

Features:

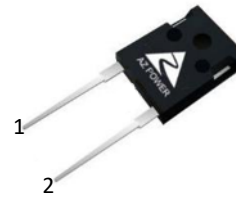
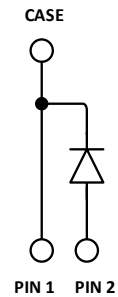
- 650V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent

Switching

Benefits:

- Unipolar Rectifier
- Minimal switching loss
- Higher Efficiency
- Low cooling requirement

Symbol	Value	Unit
V_{RRM}	650	V
I_F ($T_C=148^\circ\text{C}$)	20	A
Q_C	65	nC

Outline

TO-247-2
Circuit

Applications:

- Switch Mode Power Supply
- Booster diodes in PFC, DC/DC
- AC/DC converters

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions
V_R	DC Peak Reverse Voltage	650	V	$T_J = 25^\circ\text{C}$
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	$T_J = 25^\circ\text{C}$
V_{RSM}	Surge Peak Reverse Voltage	650	V	$T_J = 25^\circ\text{C}$
I_F	Continuous Forward Current	58	A	$T_C = 25^\circ\text{C}$
		26.5		$T_C = 135^\circ\text{C}$
		20		$T_C = 148^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	176	A	$T_C = 25^\circ\text{C}$, $T_P = 10\text{ms}$, Half Sine Wave
		160		$T_C = 125^\circ\text{C}$, $T_P = 10\text{ms}$, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	236	A	$T_C = 25^\circ\text{C}$, $T_P = 10\text{ms}$, Half Sine Wave
		212		$T_C = 125^\circ\text{C}$, $T_P = 10\text{ms}$, Half Sine Wave
P_D	Power Dissipation	200	W	$T_C = 25^\circ\text{C}$
		67		$T_C = 125^\circ\text{C}$
$T_{J,max}$	Operating Junction Temperature	175	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$	

Thermal characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Thermal Resistance		0.75		$^{\circ}C/W$

Electrical Characteristics

Symbol	Parameter	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
V_{DC}	DC Blocking Voltage	650			V	$I_R=500\mu A, T_J=25^{\circ}C$
V_F	Forward Voltage		1.45 1.75	1.7 2.0	V	$I_F=20A, T_J=25^{\circ}C$ $I_F=20A, T_J=175^{\circ}C$
I_R	Reverse Current		2 50	50 300	μA	$V_R=650V, T_J=25^{\circ}C$ $V_R=650V, T_J=175^{\circ}C$
Q_C	Total Capacitive Charge		65		nC	$I_F=20A, di/dt=600A/\mu s$ $T_J=25^{\circ}C, V_R=400V$
C	Total Capacitance		796 157 138		pF	$V_R=1V, T_J=25^{\circ}C, f=1\text{ MHz}$ $V_R=200V, T_J=25^{\circ}C, f=1\text{ MHz}$ $V_R=400V, T_J=25^{\circ}C, f=1\text{ MHz}$

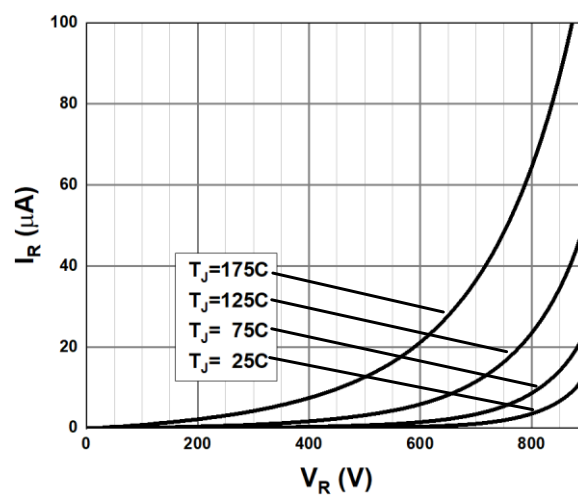
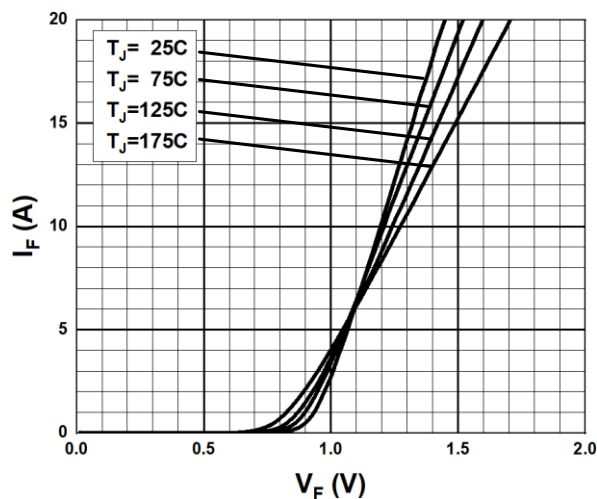
Typical Performance


Fig. 1 Forward Characteristics

Fig. 2 Reverse Characteristics

Typical Performance

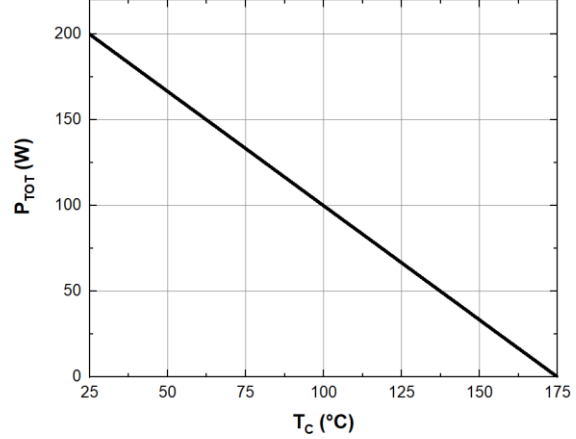
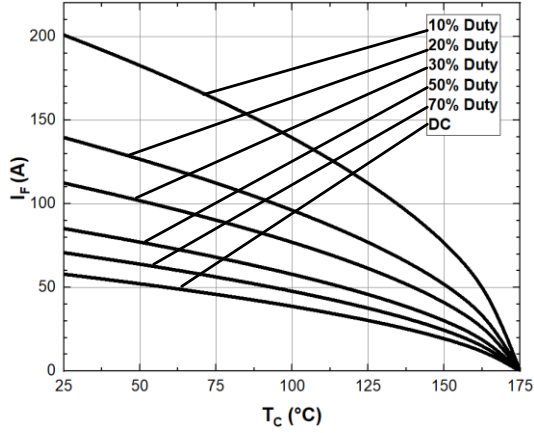


Fig. 3 Current Derating

Fig. 4 Power Derating

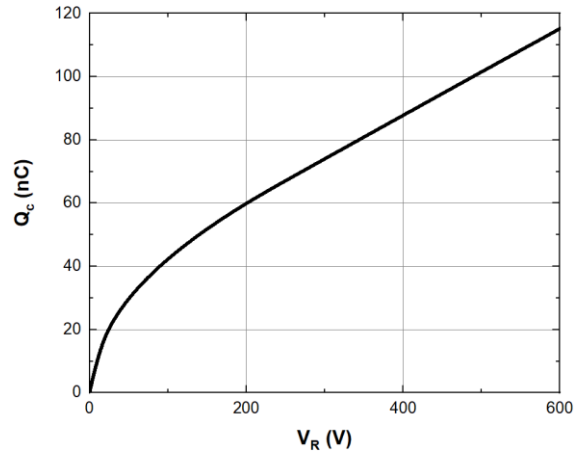
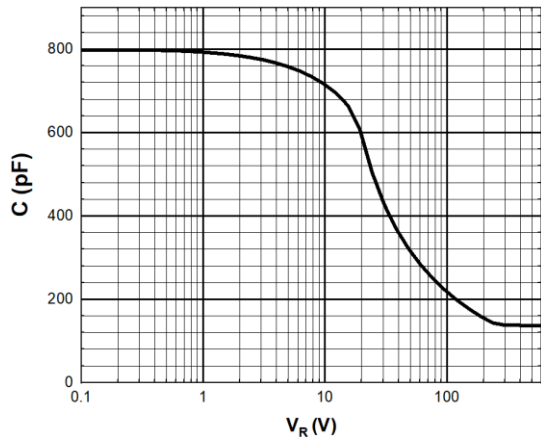


Fig. 5 Capacitance vs. Reverse Voltage

Fig. 6 Recovery Charge vs. Reverse Voltage

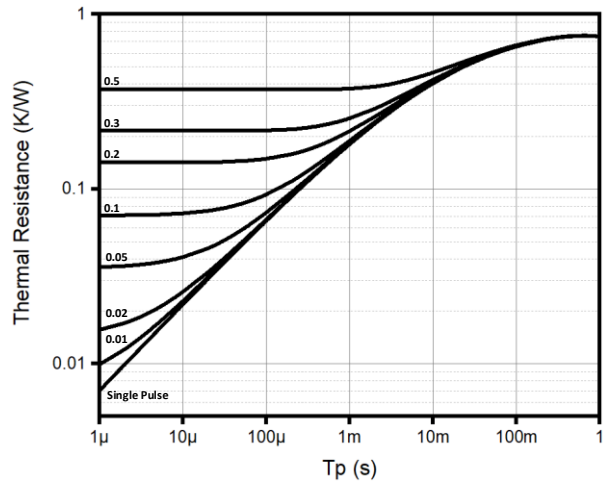
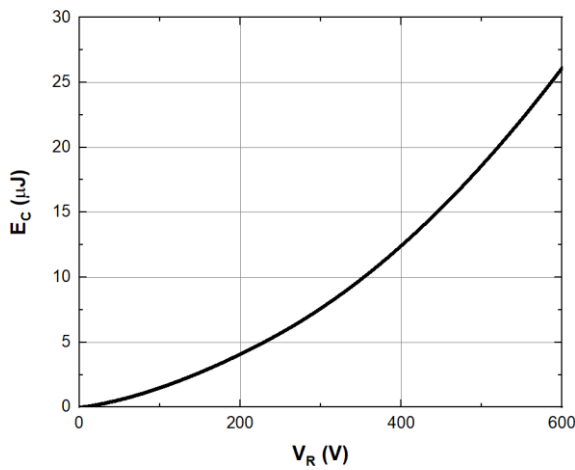
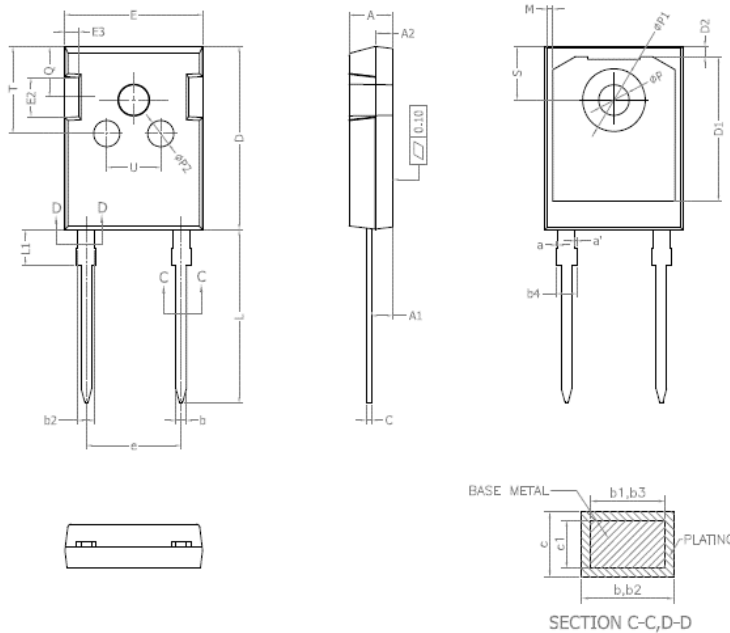


Fig. 7 Capacitance stored Energy

Fig. 8 Thermal Impedance

Package TO-247-2 (Unit: mm)



COMMON DIMENSIONS
(UNITS OF MEASURE = MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	4.90	5.00	5.10
A1	2.31	2.41	2.51
A2	1.90	2.00	2.10
a	0	—	0.15
a'	0	—	0.15
b	1.16	—	1.26
b1	1.15	1.2	1.22
b2	1.96	—	2.06
b3	1.95	2.00	2.02
b4	—	—	2.25
c	0.59	—	0.66
c1	0.58	0.60	0.62
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.17	1.35
E	15.70	15.80	15.90
E2	4.40	4.50	4.60
E3	2.40	2.50	2.60
e	—	10.872 BSC	—
L	19.80	19.92	20.10
L1	—	—	4.30
M	0.35	—	0.95
P	3.40	3.50	3.60
P1	7.00	—	7.40
P2	2.40	2.50	2.60
Q	5.60	—	6.00
S	6.05	6.15	6.25
T	9.80	—	10.20
U	6.00	—	6.40

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