

Features

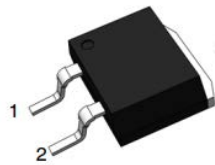
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current

V_{RRM}	=	1200 V
$I_F (T_C=153^{\circ}C)$	=	30 A
Q_C	=	150 nC

Benefits

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

Package



TO-263-2

Applications

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



Part Number	Package	Marking
ASZD030120G	TO-263-2	ASZD030120G

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	$T_C=25^\circ\text{C}$	79	A
		$T_C=135^\circ\text{C}$	42	
		$T_C=153^\circ\text{C}$	30	
I_{FRM}	Repetitive forward surge current	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	86	A
		$T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	58	
I_{FSM}	Non-Repetitive forward surge current	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	240	A
		$T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	200	
$\int i^2 dt$	$i^2 t$ value	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	288	A^2S
		$T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse	200	
P_{tot}	Power dissipation	$T_C=25^\circ\text{C}$	300	W
		$T_C=110^\circ\text{C}$	130	
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	$I_F=30\text{A}$ $T_j=25^\circ\text{C}$		1.4	1.7	V
		$I_F=30\text{A}$ $T_j=175^\circ\text{C}$		2.0		
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	$V_R=800\text{V}$ $T_j=25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$		150		nC
C	Total capacitance	$V_R=1\text{V}$ $f=1\text{MHz}$		2055		pF
		$V_R=400\text{V}$ $f=1\text{MHz}$		142		
		$V_R=800\text{V}$ $f=1\text{MHz}$		110		

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.50		$^\circ\text{C}/\text{W}$

Typical Performance

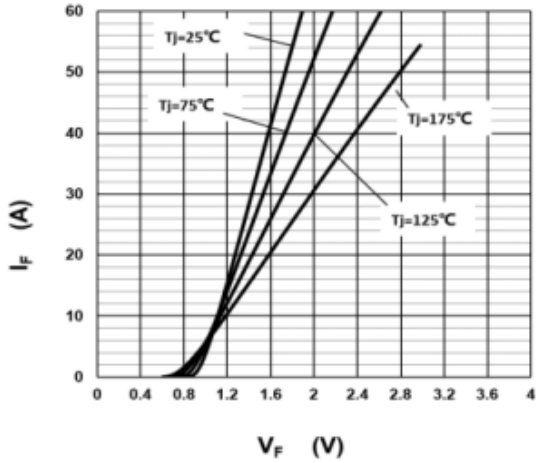


Figure 1. Typical forward characteristics

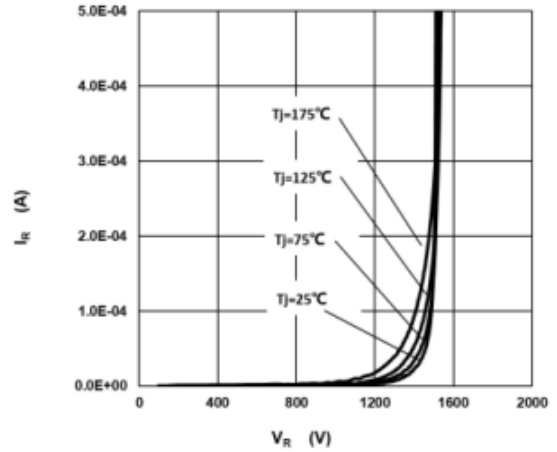


Figure 2. Typical reverse current as function of reverse voltage

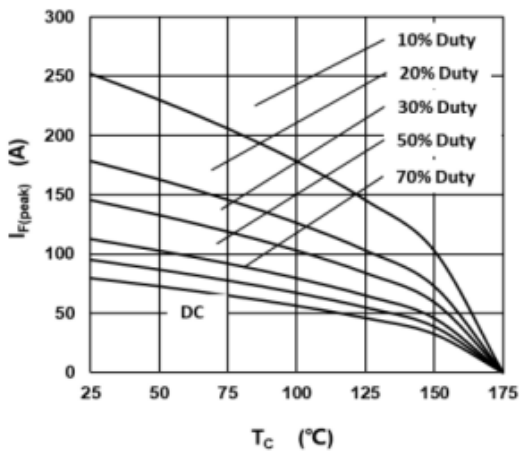


Figure 3. Diode forward current as function of temperature, D=duty cycle

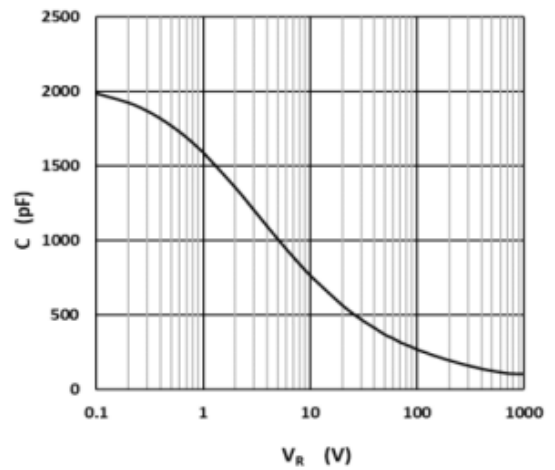


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_j=25^\circ\text{C}$

Typical Performance

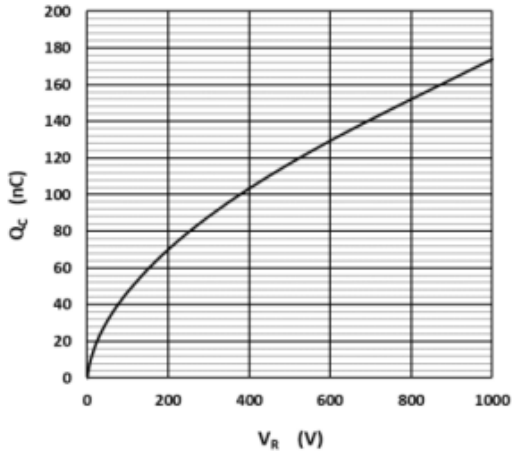


Figure 5. Typical reverse charge as function of reverse voltage

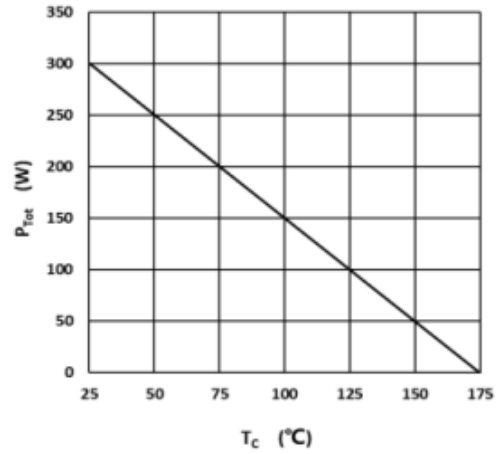


Figure 6. Power dissipation as function of case temperature

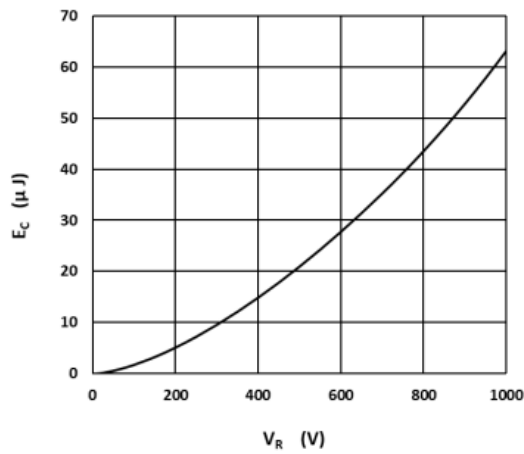


Figure 7. Capacitance stored energy

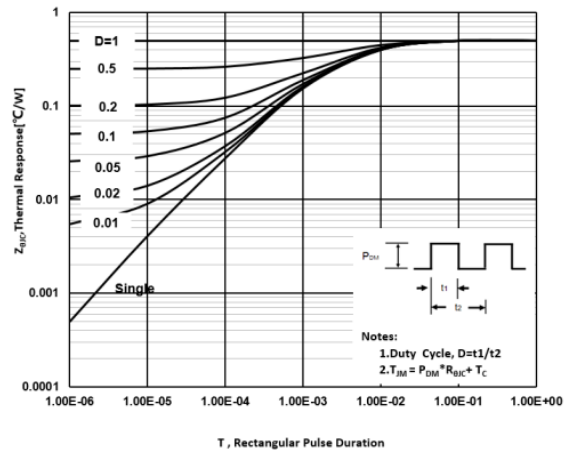
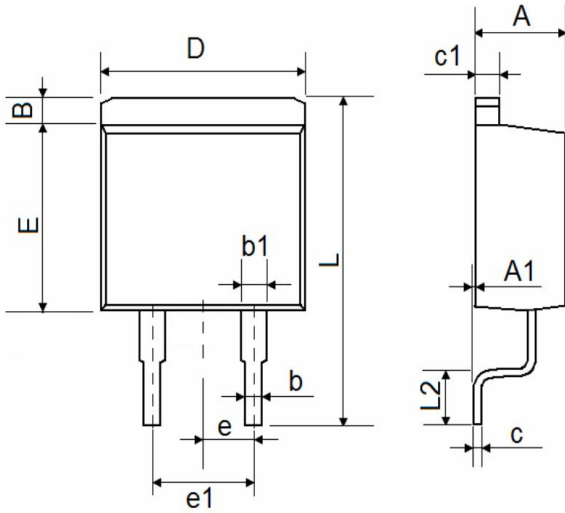


Figure 8. Max. transient thermal impedance

Package Dimensions

Package TO-263-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	4.24	4.44	4.64
A1	0.00	0.10	0.25
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
c	0.40	0.50	0.60
c1	1.15	1.27	1.40
E	8.82	8.92	9.02
D	9.96	10.16	10.36
e	2.54 BSC		
e1	5.08 BSC		
L	14.61	15.00	15.88
L2	1.78	2.32	2.79
B	1.36 REF		