

**Features:**

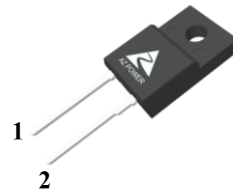
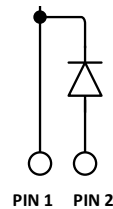
- 650V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent

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	$\mu\text{A}$	$V_R = 650\text{V}$ , $T_J = 25^{\circ}\text{C}$ $V_R = 650\text{V}$ , $T_J = 175^{\circ}\text{C}$
$Q_C$	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

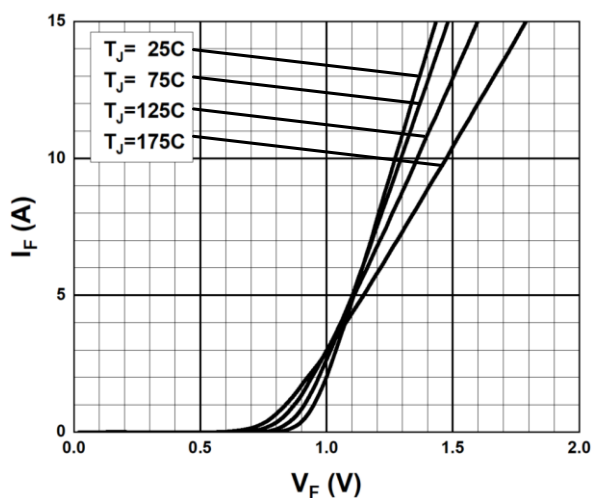


Fig. 1 Forward Characteristics

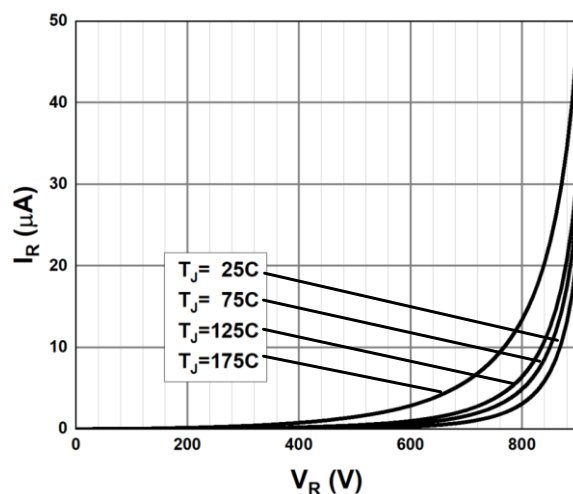
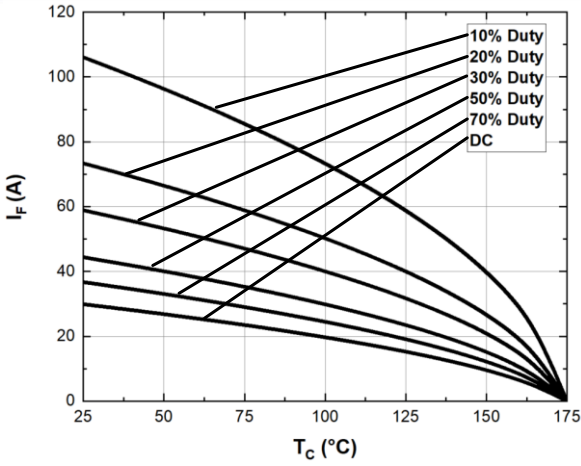
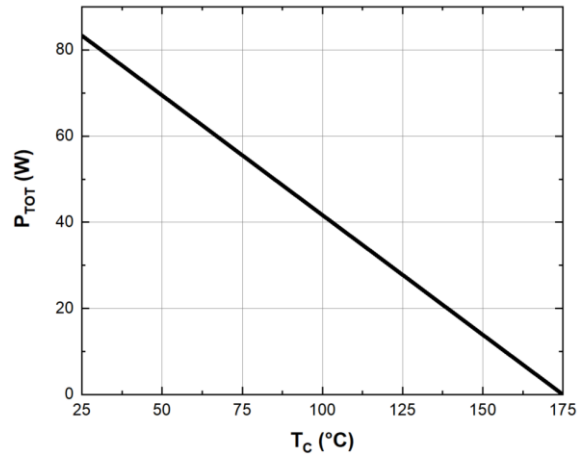


Fig. 2 Reverse Characteristics

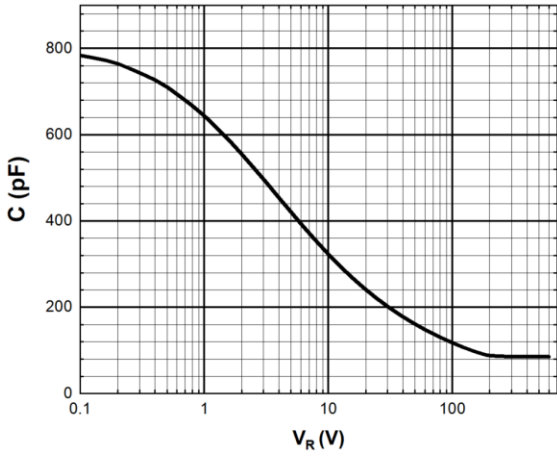
**Typical Performance**



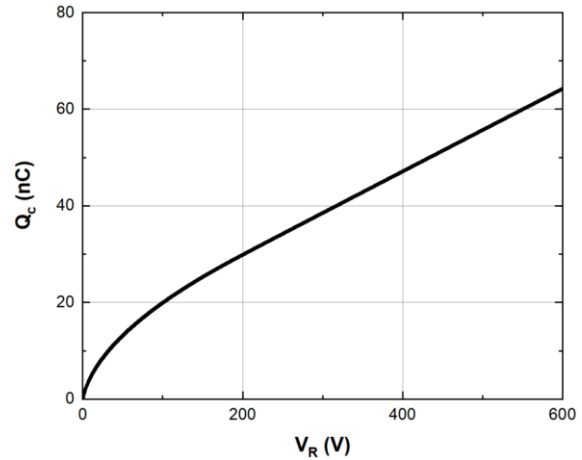
**Fig. 3 Current Derating**



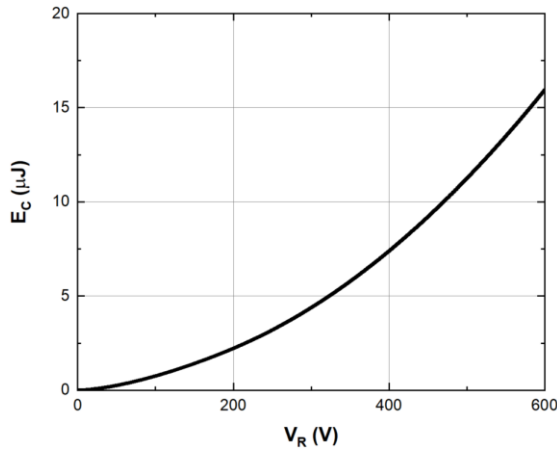
**Fig. 4 Power Derating**



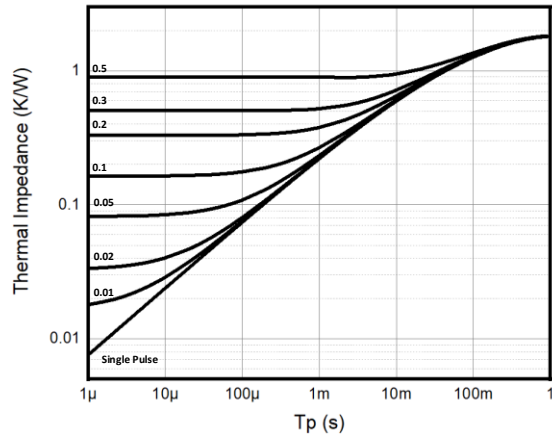
**Fig. 5 Capacitance vs. Reverse Voltage**



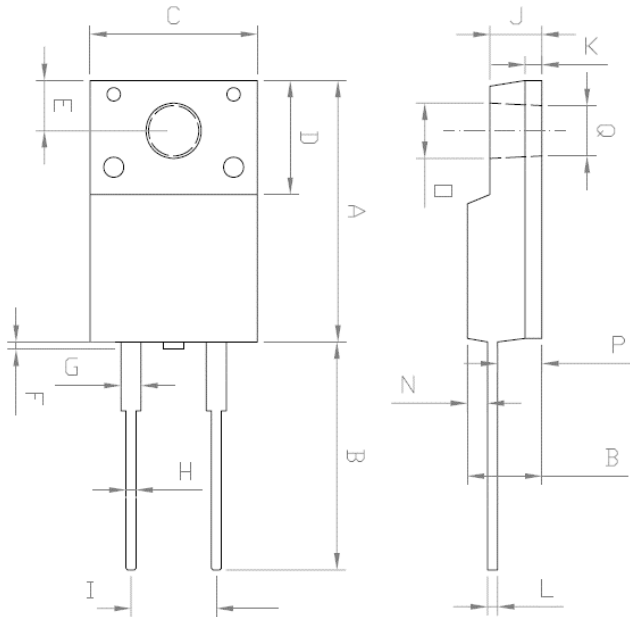
**Fig. 6 Recovery Charge vs. Reverse Voltage**



**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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