

Features

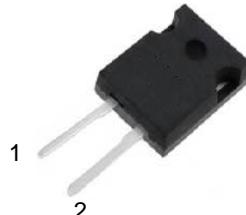
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current

V_{RRM}	=	1200	V
$I_F (T_c=158^\circ C)$	=	40	A
Q_c	=	190	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
- Motor drives
- UPS

Part Number	Package	Marking
ASZD040120C	TO-247-2	ASZD040120C

Maximum Ratings ($T_c=25^\circ\text{C}$ 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	$T_c=25^\circ\text{C}$ $T_c=135^\circ\text{C}$ $T_c=158^\circ\text{C}$	130 67 40	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	160 120	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	300 258	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	450 332	A^2s
P_{tot}	Power dissipation	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	600 260	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	$T_j=25^\circ\text{C}$	1200			V
V_F	Diode forward voltage	$I_F=20\text{A} T_j=25^\circ\text{C}$ $I_F=20\text{A} T_j=175^\circ\text{C}$		1.4 2.0	1.7	V
I_R	Reverse current	$V_R=1200\text{V} T_j=25^\circ\text{C}$ $V_R=1200\text{V} T_j=175^\circ\text{C}$			300 500	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	$V_R=800\text{V} T_j=25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$		190		nC
C	Total capacitance	$V_R=1\text{V} f=1\text{MHz}$ $V_R=400\text{V} f=1\text{MHz}$ $V_R=800\text{V} f=1\text{MHz}$		2694 187 145		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.25		$^\circ\text{C/W}$

Typical Performance

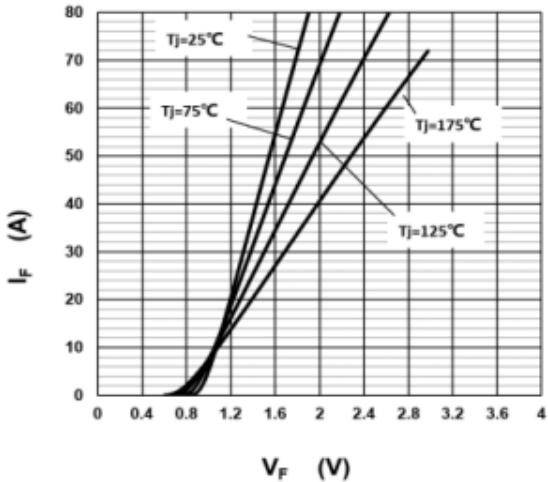


Figure 1. Typical forward characteristics

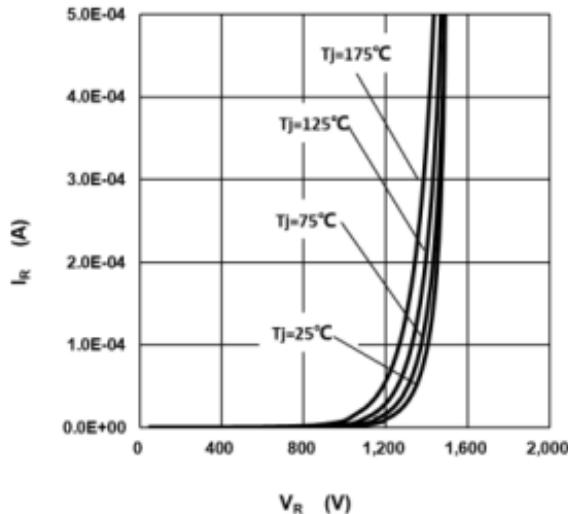


Figure 2. Typical reverse current as function of reverse voltage

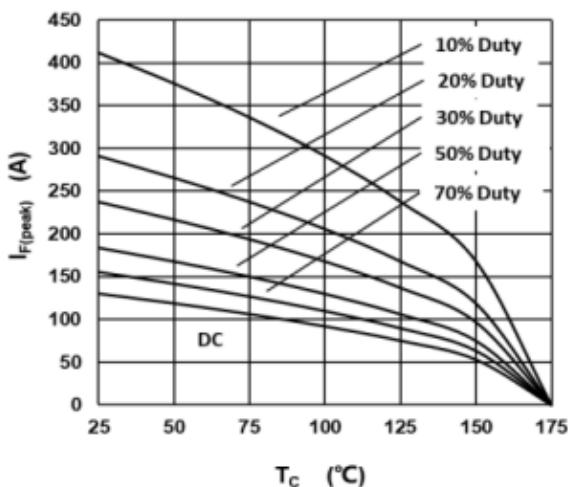


Figure 3. Diode forward current as function of temperature

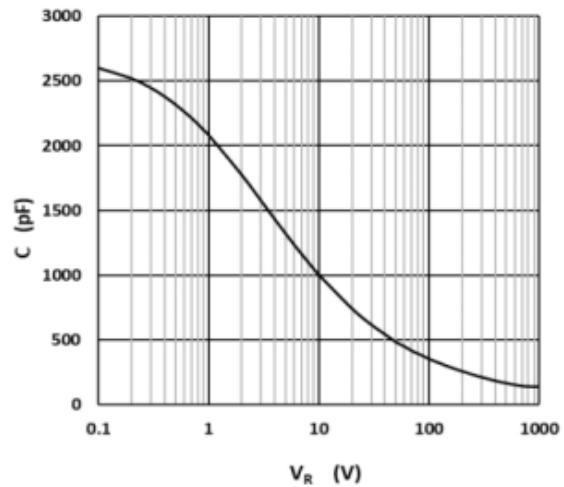


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_j=25^\circ\text{C}$

Typical Performance

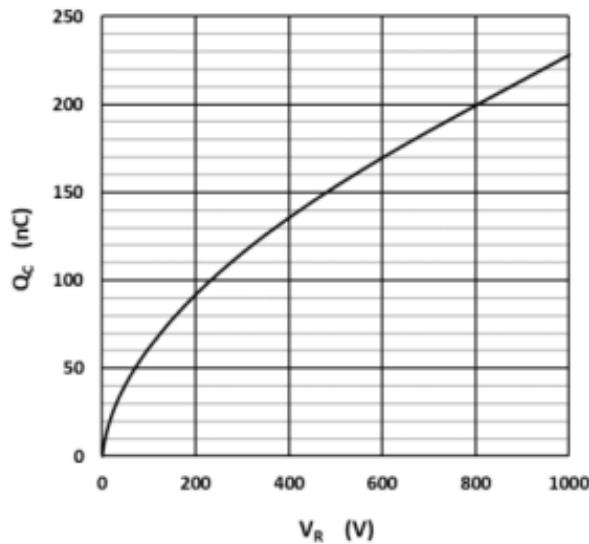


Figure 5. Typical reverse charge as function of reverse voltage

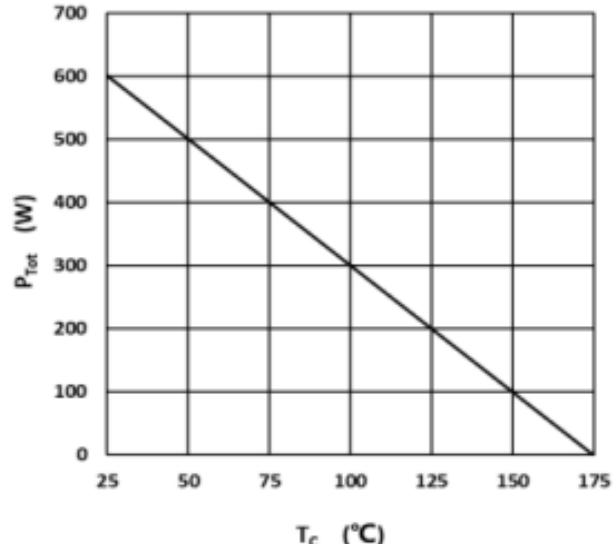


Figure 6. Power dissipation as function of case temperature

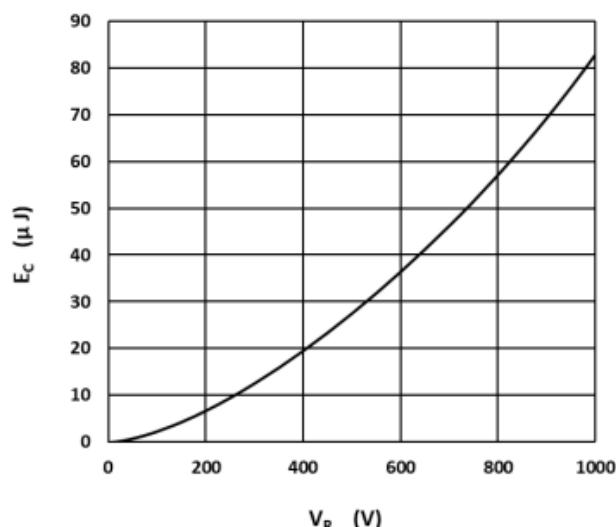


Figure 7. Capacitance stored energy

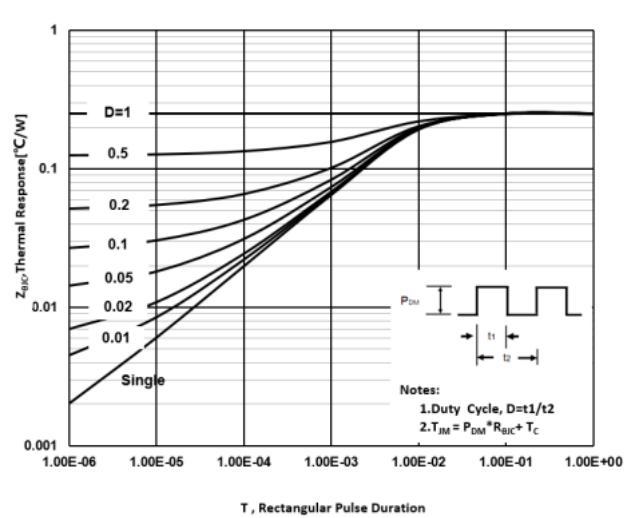
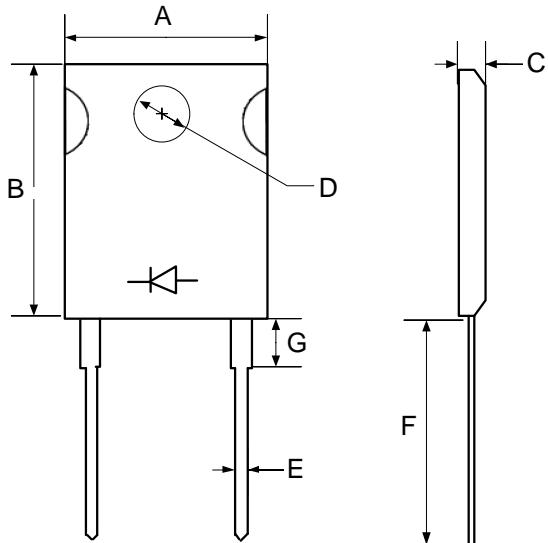


Figure 8. Max. transient thermal impedance

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