

Features:

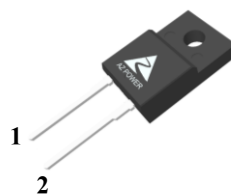
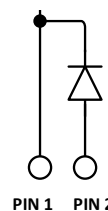
- 650V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent

Switching

Benefits:

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

Symbol	Value	Unit
V_{RRM}	650	V
I_F ($T_C = 125^\circ\text{C}$)	15	A
Q_C		nC

Outline

TO-220-2FP
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	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	30	A	$T_C = 25^\circ\text{C}$
		23.5		$T_C = 75^\circ\text{C}$
		15		$T_C = 125^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	91	A	$T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$
		81		$T_C = 110^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$
I_{FSM}	Non-Repetitive Peak Forward Surge Current	120	A	$T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$
		109		$T_C = 110^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$
P_D	Power Dissipation	83	W	$T_C = 25^\circ\text{C}$
		36		$T_C = 110^\circ\text{C}$
$T_{J,max}$	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		1.8		$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

Symbol	Parameter	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
V_{DC}	DC Blocking Voltage	650			V	$I_R = 100\mu\text{A}$, $T_J = 25^{\circ}\text{C}$
V_F	Forward Voltage		1.45 1.8	1.7 2.1	V	$I_F = 15\text{A}$, $T_J = 25^{\circ}\text{C}$ $I_F = 15\text{A}$, $T_J = 175^{\circ}\text{C}$
I_R	Reverse Current		5 10	100 200	μA	$V_R = 650\text{V}$, $T_J = 25^{\circ}\text{C}$ $V_R = 650\text{V}$, $T_J = 175^{\circ}\text{C}$
Q_C	Total Capacitive Charge				nC	$I_F = 15\text{A}$, $dI/dt = \text{A}/\mu\text{s}$ $T_J = 25^{\circ}\text{C}$, $V_R = 400\text{V}$
C	Total Capacitance		644 88 85		pF	$V_R = 1\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 200\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$

Typical Performance

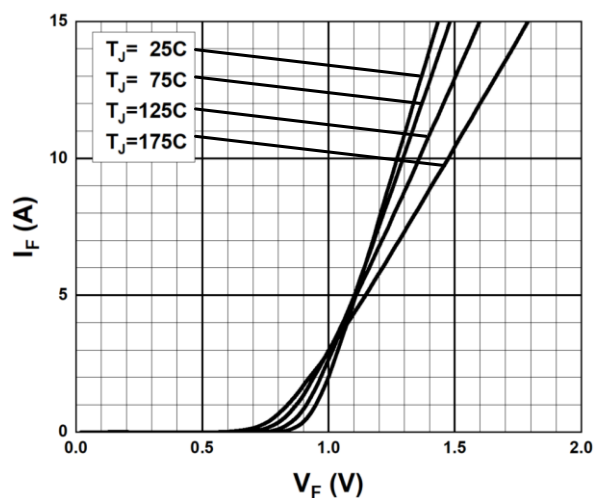


Fig. 1 Forward Characteristics

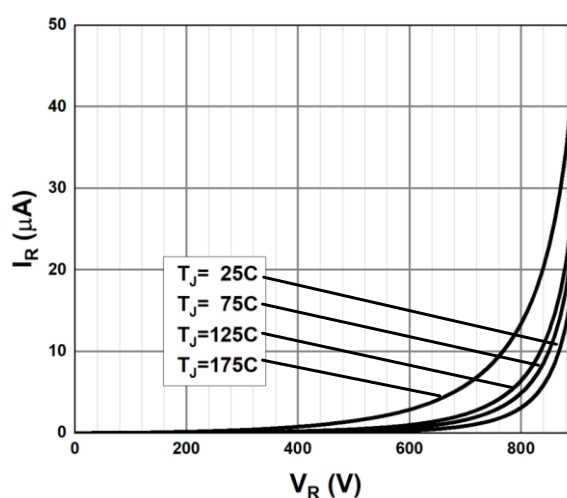


Fig. 2 Reverse Characteristics

Typical Performance

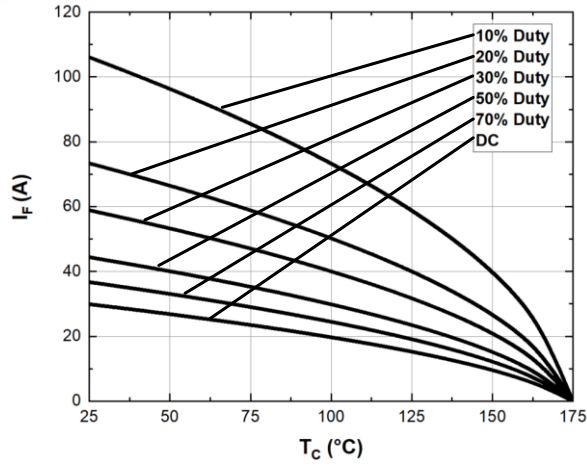


Fig. 3 Current Derating

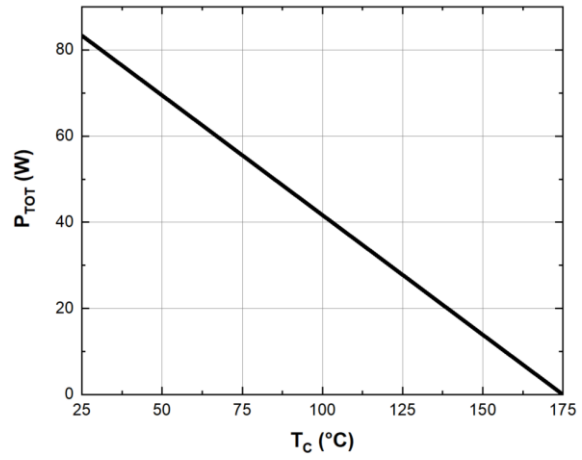


Fig. 4 Power Derating

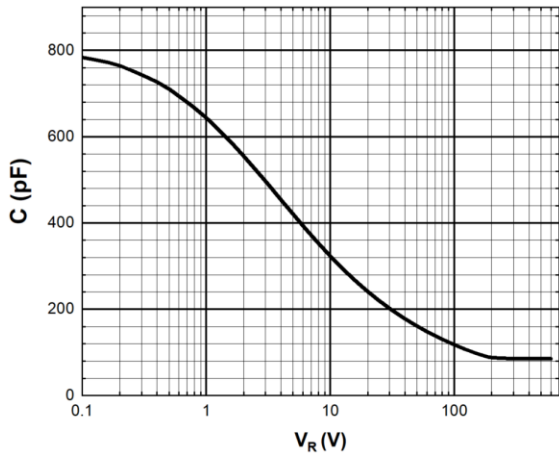


Fig. 5 Capacitance vs. Reverse Voltage

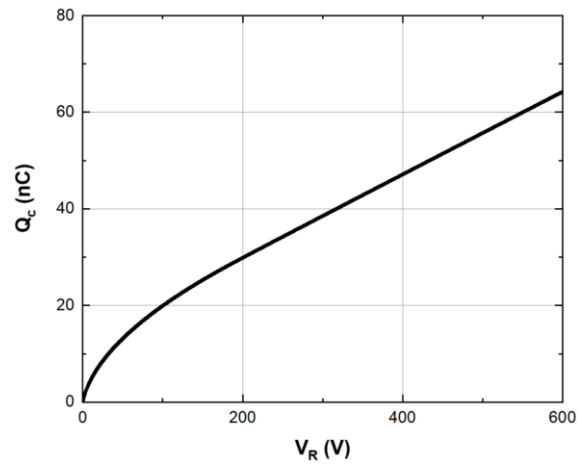


Fig. 6 Recovery Charge vs. Reverse Voltage

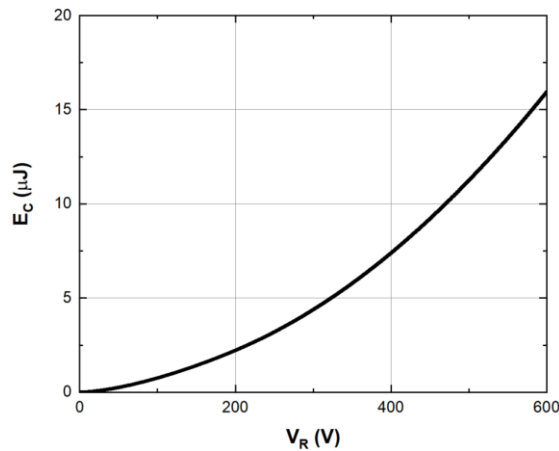


Fig. 7 Capacitance stored Energy

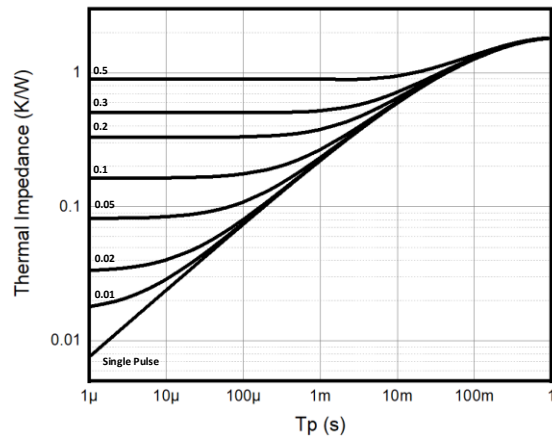
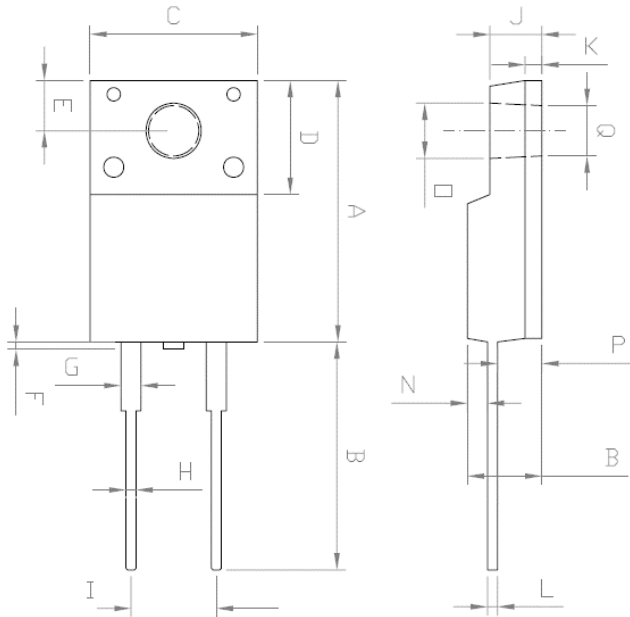


Fig. 7 Thermal Impedance

Package TO-220-2FP (Unit: mm)


REF.DIM	DATA BOOK mm		
	NOR	MIN	MAX
A	15.6	14.8	16.1
B	13	12.65	13.8
C	10	9.85	10.36
D	6.5	4.6	6.8
E	3.0	2.55	3.5
F			1
G	1.2	1	1.45
H	0.6	0.3	0.9
I	5.1	4.8	5.4
J	3.1	2.34	3.3
K	1.0	0.55	1.3
L	0.6	0.36	0.8
M	4.45	4.2	4.9
N	1.2	1.1	1.8
O	3.3	2.9	3.5
P	2.6	2.5	3.15
Q	3	2.9	3.5

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