

### Features

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

$V_{RRM}$	=	1200	V
$I_F (T_C \leq 110^\circ C)$	=	100	A
$Q_C$	=	473	nC

### Benefits

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

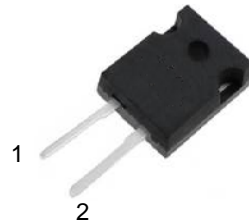
### Applications

- 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
ASZD100120C	TO-247-2	ASZD100120C

### Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		1200	V
V <sub>RSM</sub>	Non-repetitive peak reverse voltage		1200	V
I <sub>F</sub>	Continuous forward current	T <sub>C</sub> =25°C T <sub>C</sub> =100°C T <sub>C</sub> =110°C	173 115 100	A
I <sub>FRM</sub>	Repetitive forward surge current	T <sub>C</sub> =25°C, t <sub>p</sub> =10ms, Half Sine Pulse T <sub>C</sub> =110°C, t <sub>p</sub> =10ms, Half Sine Pulse	540 430	A
I <sub>FSM</sub>	Non-Repetitive forward surge current	T <sub>C</sub> =25°C, t <sub>p</sub> =10ms, Half Sine Pulse T <sub>C</sub> =110°C, t <sub>p</sub> =10ms, Half Sine Pulse	900 720	A
∫i <sup>2</sup> dt	i <sup>2</sup> t value	T <sub>C</sub> =25°C, t <sub>p</sub> =10ms, Half Sine Pulse T <sub>C</sub> =110°C, t <sub>p</sub> =10ms, Half Sine Pulse	4050 2592	A <sup>2</sup> S
P <sub>tot</sub>	Power dissipation	T <sub>C</sub> =25°C T <sub>C</sub> =110°C	484 210	W
T <sub>j</sub>	Operating junction temperature		-55~175	°C
T <sub>stg</sub>	Storage temperature		-55~150	°C

### Static Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V <sub>DC</sub>	DC blocking voltage	T <sub>J</sub> =25°C	1200			V
V <sub>F</sub>	Diode forward voltage	I <sub>F</sub> =100A T <sub>J</sub> =25°C I <sub>F</sub> =100A T <sub>J</sub> =175°C		1.45 2.0	1.80	V
I <sub>R</sub>	Reverse current	V <sub>R</sub> =1200V T <sub>J</sub> =25°C V <sub>R</sub> =1200V T <sub>J</sub> =175°C		10 50	200 400	μA

### AC Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q <sub>C</sub>	Total capacitive charge	V <sub>R</sub> =800V T <sub>J</sub> =25°C Q <sub>C</sub> = ∫ <sub>0</sub> <sup>V<sub>R</sub></sup> C(V)dV		473		nC
C	Total capacitance	V <sub>R</sub> =0V f=1MHz V <sub>R</sub> =400V f=1MHz V <sub>R</sub> =800V f=1MHz		8400 406 278		pF
E <sub>C</sub>	Capacitance stored energy	V <sub>R</sub> =800V		240		μJ

### Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
R <sub>th(jc)</sub>	Thermal resistance from junction to case		0.31		°C/W

## Typical Performance

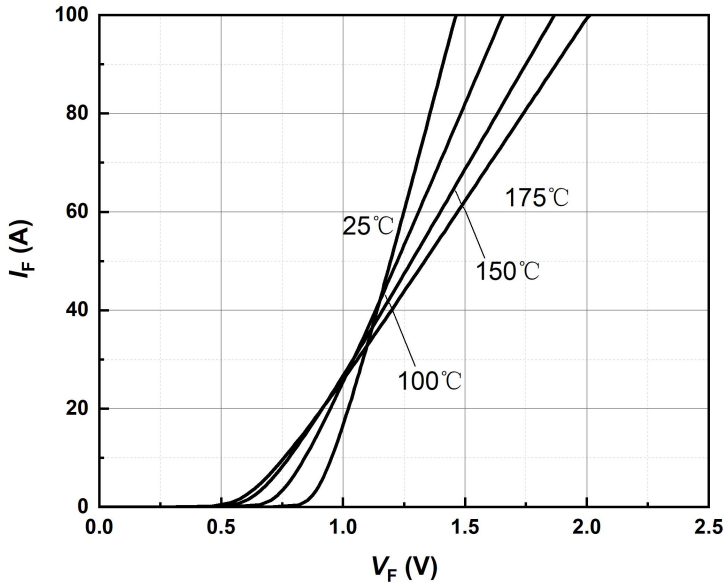


Figure 1. Typical forward characteristics

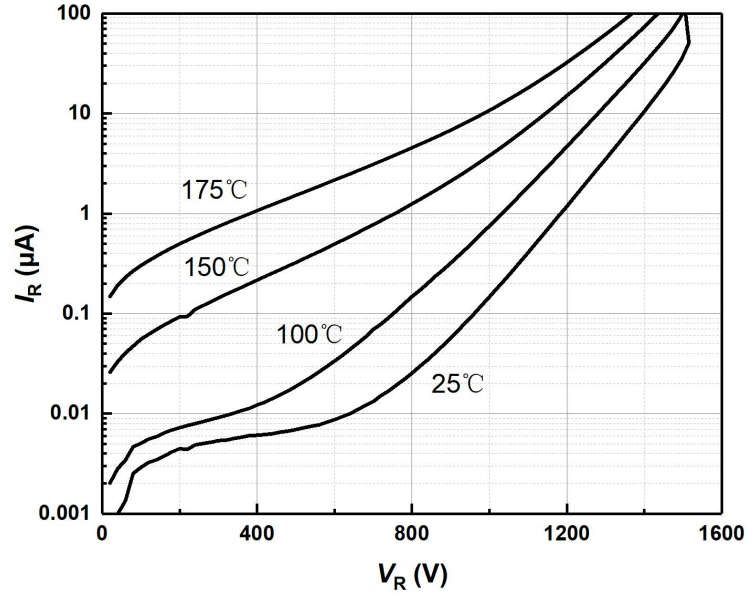


Figure 2. Typical reverse current as function of reverse voltage

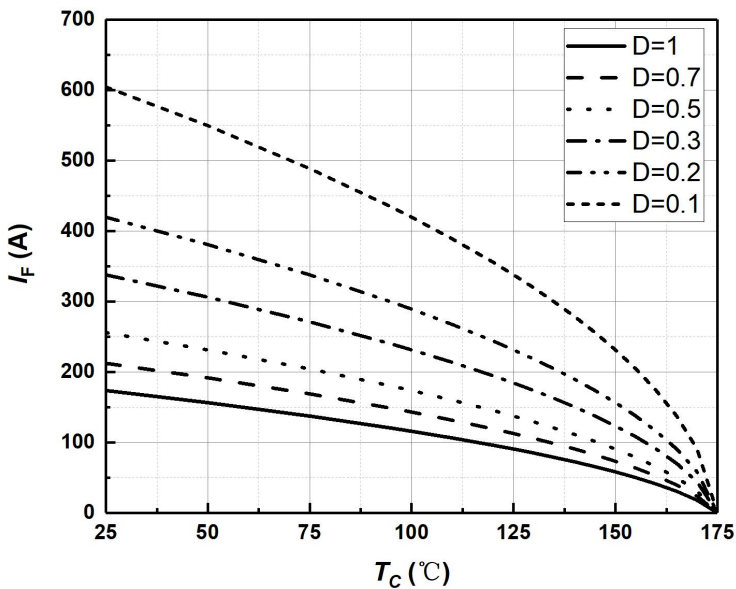


Figure 3. Diode forward current as function of temperature, D=duty cycle

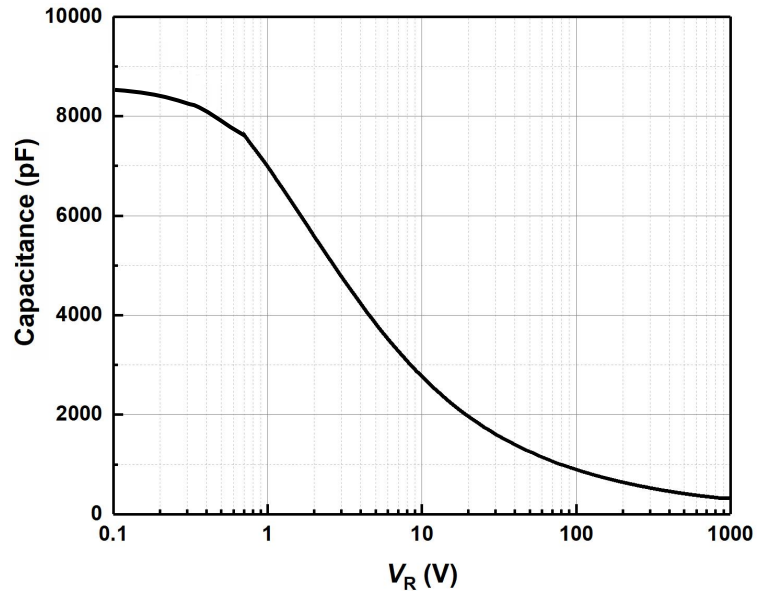


Figure 4. Typical capacitance as function of reverse voltage,  $C=f(V_R)$ ;  $T_j=25^{\circ}$ C

## Typical Performance

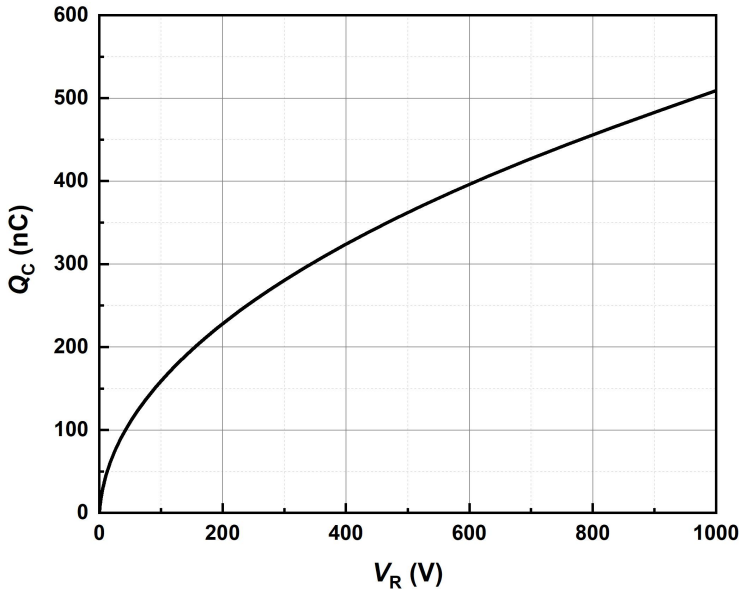


Figure 5. Typical reverse charge as function of reverse voltage

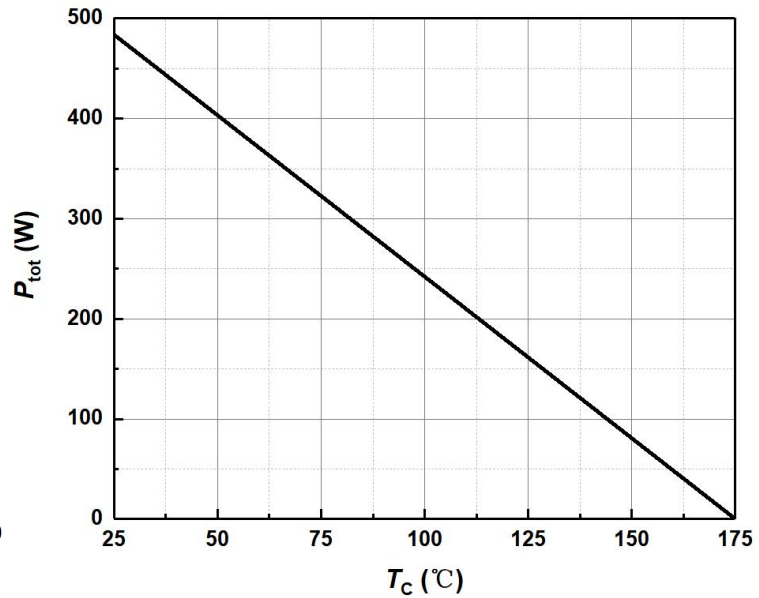


Figure 6. Power dissipation as function of case temperature

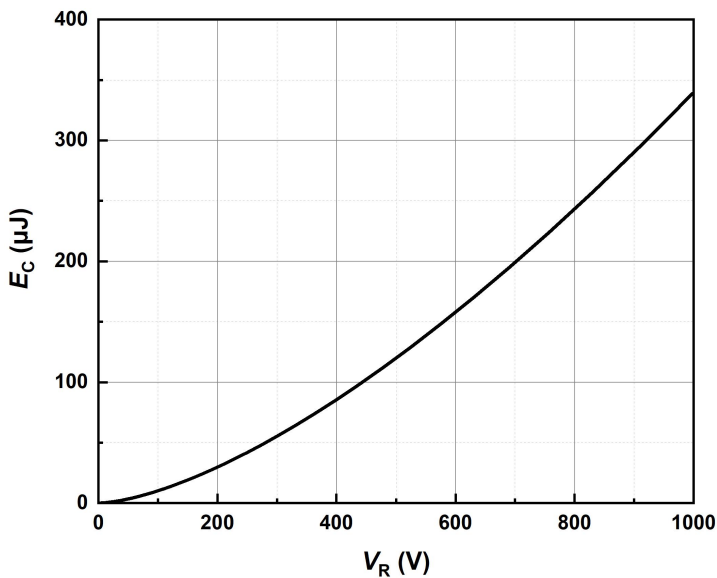


Figure 7. Capacitance stored energy

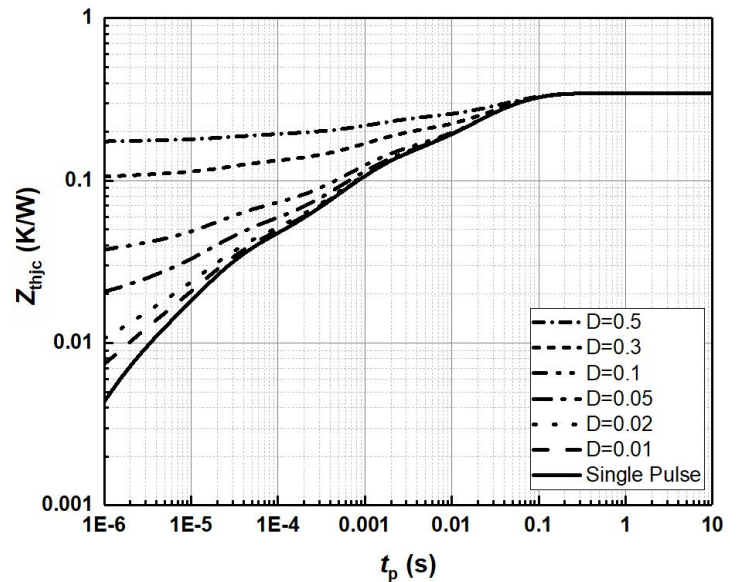
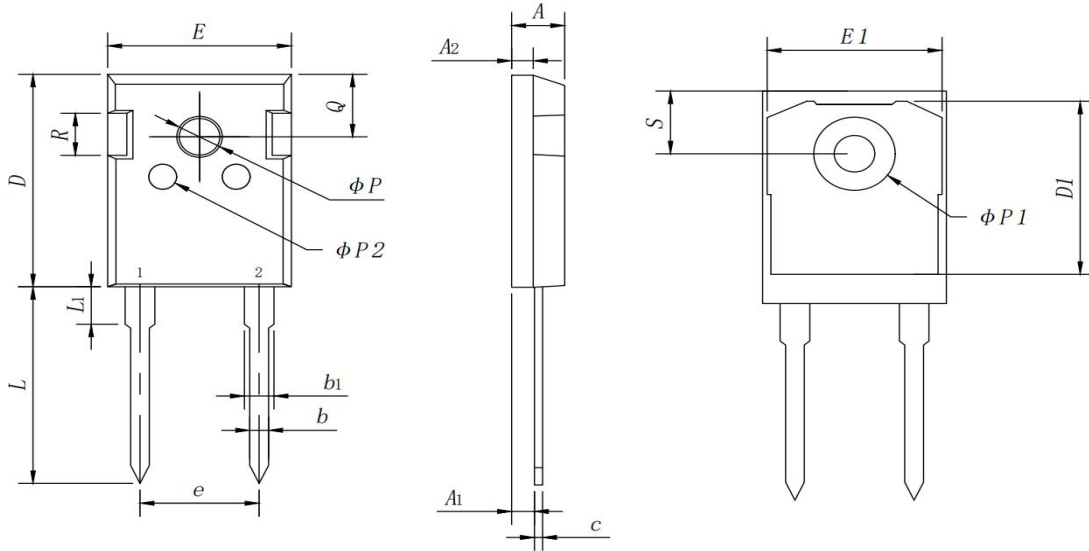


Figure 8. Max. transient thermal impedance

### Package Dimensions

Package TO-247-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	4.70	5.00	5.30
A1	2.24	2.41	2.58
A2	1.80	2.00	2.20
b	1.00	1.20	1.40
b1	1.60	2.10	2.60
c	0.40	0.60	0.80
D	20.00	21.00	22.00
D1	15.24	16.24	17.24
E	15.50	15.75	16.01
E1	13.77	14.02	14.27
e	10.35	10.60	10.85
L	19.70	19.95	20.20
L1	3.85	4.15	4.45
ØP	3.55	3.60	3.65
Øp1	7.14	7.19	7.24
Øp2	2.35	2.40	2.45
Q	5.89	6.15	6.40
R	4.30	4.60	4.90
S	6.04	6.17	6.30