

Features

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

V_{RRM}	=	650	V
$I_F (T_C=135^{\circ}C)$	=	10	A
Q_C	=	30	nC

Benefits

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

Package



TO-220-2F

Applications

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



Part Number	Package	Marking
ASZD010065F	TO-220-2F	ASZD010065F

Maximum Ratings (T_C=25°C unless otherwise noted)

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 =100°C T _C =135°C	23 15 10	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	45 27	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	80 70	A
∫i ² dt	i ² t value	T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse	31.7 24.3	A ² S
P _{tot}	Power dissipation	T _C =25°C T _C =110°C	59 26	W
T _j	Operating junction temperature		-55~175	°C
T _{stg}	Storage temperature		-55~150	°C

Electrical Characteristics (T_j=25°C unless otherwise specified)

Static Characteristics

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 =10A T _j =25°C I _F =10A T _j =175°C		1.35 1.60	1.60	V
I _R	Reverse current	V _R =650V T _j =25°C V _R =650V T _j =175°C			50 200	μA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q _C	Total capacitive charge	V _R =400V T _j =25°C Q _C = ∫ ₀ ^{V_R} C(V)dV		30		nC
C	Total capacitance	V _R =0V f=1MHz V _R =200V f=1MHz V _R =400V f=1MHz		550 58 51		pF
E _C	Capacitance stored energy	V _R =400V		8		μJ

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
R _{th(jc)}	Thermal resistance from junction to case		2.54		°C/W

Electrical Characteristic Curves

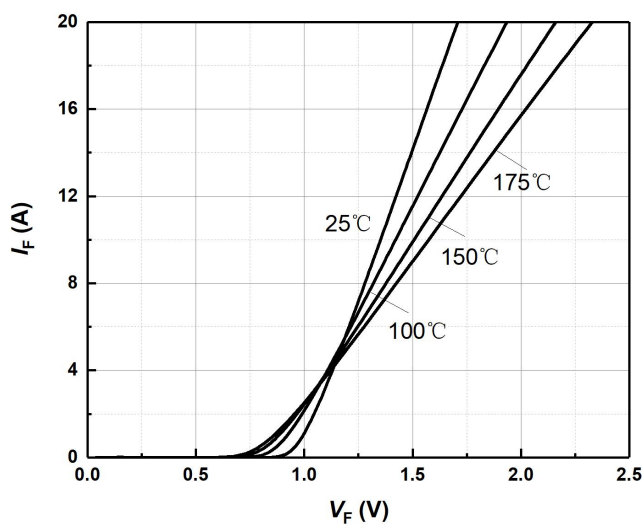


Figure 1. Typical forward characteristics

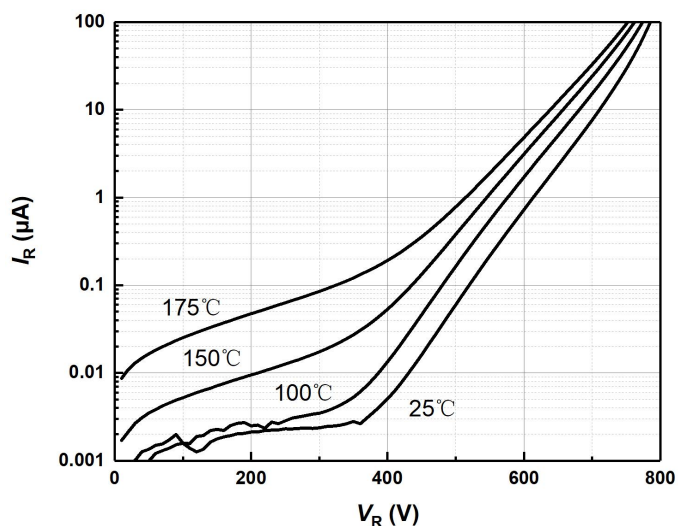


Figure 2. Typical reverse current as function of reverse voltage

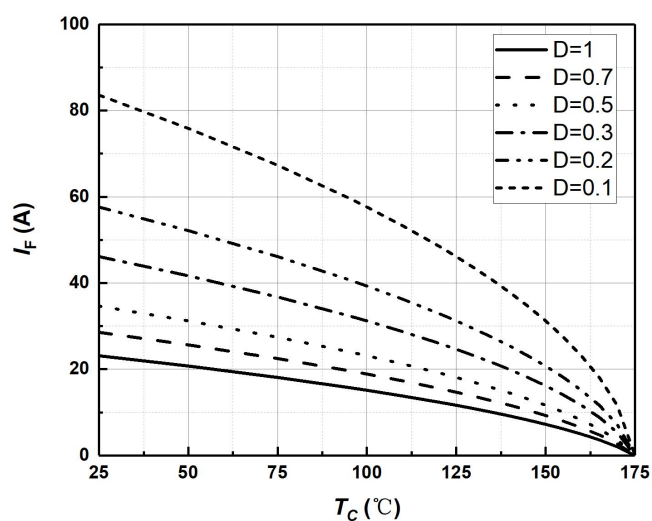


Figure 3. Diode forward current as function of temperature, D=duty cycle

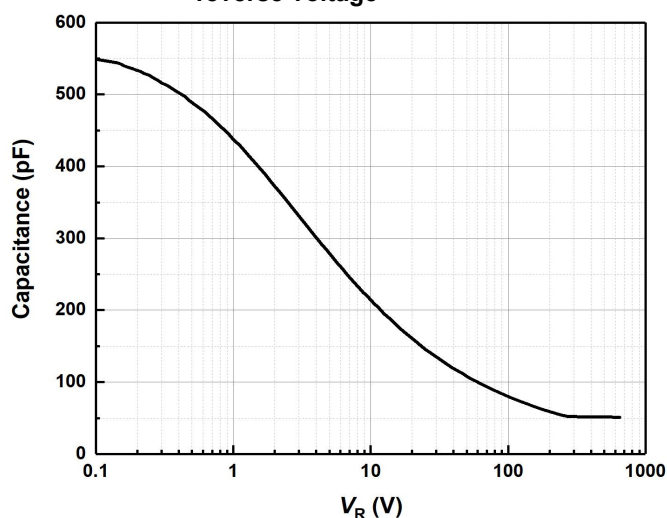


Figure 4. Typical capacitance as function of reverse voltage $C=f(V_R)$; $T_J=25^\circ\text{C}$

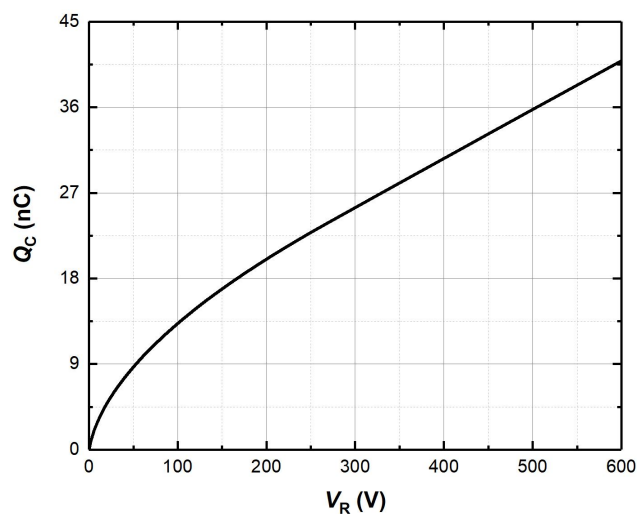


Figure 5. Typical reverse charge as function of reverse voltage

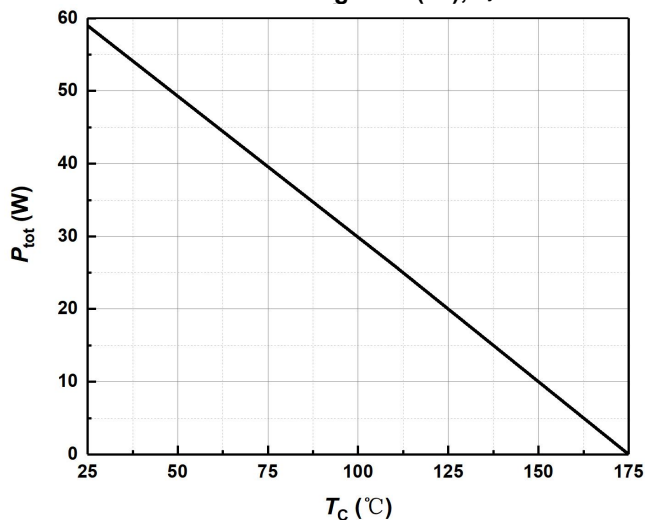


Figure 6. Power dissipation as function of case temperature

Electrical Characteristic Curves

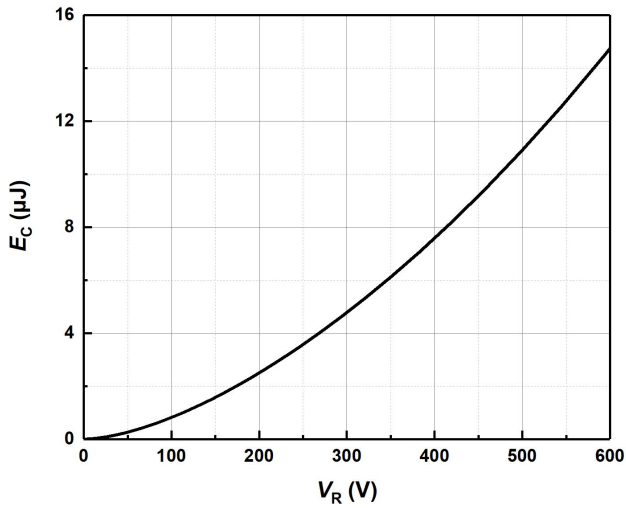


Figure 7. Capacitance stored energy

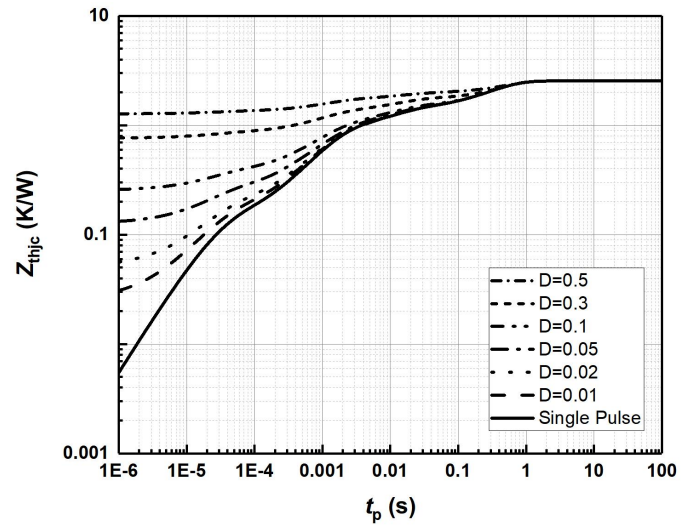
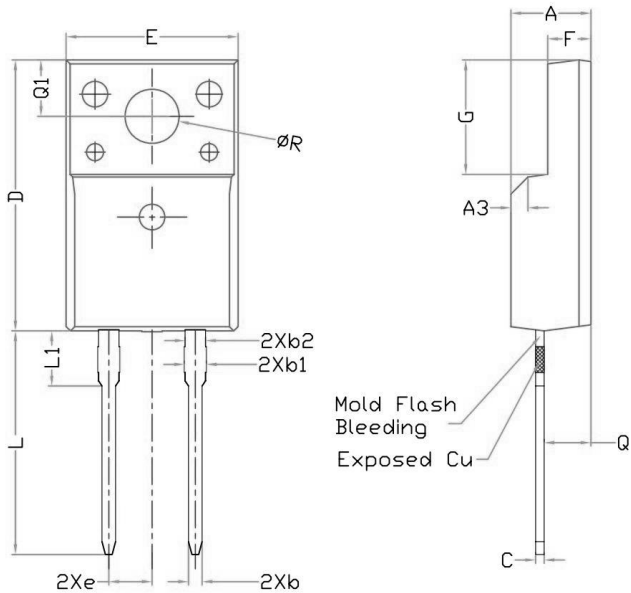


Figure 8. Max. transient thermal impedance

Package Dimensions

Package TO-220-2F



SYMBOL	DIMENSIONS		
	Min.	Nom.	Max.
A	4.60	4.70	4.80
b	0.70	0.80	0.91
b1	1.20	1.30	1.47
b2	1.10	1.20	1.30
C	0.45	0.50	0.63
D	15.80	15.87	15.97
e	2.54		
E	10.00	10.10	10.30
F	2.44	2.54	2.64
G	6.50	6.70	6.90
L	12.90	13.10	13.30
L1	3.13	3.23	3.33
Q	2.65	2.75	2.85
Q1	3.20	3.30	3.40
ΦR	3.08	3.18	3.28