

Features:

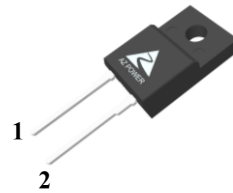
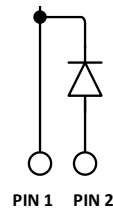
- 650V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent

Switching

Benefits:

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

| Symbol | Value | Unit |
|-------------------------------------|-------|------|
| V_{RRM} | 650 | V |
| I_F ($T_C = 155^\circ\text{C}$) | 4 | A |
| Q_C | 19 | 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 | 14.3 | A | $T_C = 25^\circ\text{C}$ |
| | | 6.5 | | $T_C = 135^\circ\text{C}$ |
| | | 4 | | $T_C = 155^\circ\text{C}$ |
| I_{FRM} | Repetitive Peak Forward Surge Current | 44 | A | $T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| | | 40 | | $T_C = 110^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| I_{FSM} | Non-Repetitive Peak Forward Surge Current | 58 | A | $T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| | | 53 | | $T_C = 110^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| P_D | Power Dissipation | 50 | W | $T_C = 25^\circ\text{C}$ |
| | | 21.7 | | $T_C = 110^\circ\text{C}$ |
| $T_{J,max}$ | 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 | | 3.0 | | $^{\circ}\text{C}/\text{W}$ |

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 | | 1.35 1.6 | 1.6 1.9 | V | $I_F = 4\text{A}$, $T_J = 25^{\circ}\text{C}$ $I_F = 4\text{A}$, $T_J = 175^{\circ}\text{C}$ |
| I_R | Reverse Current | | 1 5 | 50 200 | 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 | | 19 | | nC | $I_F = 4\text{A}$, $dI/dt = 300\text{A}/\mu\text{s}$ $T_J = 25^{\circ}\text{C}$, $V_R = 400\text{V}$ |
| C | Total Capacitance | | 225 32 30 | | 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

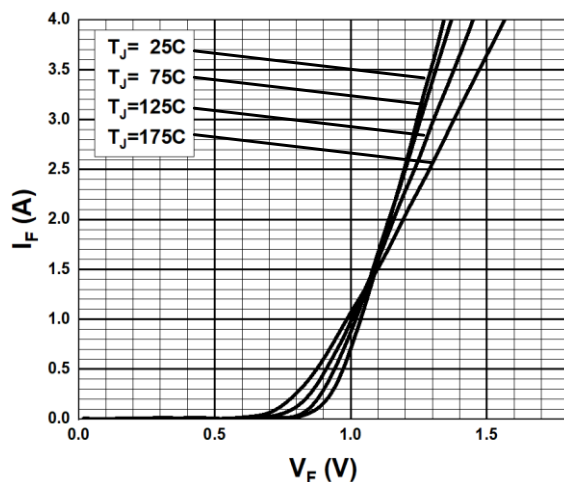


Fig. 1 Forward Characteristics

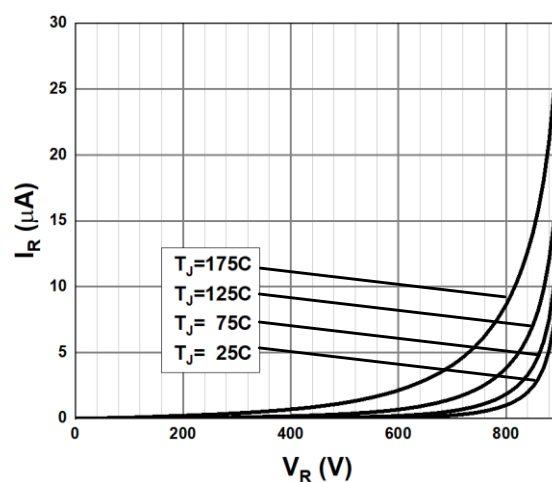


Fig. 2 Reverse Characteristics

Typical Performance

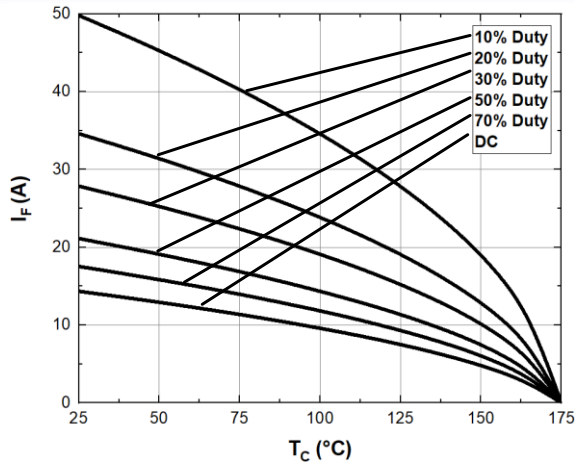


Fig. 3 Current Derating

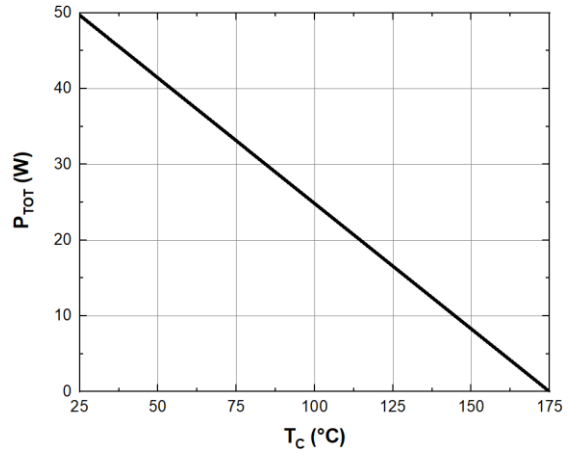


Fig. 4 Power Derating

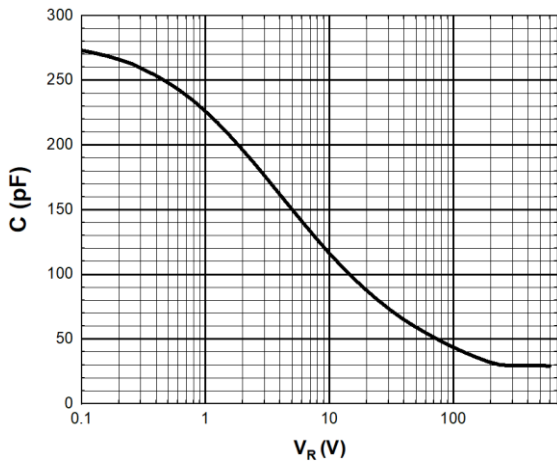


Fig. 5 Capacitance vs. Reverse Voltage

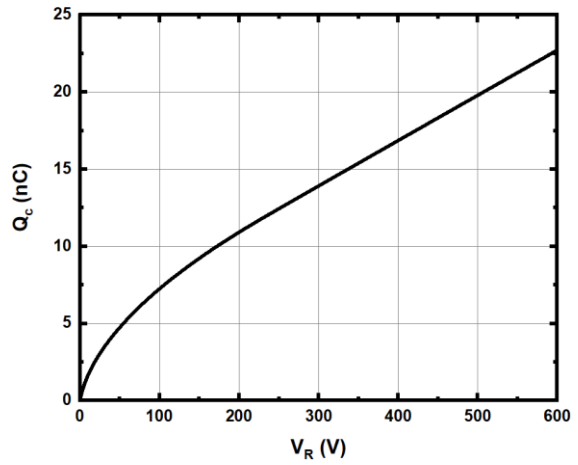


Fig. 6 Recovery Charge vs. Reverse Voltage

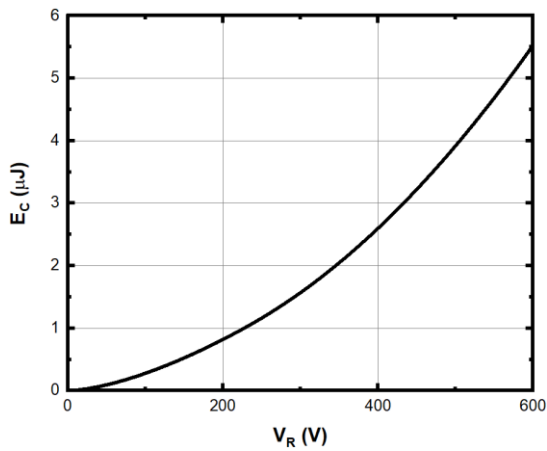


Fig. 7 Capacitance stored Energy

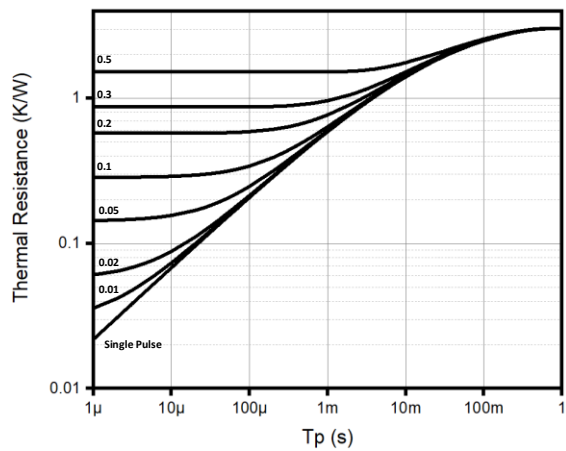
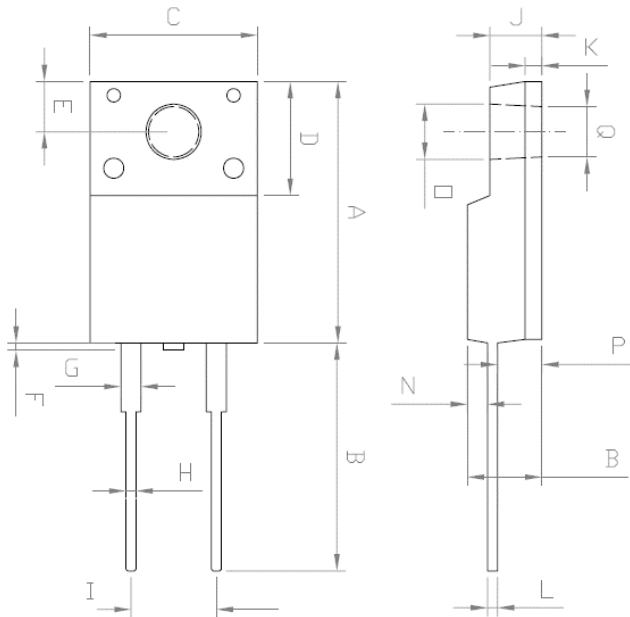


Fig. 8 Thermal Impedance

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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