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November 2014

FFP08D60L2 8 A, 600 V, Deuxpeed® Diode



FFP08D60L2 — Deuxpeed® Diode

Features

- Deuxpeed Recovery, $T_{rr} = 25 \text{ ns}$ (@ $I_F = 8 \text{ A}$)
- Max Forward Voltage, $V_F = 3.6 \text{ V}$ (@ $T_C = 25^\circ\text{C}$)
- 600V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

Description

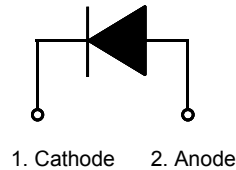
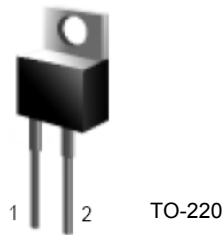
The DEUXPEED® is a high-performance diode composed of two 300V dice in series and silicon nitride passivated ionimplanted epitaxial planar construction.

This device is intended for use as boost diode in continuous mode power factor correctors and hard switching conditions and internal ceramic insulated package allows flexible heatsinking on common or separate heatsink.

Applications

- Boost Diode in Continuous Mode Power Factor Corrections

Pin Assignments



Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Ratings | Unit |
|----------------|---|-------------|------------------|
| V_{RRM} | Peak Repetitive Reverse Voltage | 600 | V |
| V_{RWM} | Working Peak Reverse Voltage | 600 | V |
| V_R | DC Blocking Voltage | 600 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current @ $T_C = 115^\circ\text{C}$ | 8 | A |
| I_{FSM} | Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave | 80 | A |
| T_J, T_{STG} | Operating and Storage Temperature Range | -65 to +175 | $^\circ\text{C}$ |

Thermal Characteristics

| Symbol | Parameter | Max. | Unit |
|-----------------|--|------|--------------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 2.0 | $^\circ\text{C/W}$ |

Package Marking and Ordering Information

| Part Number | Top Mark | Package | Packing Method | Reel Size | Tape Width | Quantity |
|-------------|----------|-----------|----------------|-----------|------------|----------|
| FFP08D60L2 | F08D60L2 | TO-220-2L | Tube | N/A | N/A | 50 |

Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|-----------|--|------|------|------|---------------|
| V_{FM1} | $I_F = 8\text{ A}$ | - | 2.6 | 3.6 | V |
| | $I_F = 8\text{ A}$ | - | 2.2 | | |
| I_{RM1} | $V_R = 600\text{ V}$ | - | - | 10 | μA |
| | $V_R = 600\text{ V}$ | - | - | 100 | |
| t_{rr} | $I_F = 8\text{ A}, di_F/dt = 200\text{ A}/\mu\text{s}, V_R = 390\text{ V}$ | - | 13 | 25 | ns |
| W_{AVL} | Avalanche Energy ($L = 40\text{ mH}$) | 20 | - | - | mJ |

Notes:

1: Pulse: Test Pulse width = 300 μs , Duty Cycle = 2%

Test Circuit and Waveforms

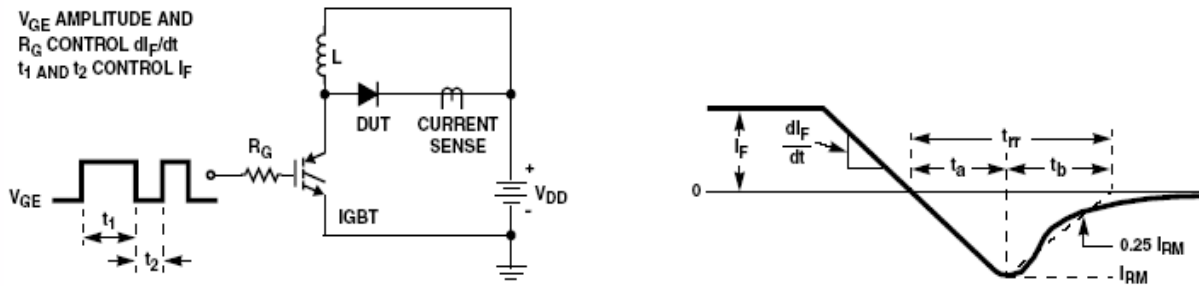


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

$L = 40\text{mH}$
 $R < 0.1\Omega$
 $V_{DD} = 50\text{V}$

$EA_{VL} = 1/2LI^2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$
 $Q1 = \text{IGBT } (BV_{CES} > \text{DUT } V_{R(AVL)})$

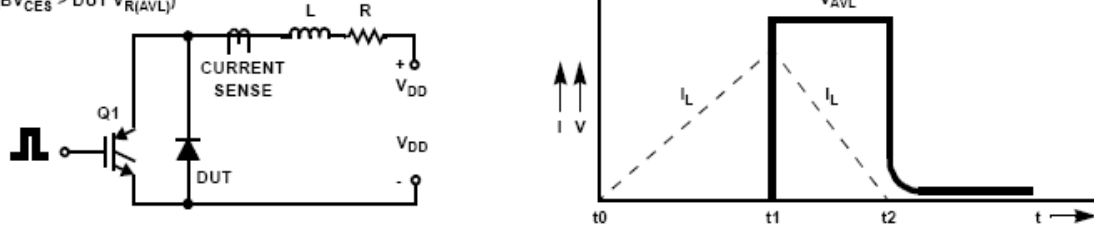


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics

Figure 3. Typical Forward Voltage Drop vs. Forward Current

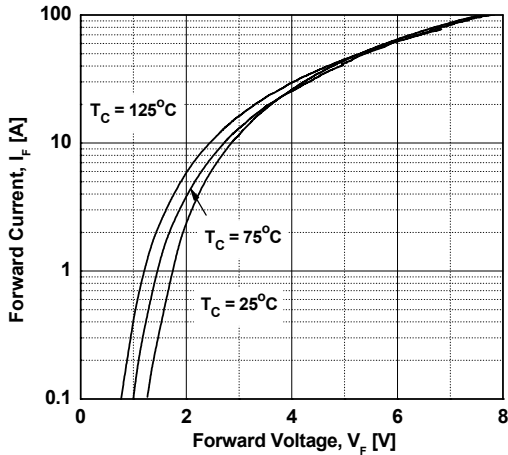


Figure 5. Typical Junction Capacitance

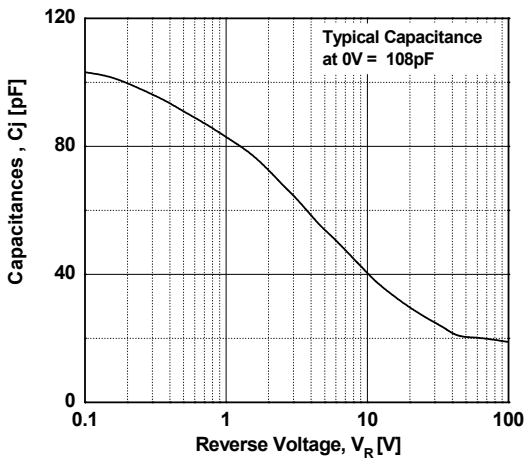


Figure 7. Typical Reverse Recovery Current vs. di_F/dt

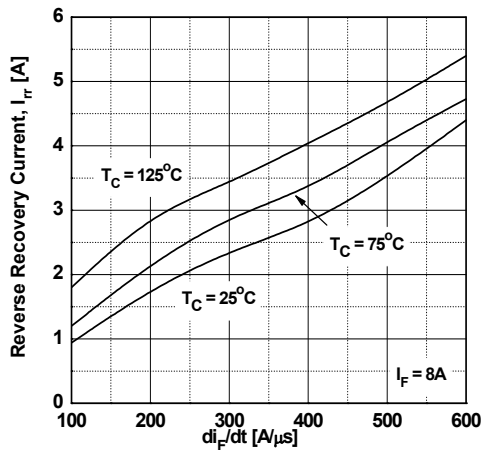


Figure 4. Typical Reverse Current vs. Reverse Voltage

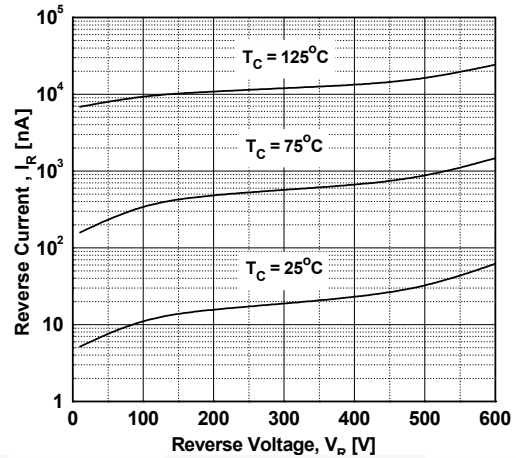


Figure 6. Typical Reverse Recovery Time vs. di_F/dt

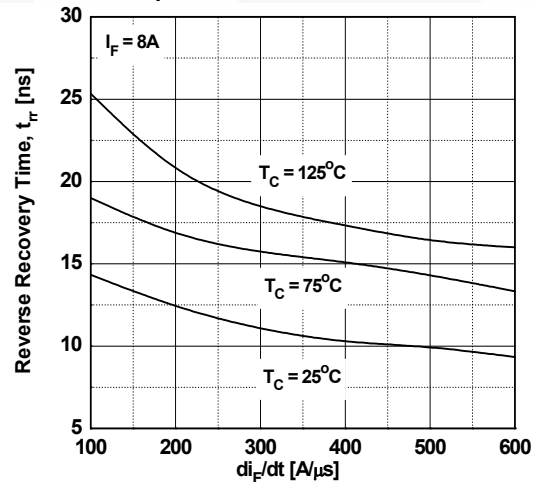
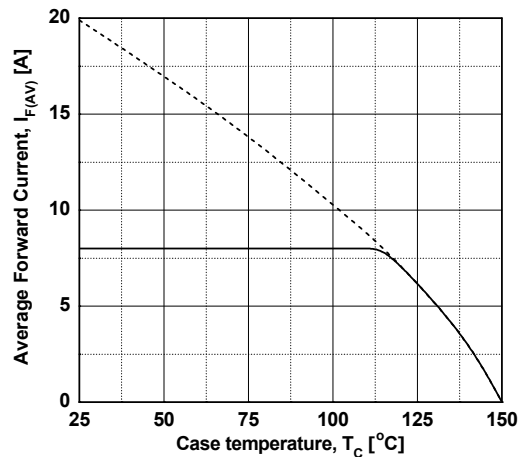


Figure 8. Forward Current Derating Curve



Mechanical Dimensions

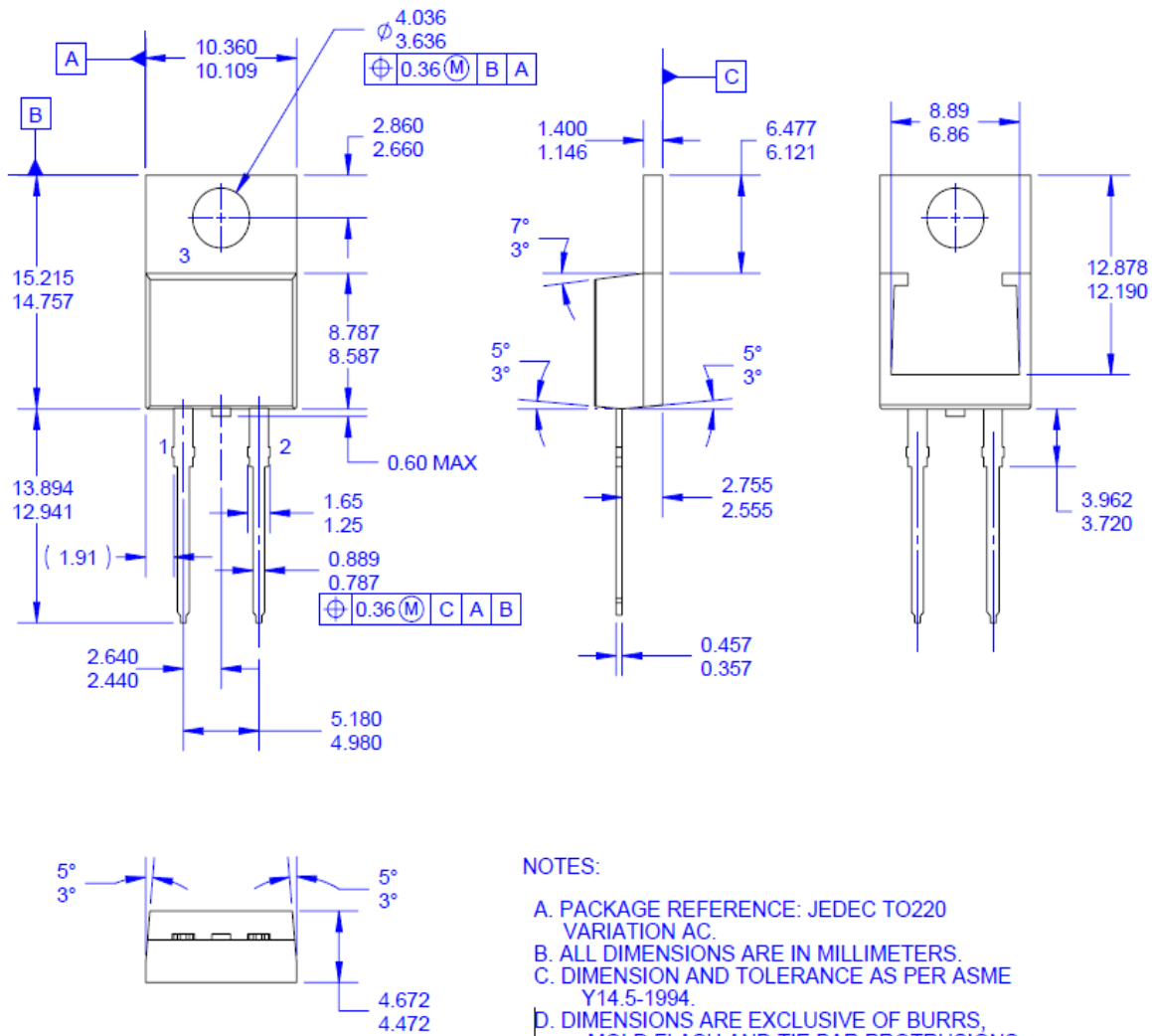


Figure 9. TO-220 2L - TO-220, MOLDED, 2LD

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