ASZD010120A

1200V,10A Silicon Carbide Schottky Diode

Features

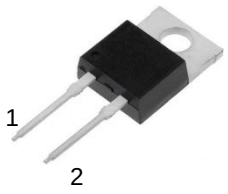
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current

V_{RRM}	=	1200	V
I_F (T_C=157℃)	=	10	A
Q_C	=	48	nC

Benefits

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

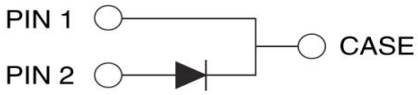
Package



TO-220-2

Applications

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



Part Number	Package	Marking
ASZD010120A	TO-220-2	ASZD010120A

Maximum Ratings (Tc=25℃ unless otherwise noted)

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°C T_C=135°C T_C=157°C	30 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	57 41.5	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	90 69.5	A
$\int i^2dt$	i^2t value	T_C=25°C , t_p=10ms, Half Sine Pulse T_C=110°C , t_p=10ms, Half Sine Pulse	40.5 24	A^2S
P_{tot}	Power dissipation	T_C=25°C T_C=110°C	115 50	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~175	°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	1200			V
V_F	Diode forward voltage	I_F=10A T_j=25°C I_F=10A T_j=175°C		1.4 2.0	1.7	V
I_R	Reverse current	V_R=1200V T_j=25°C V_R=1200V T_j=175°C			100 200	μA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capactive charge	V_R=800V T_j=25°C $Q_C = \int_0^{VR} C(V)dV$		48		nC
C	Total capacitance	V_R=0V f=1MHz V_R=400V f=1MHz V_R=800V f=1MHz		695 46 35		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		1.3		°C/W

Electrical Characteristic Curves

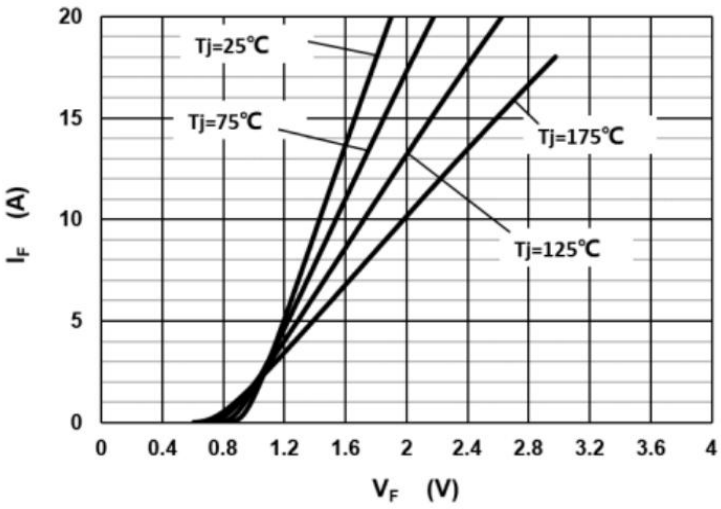


Figure 1. Typical forward characteristics

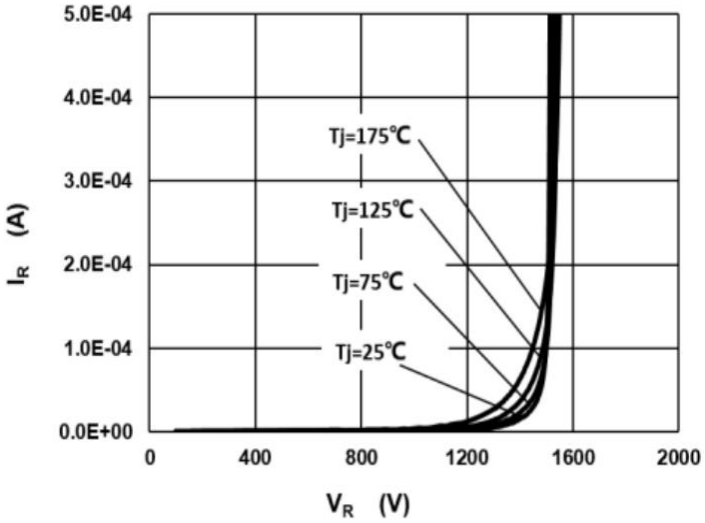


Figure 2. Typical reverse current as function of reverse voltage

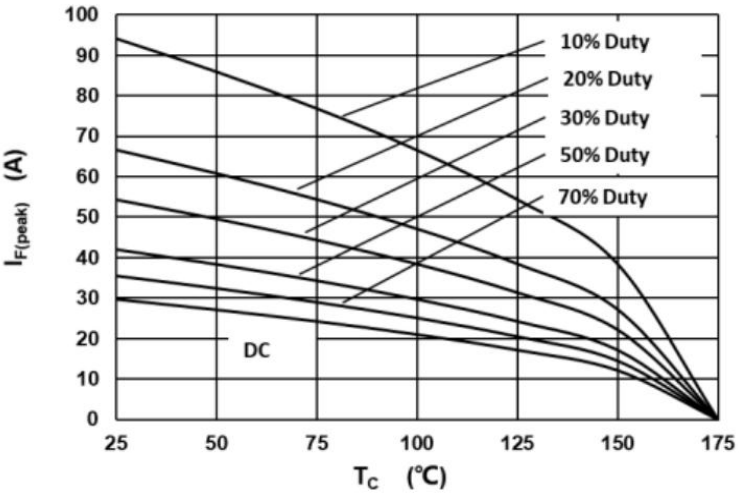


Figure 3. Diode forward current as function of temperature, D=duty cycle

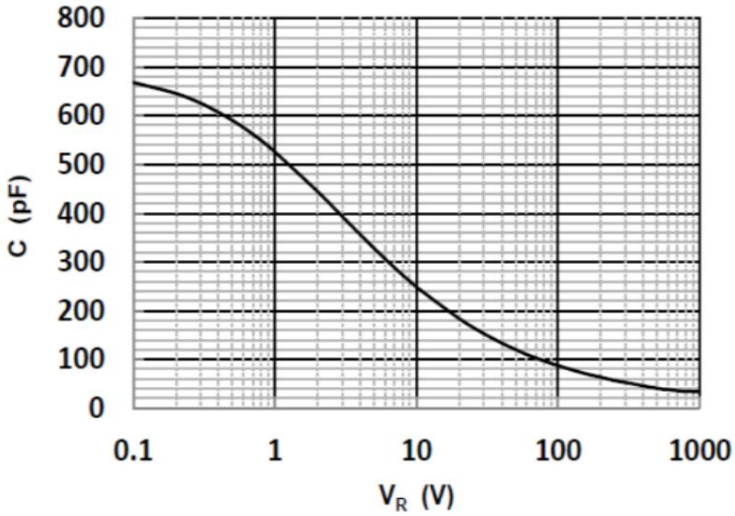


Figure 4. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C

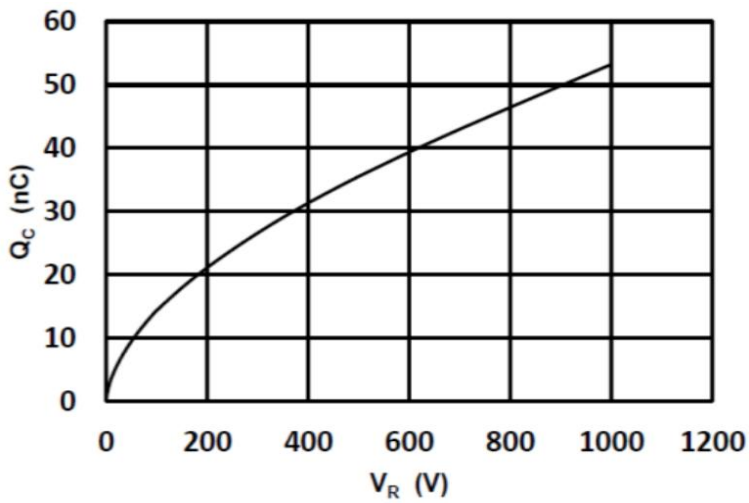


Figure 5. Typical reverse charge as function of reverse voltage

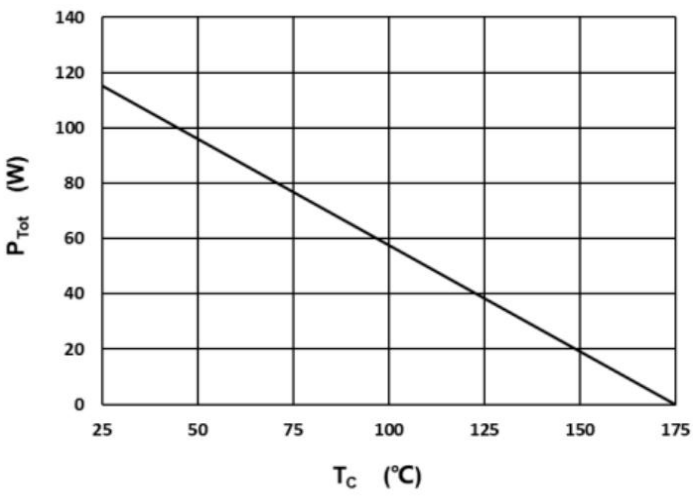


Figure 6. Power dissipation as function of case temperature

Electrical Characteristic Curves

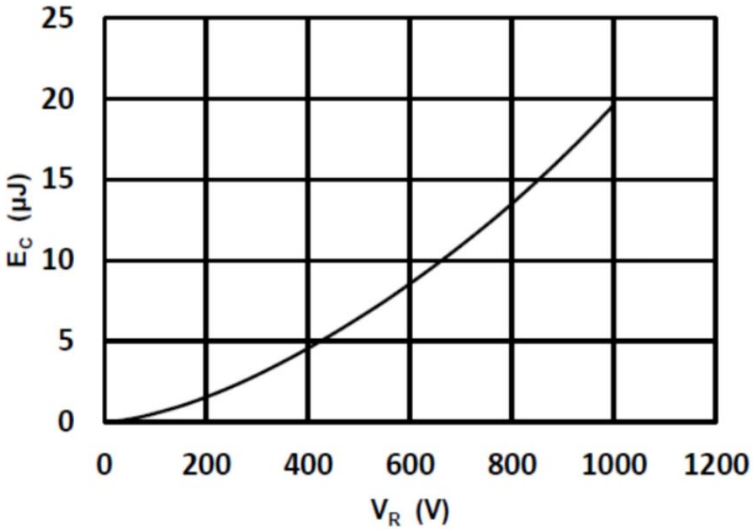


Figure 7.Capacitance stored energy

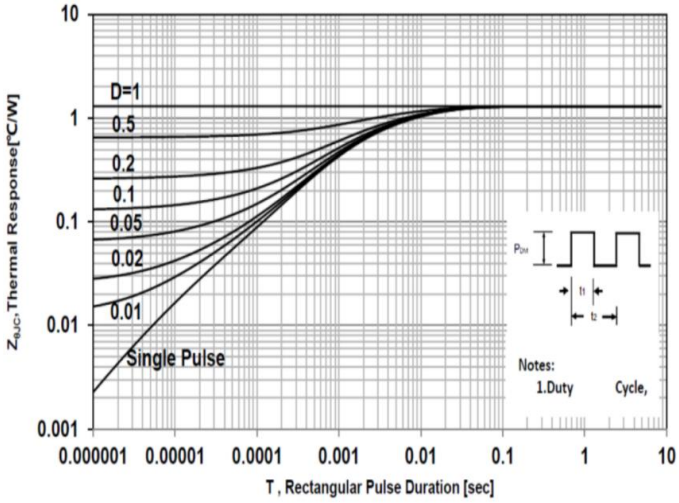
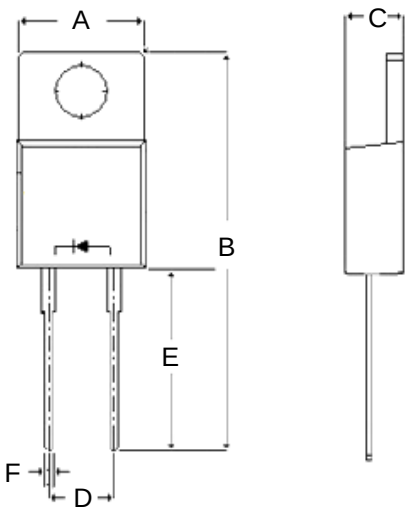


Figure 8. Max. transient thermal impedance

Package Dimensions

Package TO-220-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	9.17	10.08	10.91
B	27.00	28.58	30.00
C	3.89	4.50	5.00
D	4.20	5.10	5.80
E	11.70	13.30	14.97
F	0.50	0.80	1.21