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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

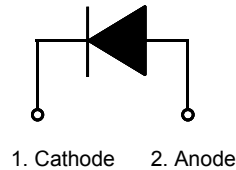
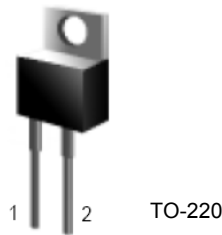
The DEUXPEED® is a high-performance diode composed of two 300V dice in series and silicon nitride passivated ionimplanted epitaxial planar construction.

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	$^\circ\text{C}/\text{W}$

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

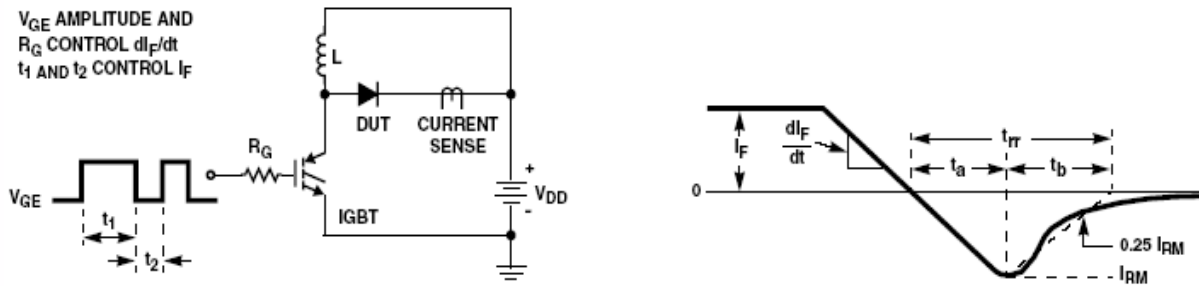


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

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

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

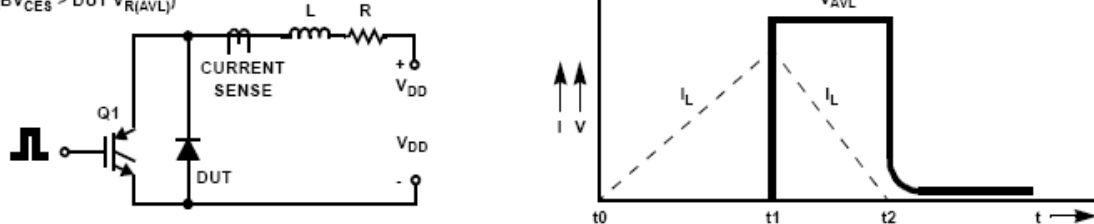


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics

Figure 3. Typical Forward Voltage Drop vs. Forward Current

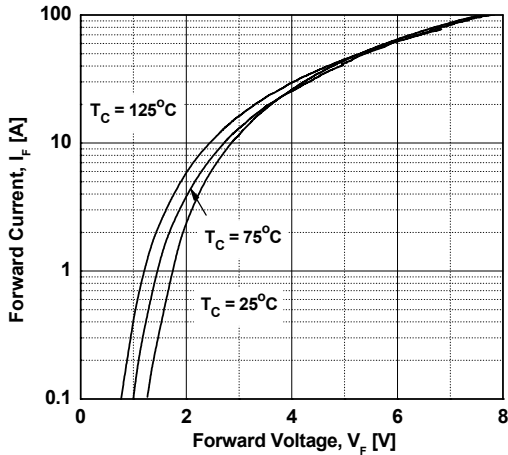


Figure 5. Typical Junction Capacitance

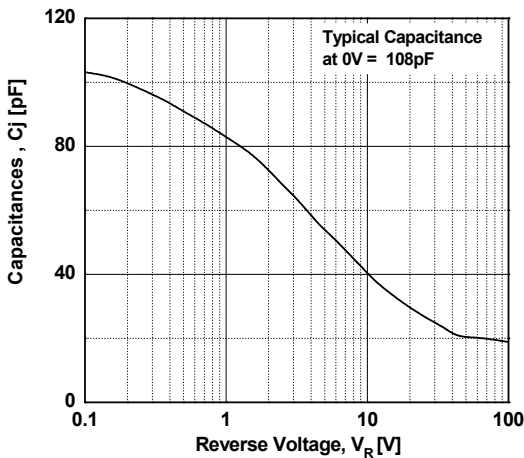


Figure 7. Typical Reverse Recovery Current vs. di_F/dt

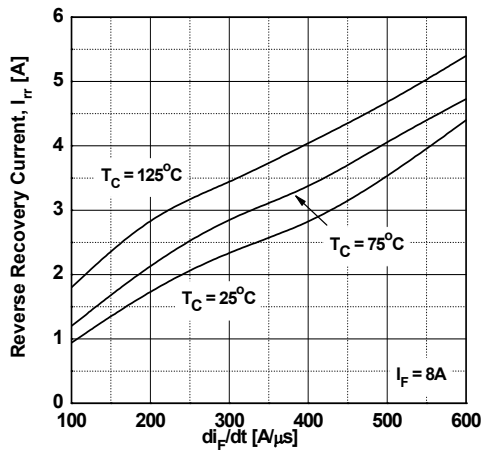


Figure 4. Typical Reverse Current vs. Reverse Voltage

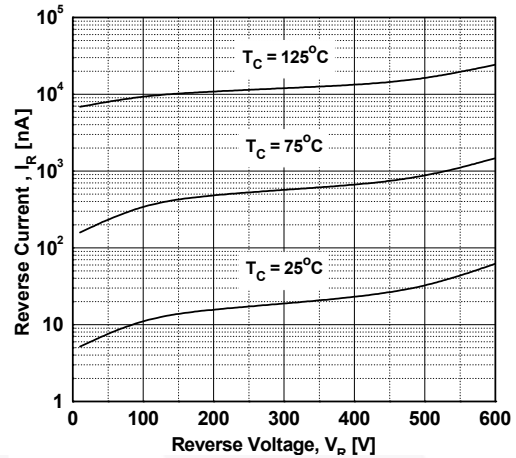


Figure 6. Typical Reverse Recovery Time vs. di_F/dt

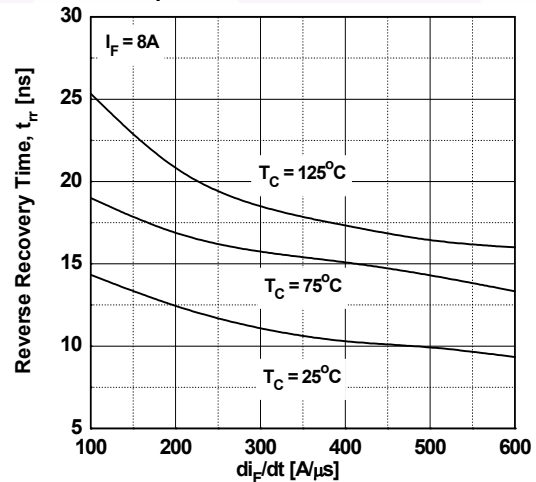
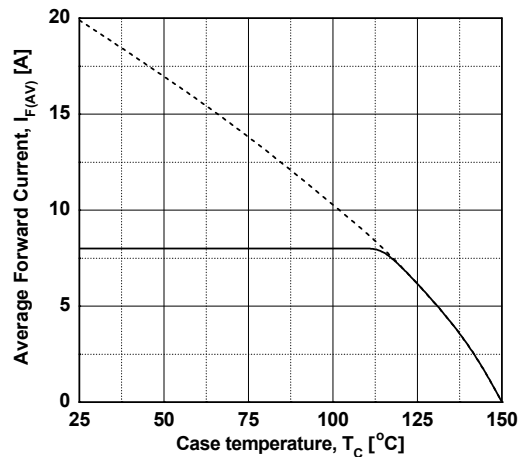
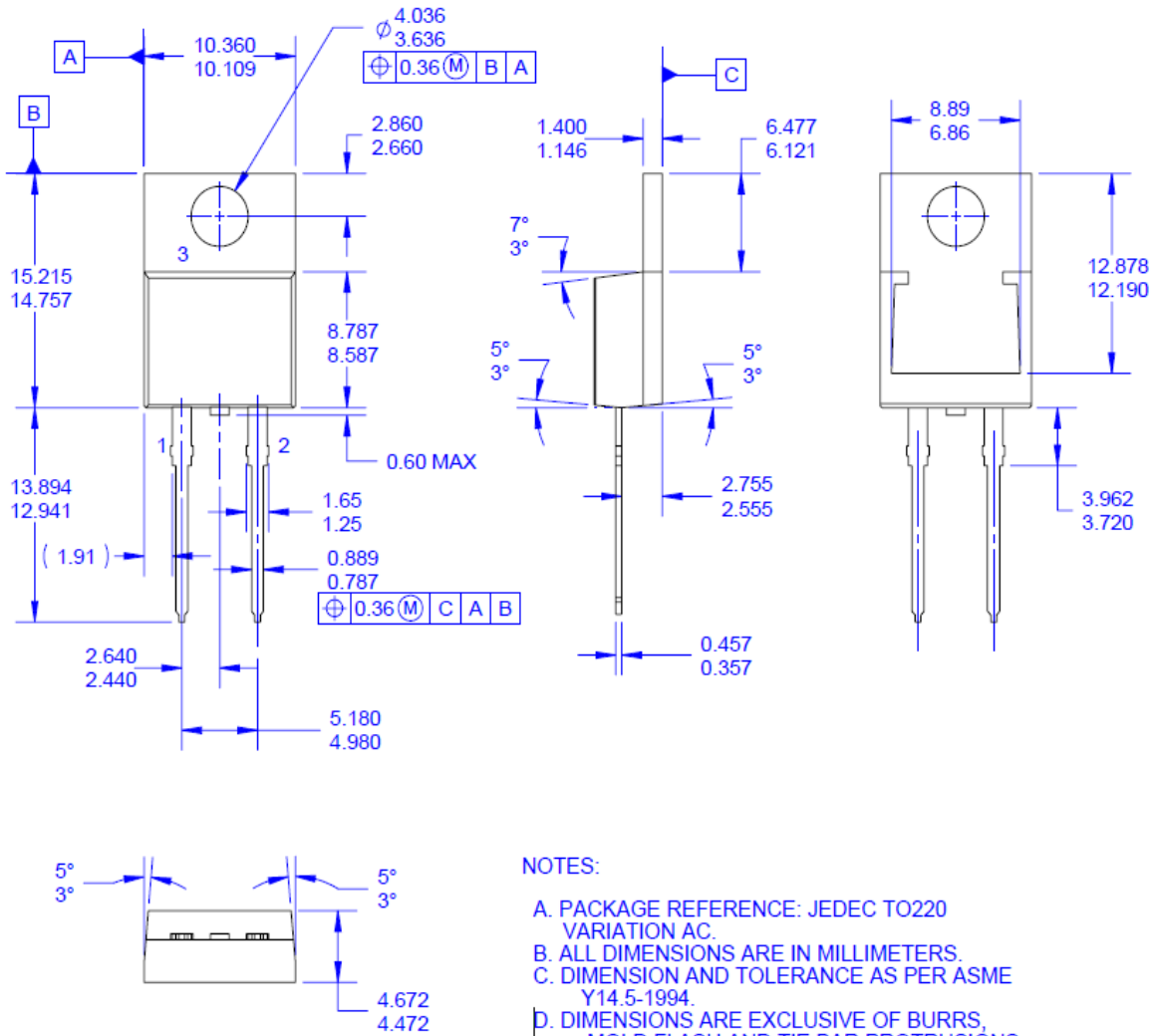


Figure 8. Forward Current Derating Curve



Mechanical Dimensions



NOTES:

- A. PACKAGE REFERENCE: JEDEC TO220 VARIATION AC.
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Figure 9. TO-220 2L - TO-220, MOLDED, 2LD

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