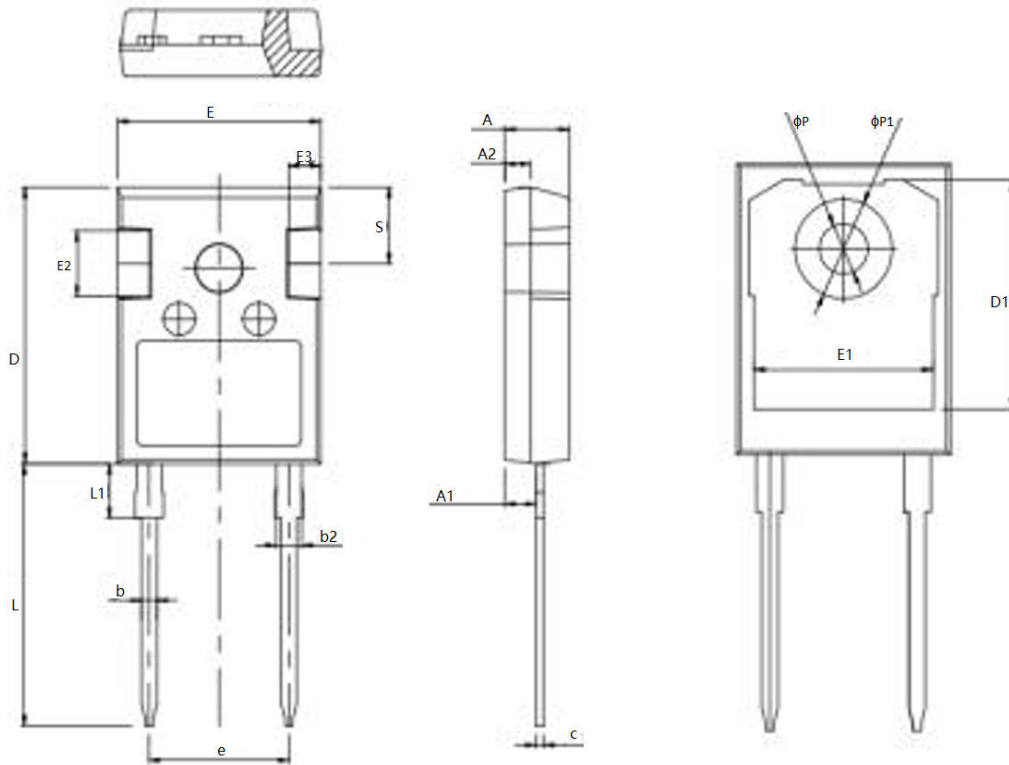


Figure 7. Capacitance stored energy

Package Dimensions

Package TO-247-2



COMMON DIMENSIONS							
SYMBOL	mm			SYMBOL	mm		
	Min	Nom	Max		Min	Nom	Max
A	4.80	5.00	5.20	E1	13.00	13.26	13.56
A1	2.23	2.41	2.59	E2	4.80	5.00	5.20
A2	1.85	2.00	2.15	E3	2.30	2.50	2.70
b	1.11	1.21	1.36	e	10.88 BSC		
b2	1.91	2.01	2.21	L	19.82	19.92	20.22
c	0.51	0.61	0.75	L1	3.94	4.12	4.30
D	20.80	21.00	21.30	φP	3.40	3.60	3.80
D1	16.25	16.55	16.85	φP1	7.08	7.19	7.30
E	15.50	15.80	16.10	S	6.15 BSC		