

Features

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

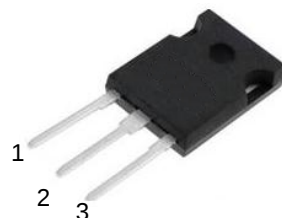
V_{RRM}	=	650	V
$I_F (T_C=153^{\circ}C)$	=	20*/40*	A
Q_C	=	52*	nC

*Per Leg, **Per Device

Benefits

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

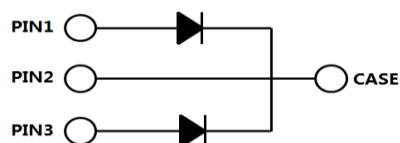
Package



TO-247-3

Applications

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



Part Number	Package	Marking
ASZD040065P2	TO-247-3	ASZD040065P2

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 =135°C T _C =153°C	51*/102** 26*/52** 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	102* 63*	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	150* 120*	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	112* 72*	A ² S
P _{tot}	Power dissipation	T _C =25°C T _C =110°C	150*/300** 65*/130**	W
T _j	Operating junction temperature		-55~175	°C
T _{stg}	Storage temperature		-55~150	°C

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

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 =20A T _j =25°C I _F =20A T _j =175°C		1.35* 1.65*	1.5* 1.8*	V
I _R	Reverse current	V _R =650V T _j =25°C V _R =650V T _j =175°C		2 10	40* 100*	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		52*		nC
C	Total capacitance	V _R =0V f=1MHz V _R =200V f=1MHz V _R =400V f=1MHz		1018* 104* 89*		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		1.0*/0.5**		°C/W

(*Per leg, **Per Device)

Electrical Characteristic Curves

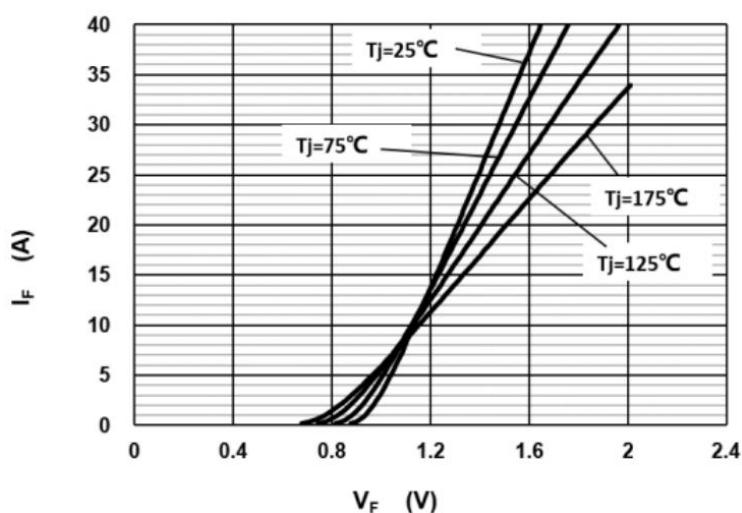


Figure 1. Typical forward characteristics

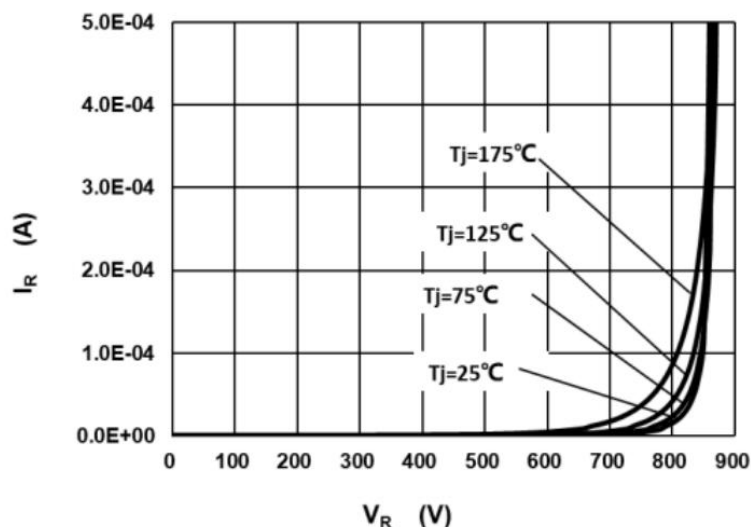


Figure 2. Typical reverse current as function of reverse voltage

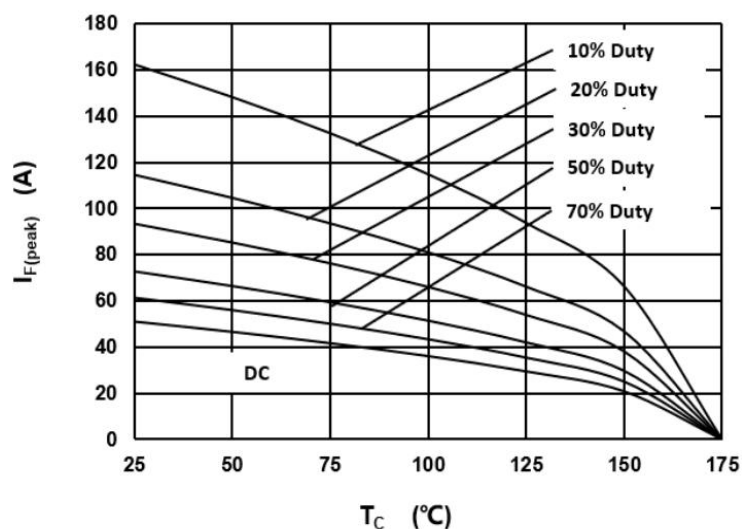


Figure 3. Diode forward current as function of temperature, D=duty cycle

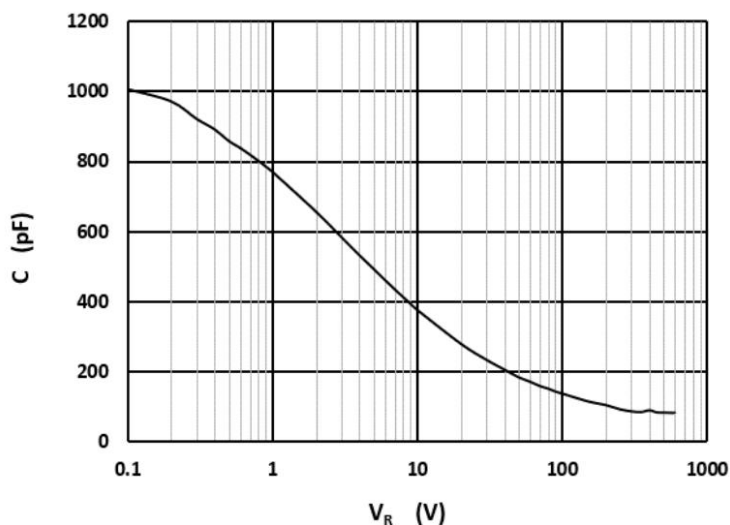


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_J=25^{\circ}\text{C}$

Electrical Characteristic Curves

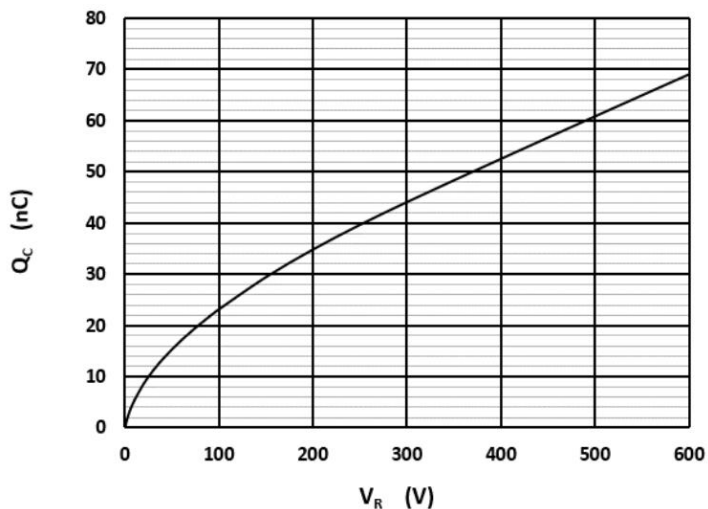


Figure 5. Typical reverse charge as function of reverse voltage

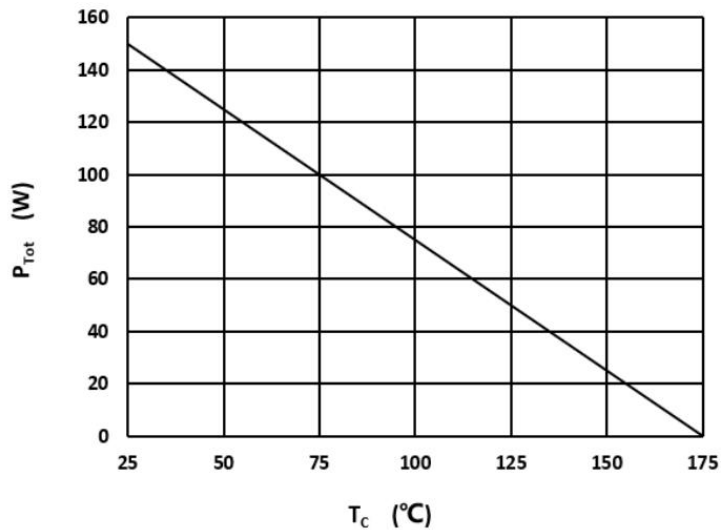


Figure 6. Power dissipation as function of case temperature

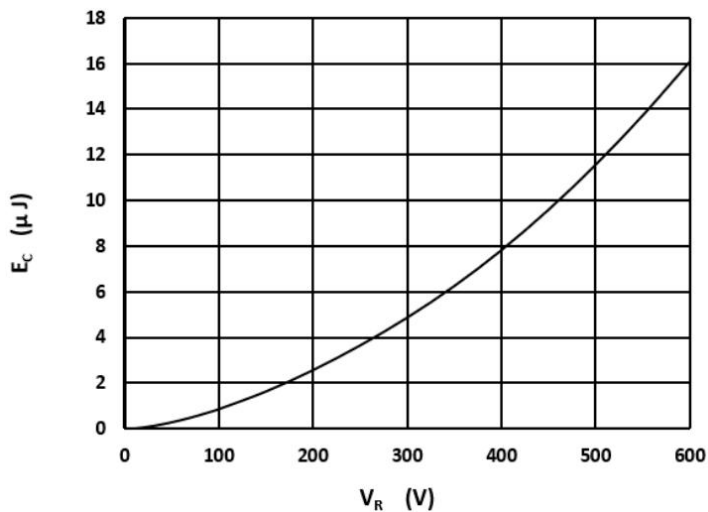


Figure 7. Capacitance stored energy

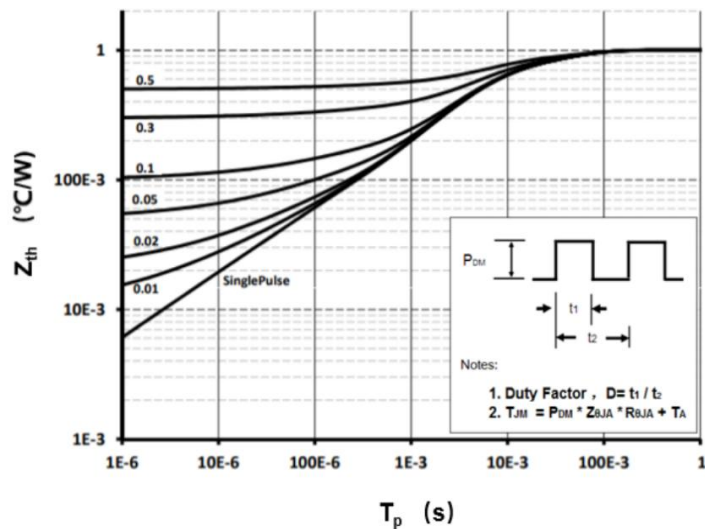
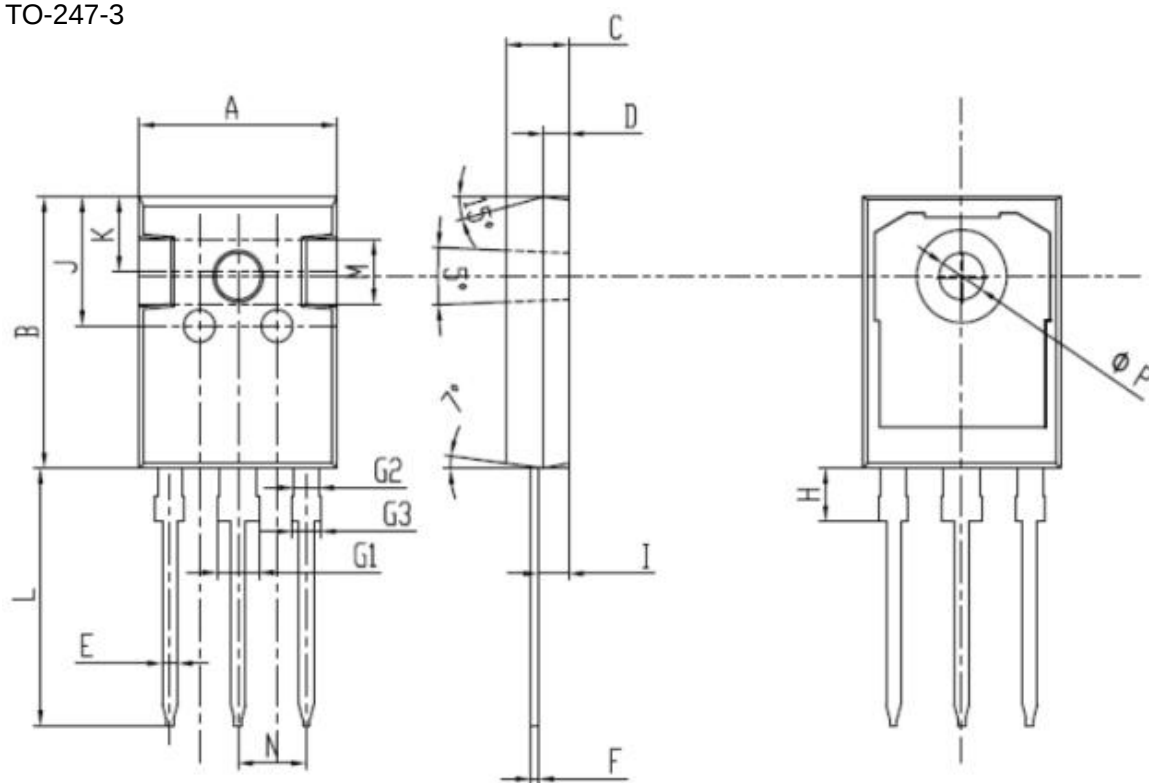


Figure 8. Max. transient thermal impedance

Package Dimensions

Package TO-247-3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	15.700	15.900	0.619	0.626
B	20.900	21.100	0.823	0.831
C	4.900	5.100	0.193	0.201
D	1.900	2.100	0.075	0.083
E	1.100	1.300	0.043	0.051
F	0.450	0.750	0.018	0.030
G1	3.000	3.200	0.118	0.126
G2	1.850	2.150	0.073	0.085
G3	2.000	2.200	0.079	0.087
H	4.000	4.300	0.158	0.169
I	2.300	2.500	0.091	0.099
J	9.900	10.100	0.390	0.398
K	5.700	5.900	0.225	0.232
L	19.800	20.200	0.780	0.796
M	4.850	5.150	0.191	0.203
N	5.286	5.586	0.208	0.220
Φ P	3.400	3.600	0.134	0.142