ASZD040120P2

1200V,40A Silicon Carbide Schottky Diode

Features

- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current
- Compliant to Halogen-free

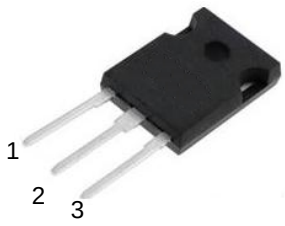
V_{RRM}	=	1200	V
I_F (T_C≤135℃)	=	60	A**
Q_C	=	194	nC**

*Per Leg, **Per Device

Benefits

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

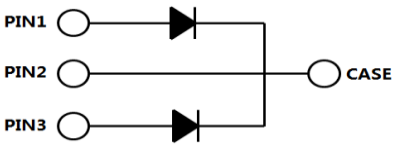
Package



TO-247-3

Applications

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



Part Number	Package	Marking
ASZD040120P2	TO-247-3	ASZD040120P2

Maximum Ratings(T_C =25℃,unless other wise 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°C T_C=135°C T_C=157°C	59*/118** 30*/60** 20*/40**	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	86* 58*	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	160* 130*	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	128* 84*	A^2S
P_{tot}	Power dissipation	T_C=25°C T_C=110°C	263*/526** 114*/228**	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~150	°C

ElectricalCharacteristics(T_j=25℃,unless other wise specified)

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=20A T_j=25°C I_F=20A 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
Q_C	Total capactive charge	V_R=800V T_j=25°C $Q_C = \int_0^{VR} C(V)dV$		97*		nC
C	Total capacitance	V_R=0V f=1MHz V_R=400V f=1MHz V_R=800V f=1MHz		1318* 91* 70*		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.57*/0.29**		°C/W

*Per Leg, **Per Device

Typical Performance (Per Leg)

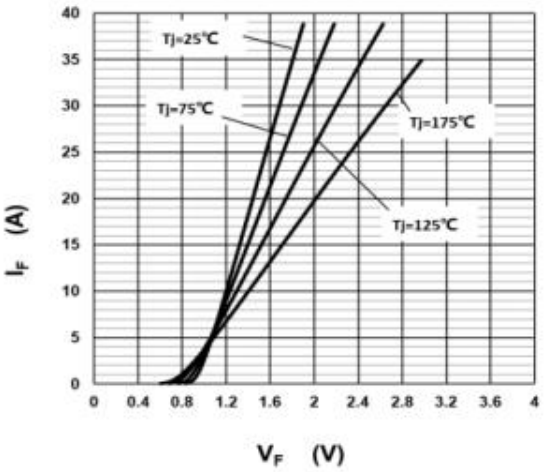


Figure 1. Typical forward characteristics

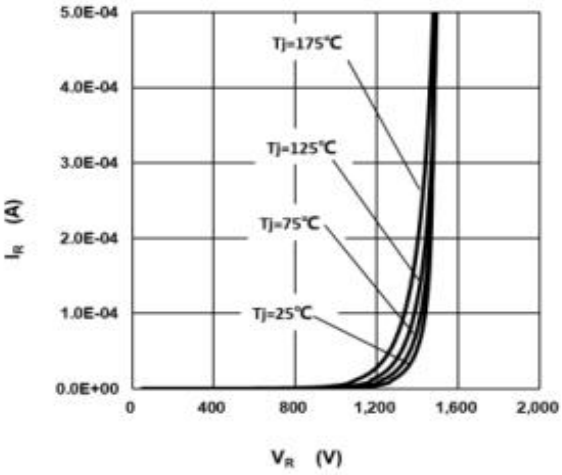


Figure 2. Typical reverse current as function of reverse voltage

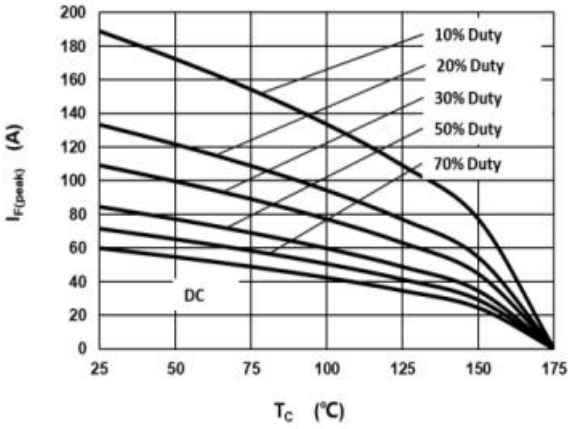


Figure 3. Diode forward current as function of temperature, D=duty cycle

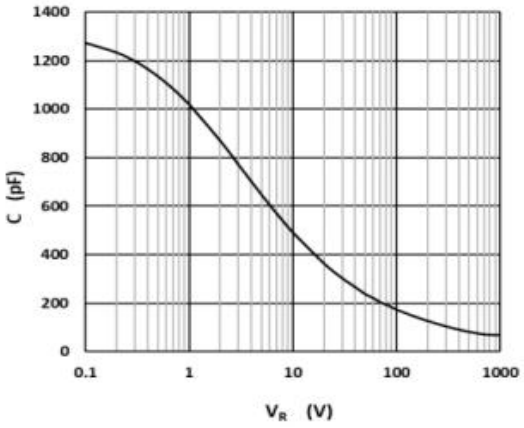


Figure 4. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C

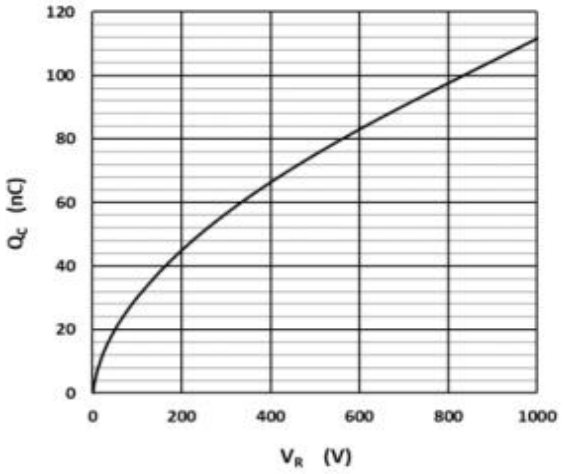


Figure 5. Typical reverse charge as function of reverse voltage

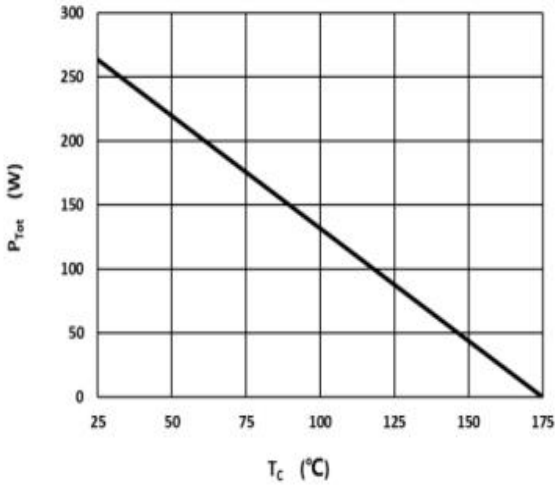


Figure 6. Power dissipation as function of case temperature

Typical Performance (Per Leg)

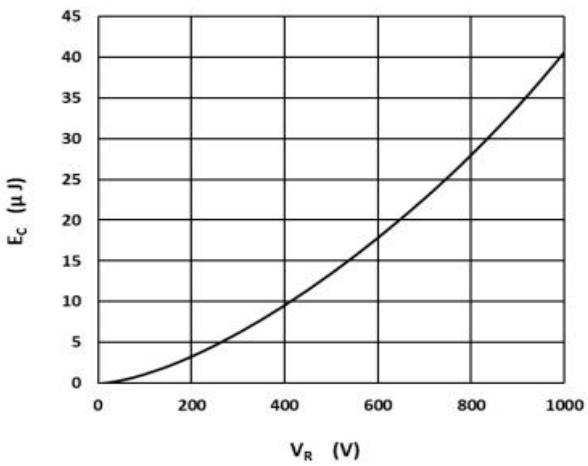


Figure 7.Capacitance stored energy

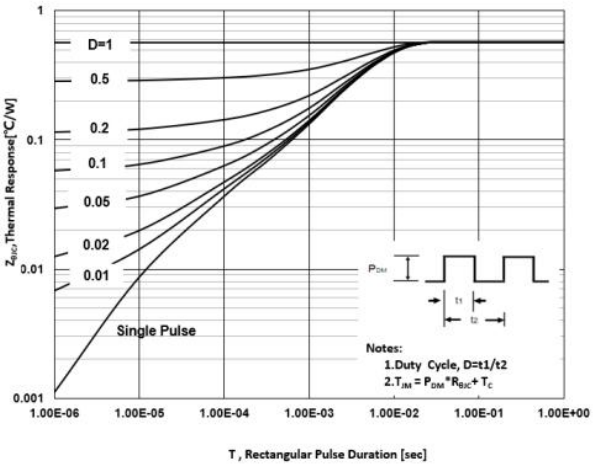
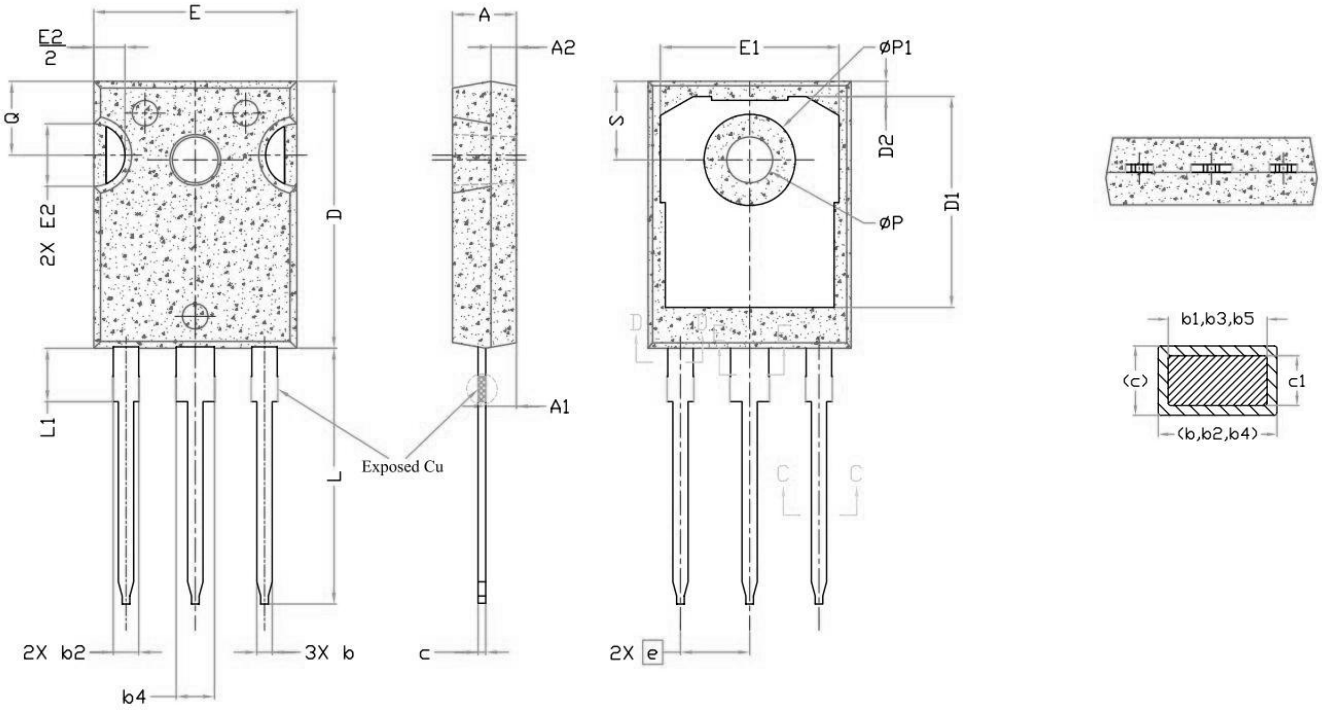


Figure 8. Max. transient thermal impedance

Package Dimensions



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.55	
A2	1.50	2.00	2.49	
b	1.12	1.20	1.33	
b1	1.12	1.20	1.28	
b2	1.91	2.00	2.39	6
b3	1.91	2.00	2.34	
b4	2.87	3.00	3.22	6, 8
b5	2.87	3.00	3.18	
c	0.55	0.60	0.69	6
c1	0.55	0.60	0.65	
D	20.80	20.95	21.10	4
D1	16.25	16.55	17.65	5
D2	0.51	1.19	1.35	
E	15.75	15.94	16.13	4
E1	13.46	14.02	14.16	5
E2	4.32	4.91	5.49	3
e	5.44BSC			
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
ØP	3.56	3.61	3.65	7
ØP1	7.19REF.			
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	