

**Features:**

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

Switching

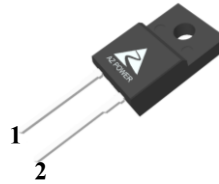
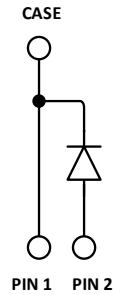
**Benefits:**

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

Symbol	Value	Unit
$V_{RRM}$	650	V
$I_F$ ( $T_C = 148^\circ\text{C}$ )	6	A
$Q_C$	26	nC

**Applications:**

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

**Outline**

**TO-220-2FP**
**Circuit**

**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	17.6	A	$T_C = 25^\circ\text{C}$
		8		$T_C = 135^\circ\text{C}$
		6		$T_C = 148^\circ\text{C}$
$I_{FRM}$	Repetitive Peak	51	A	$T_C = 25^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
	Forward Surge Current	45		$T_C = 125^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
$I_{FSM}$	Non-Repetitive Peak	66	A	$T_C = 25^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
	Forward Surge Current	60		$T_C = 125^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
$P_D$	Power Dissipation	58.8	W	$T_C = 25^\circ\text{C}$
		19.6		$T_C = 125^\circ\text{C}$
$T_{J,max}$	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		2.55		$^{\circ}C/W$

### Electrical Characteristics

Symbol	Parameter	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
$V_{DC}$	DC Blocking Voltage	650			V	$I_R = 100\mu A, T_J = 25^{\circ}C$
$V_F$	Forward Voltage		1.4 1.7	1.7 2.0	V	$I_F = 6A, T_J = 25^{\circ}C$ $I_F = 6A, T_J = 175^{\circ}C$
$I_R$	Reverse Current		1 10	30 100	$\mu A$	$V_R = 650V, T_J = 25^{\circ}C$ $V_R = 650V, T_J = 175^{\circ}C$
$Q_C$	Total Capacitive Charge		26		nC	$I_F = 6A, dI/dt = 400A/\mu s$ $T_J = 25^{\circ}C, V_R = 400V$
$C$	Total Capacitance		329 45 43		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

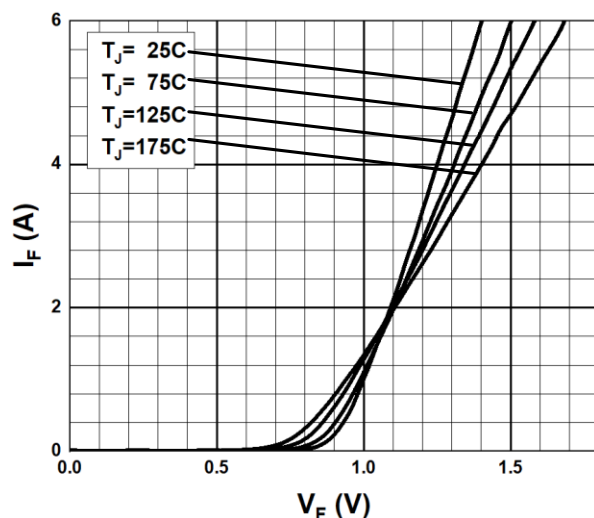


Fig. 1 Forward Characteristics

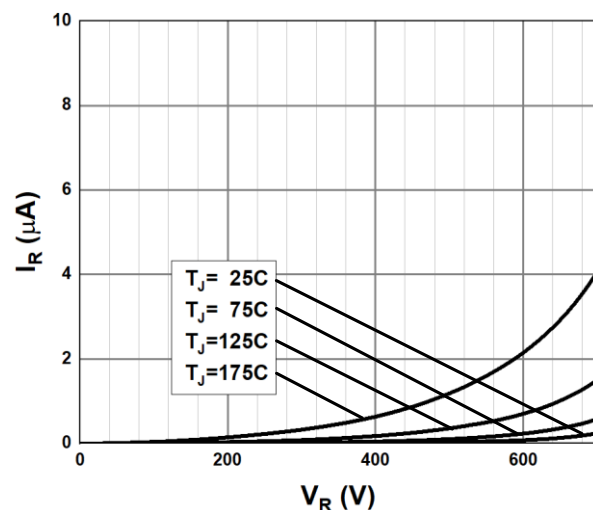
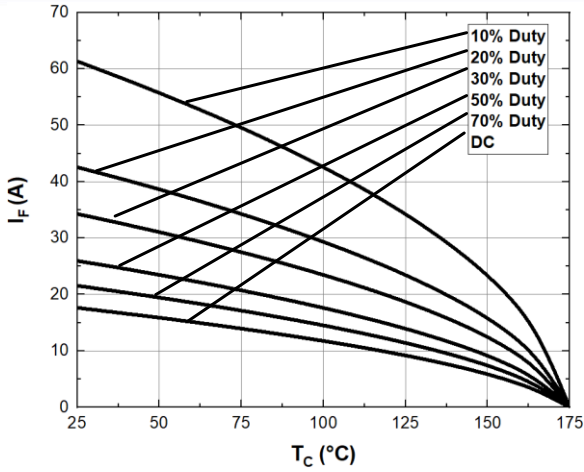
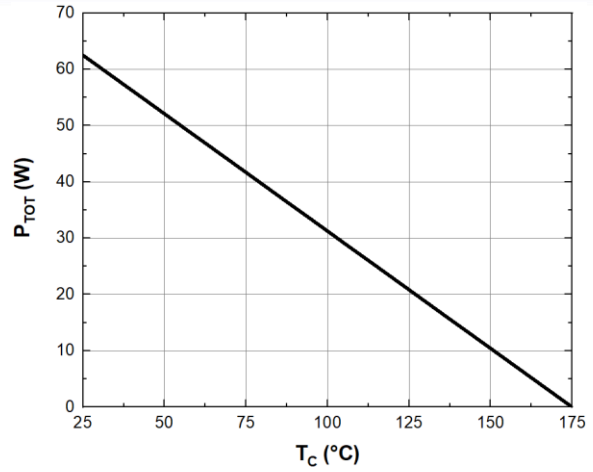


Fig. 2 Reverse Characteristics

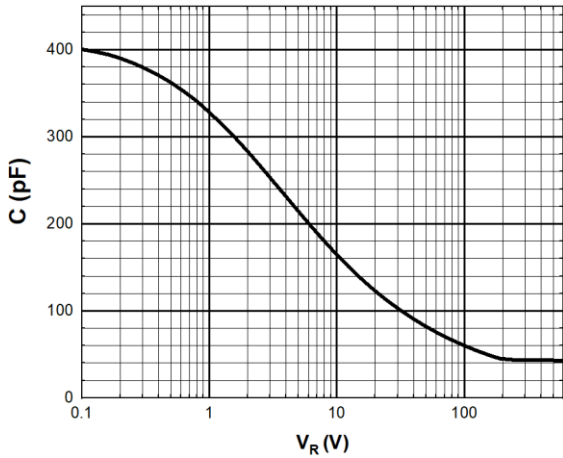
**Typical Performance**



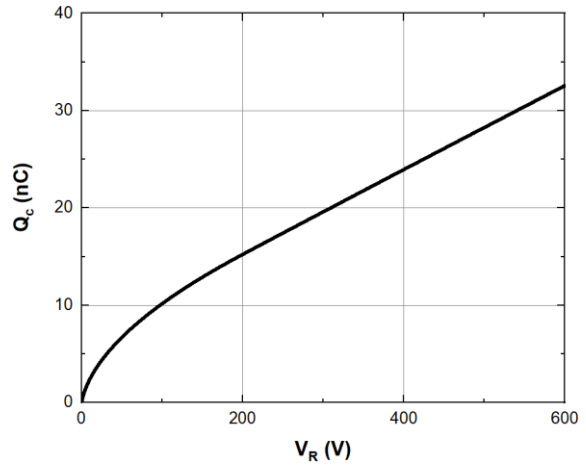
**Fig. 3 Current Derating**



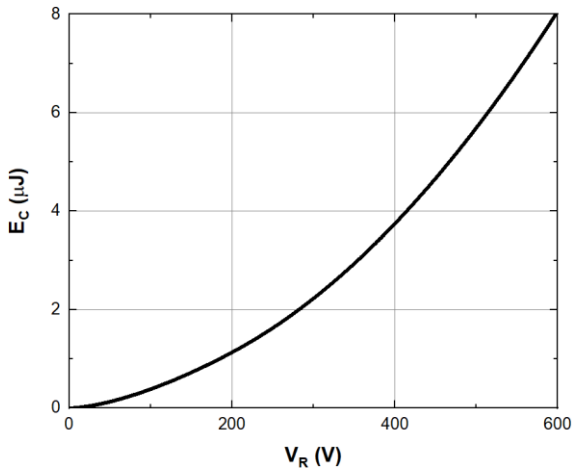
**Fig. 4 Power Derating**



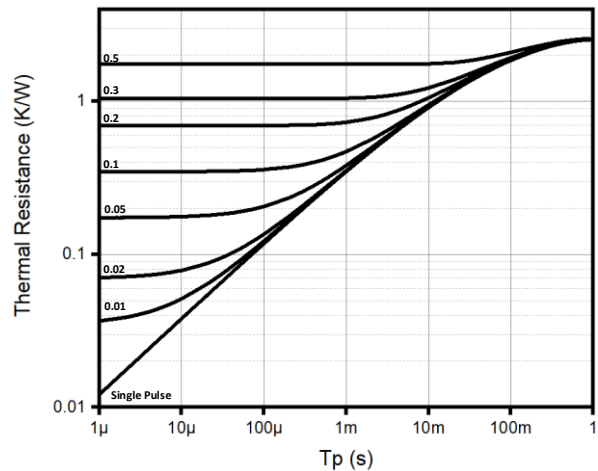
**Fig. 5 Capacitance vs. Reverse Voltage**



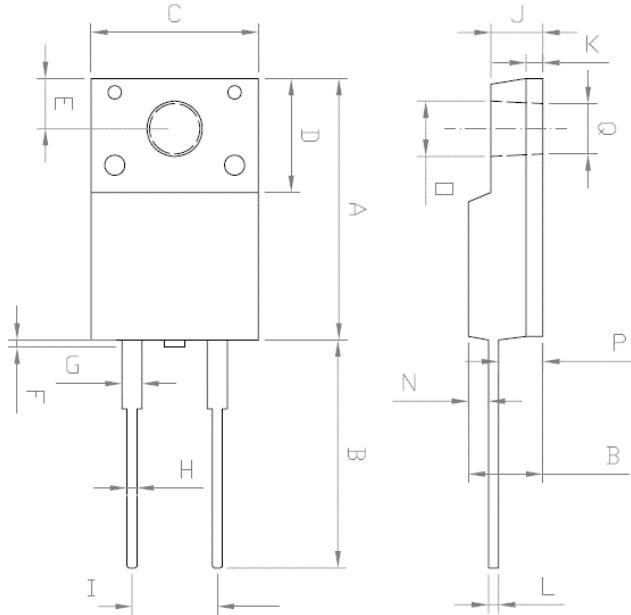
**Fig. 6 Recovery Charge vs. Reverse Voltage**



**Fig. 7 Capacitance stored Energy**



**Fig. 8 Thermal Impedance**

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


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

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