

Features

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

V_{RRM}	=	1200	V
$I_F (T_C \leq 153^\circ C)$	=	20	A
Q_C	=	97	nC

Benefits

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

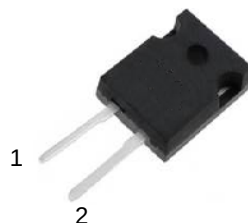
Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- Motor drives
- UPS

Package Pin Definitions

- Pin1- Cathode
- Pin2- Anode

Package



TO-247-2



Part Number	Package	Marking
ASZD020120C	TO-247-2	ASZD020120C

Maximum Ratings

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	$T_C=25^{\circ}\text{C}$ $T_C=135^{\circ}\text{C}$ $T_C=153^{\circ}\text{C}$	54 27 20	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	86 58	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	160 130	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	128 84	A ² S
P_{tot}	Power dissipation	$T_C=25^{\circ}\text{C}$ $T_C=110^{\circ}\text{C}$	214 93	W
T_j	Operating junction temperature		-55~175	$^{\circ}\text{C}$
T_{stg}	Storage temperature		-55~150	$^{\circ}\text{C}$

Electrical 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	$V_R=1200\text{V}$ $T_j=25^{\circ}\text{C}$ $V_R=1200\text{V}$ $T_j=175^{\circ}\text{C}$			200 400	μA
Q_C	Total capacitive charge	$V_R=800\text{V}$ $T_j=25^{\circ}\text{C}$ $Q_C = \int_0^{VR} C(V)dV$		97		nC
C	Total capacitance	$V_R=0\text{V}$ $f=1\text{MHz}$ $V_R=400\text{V}$ $f=1\text{MHz}$ $V_R=800\text{V}$ $f=1\text{MHz}$		1318 91 70		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.70		$^{\circ}\text{C/W}$

Typical Performance

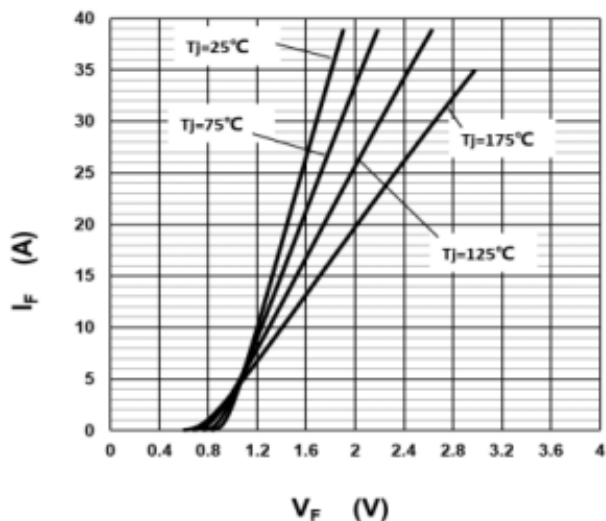


Figure 1. Typical forward characteristics

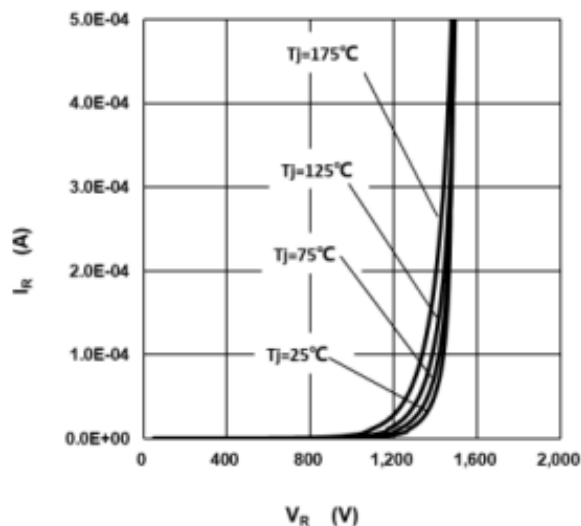


Figure 2. Typical reverse current as function of reverse voltage

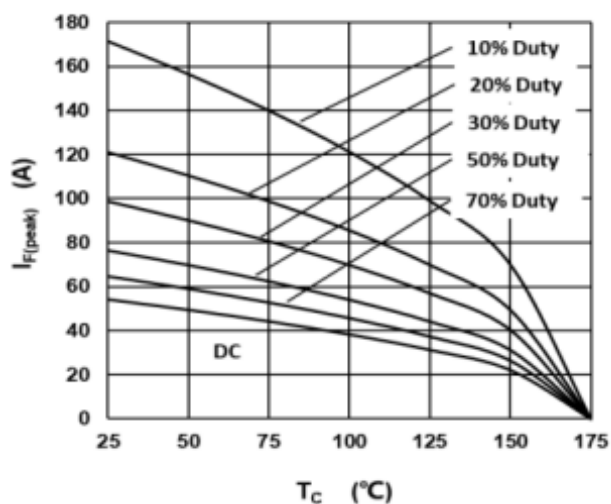


Figure 3. Diode forward current as function of temperature, D=duty cycle

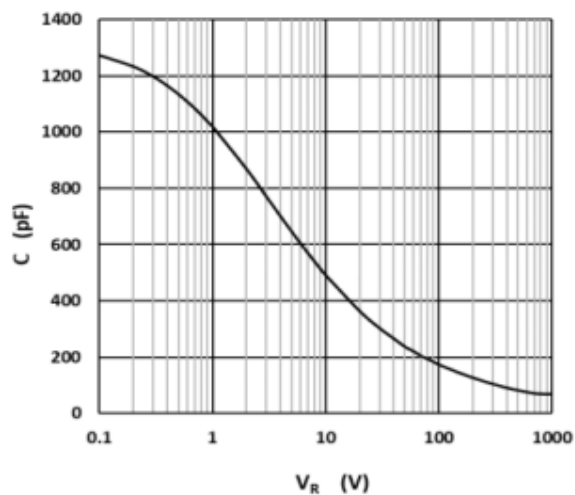


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_J=25^\circ\text{C}$

Typical Performance

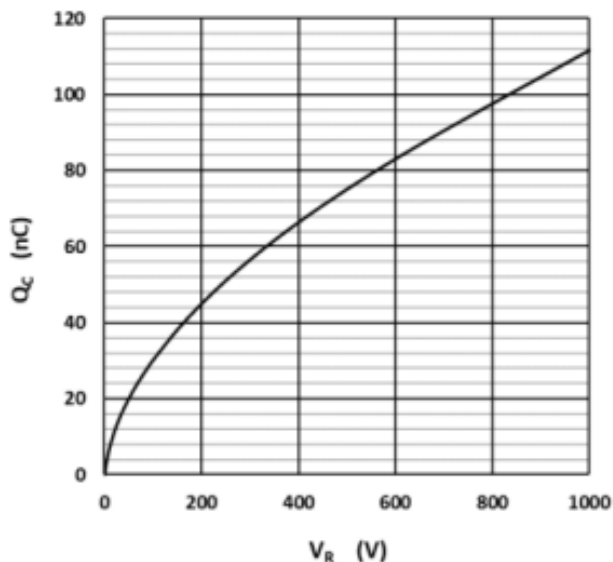


Figure 5. Typical reverse charge as function of reverse voltage

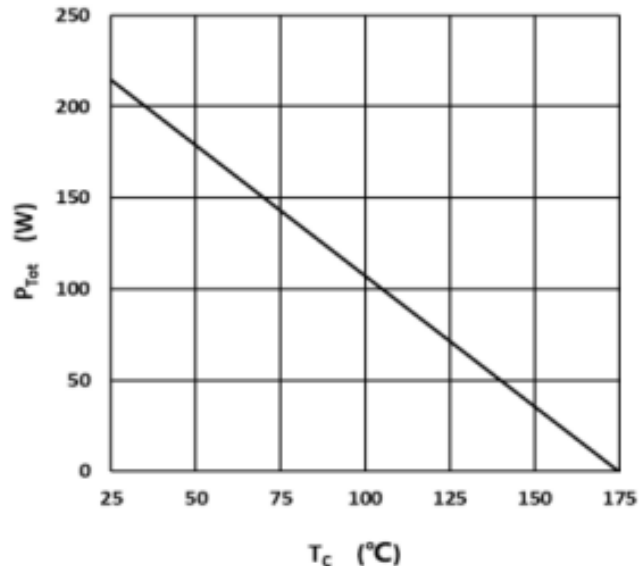


Figure 6. Power dissipation as function of case temperature

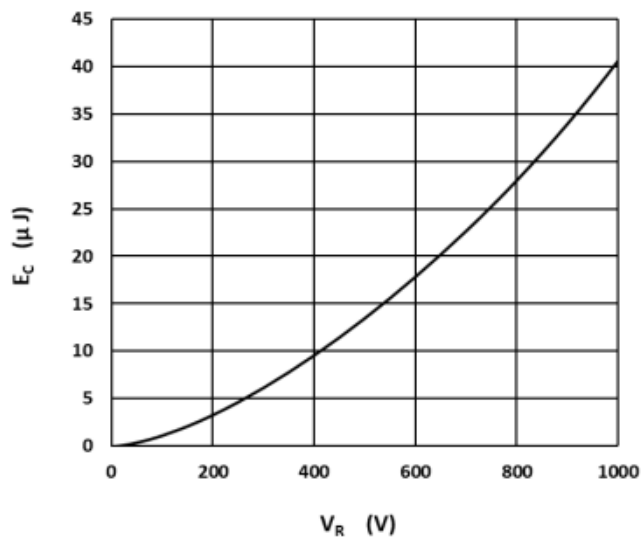


Figure 7. Capacitance stored energy

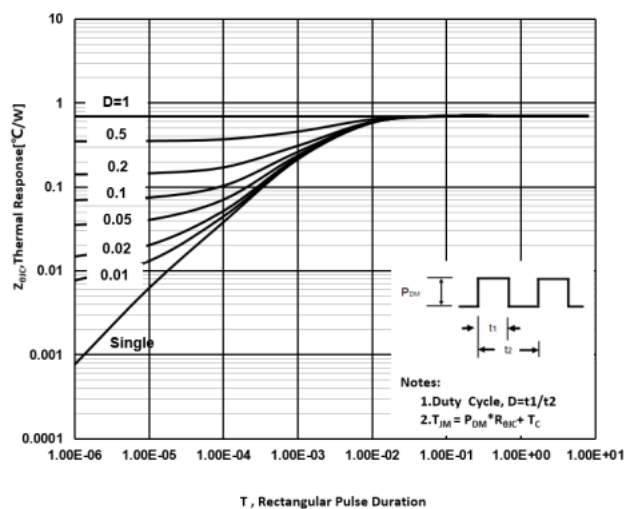
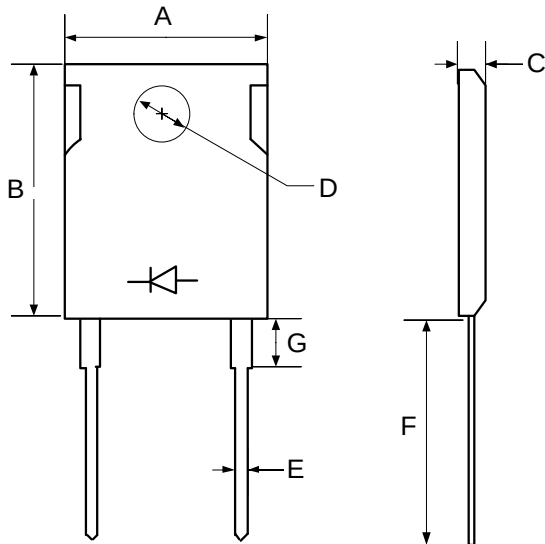


Figure 8. Max. transient thermal impedance

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	1.32
F	18.27	20.30	22.33
G	4.10	4.68	5.15