November 2014

FFP15S60S

15 A, 600 V, STEALTH™ II Diode

Features

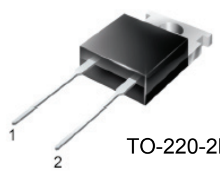
- Stealth Recovery T_{rr} = 35 ns (@ I_F = 15 A)
- Max Forward Voltage, V_F = 2.6 V (@ T_C = 25^{o}C)
- 600 V Reverse Voltage and High Reliability
- Improved dv/dt Capability
- RoHS compliant

Applications

- General Purpose
- SMPS, Power Switching Circuits
- Boost Diode in Continuous Mode Power Factor Corrections

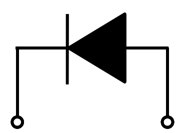
Description

The FFP15S60S is a STEALTH™ II diode with soft recovery characteristics. It is silicon nitride passivated ion-implanted epitaxial planar construction. This device is intended for use as freewheeling of boost diode in switching power supplies and other power swithching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.



TO-220-2L

1. Cathode 2. Anode



1. Cathode 2. Anode

Absolute Maximum Ratings T_C = 25^{o}C unless otherwise noted

Symbol	Parameter	FFP15S60S	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 = 123^{o}C	15	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	150	A
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +175	^{o}C

Thermal Characteristics

Symbol	Parameter	FFP15S60S	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	1.3	^{o}C/W

Package Marking and Ordering Information

Part Number	Top Mark	Package	Packing Method	Reel Size	Tape Width	Quantity
FFP15S60STU	F15S60S	TO-220-2L	Tube	N/A	N/A	50

Electrical Characteristics $T_C = 25^oC$ unless otherwise noted

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_F1	I_F = 15 A I_F = 15 A	$T_C = 25^oC$ $T_C = 125^oC$	- -	2.1 1.6	2.6 -	V
I_R1	V_R = 600 V V_R = 600 V	$T_C = 25^oC$ $T_C = 125^oC$	- -	- -	100 500	µA
t_{rr}	I_F = 1A, di/dt = 100 A/µs, V_R = 30 V	$T_C = 25^oC$	-	21	30	ns
t_{rr} I_{rr} S factor Q_{rr}	I_F = 15 A, di/dt = 200 A/µs, V_R = 390 V	$T_C = 25^oC$	- - - -	23 2.5 0.7 29	35 - - -	ns A nC
t_{rr} I_{rr} S factor Q_{rr}	I_F = 15 A, di/dt = 200 A/µs, V_R = 390 V	$T_C = 125^oC$	- - - -	55 4.3 1.1 118	- - - -	ns A nC
W_{AVL}	Avalanche Energy (L = 40 mH)		20	-	-	mJ

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

Test Circuit and Waveforms

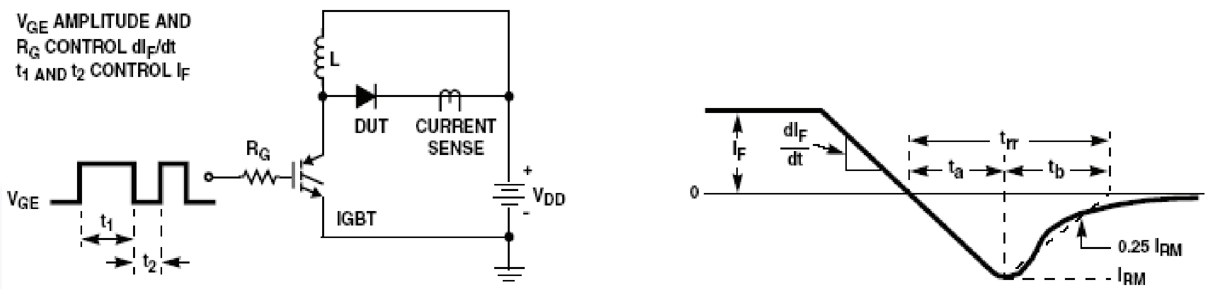


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

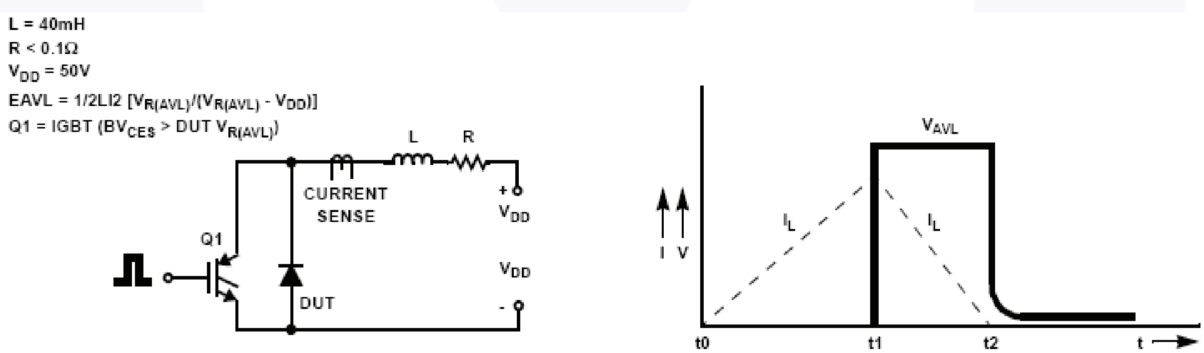


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics

Figure 3. Typical Forward Voltage Drop vs. Forward Current

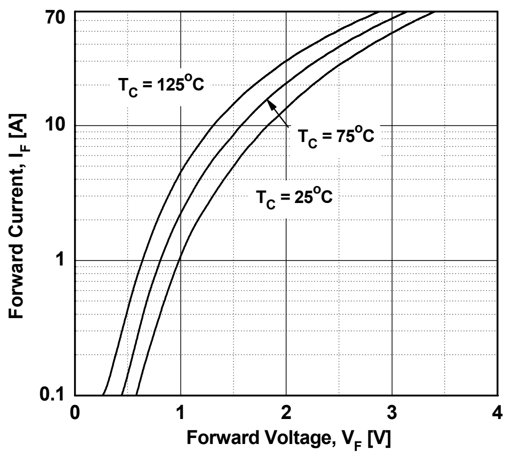


Figure 4. Typical Reverse Current vs. Reverse Voltage

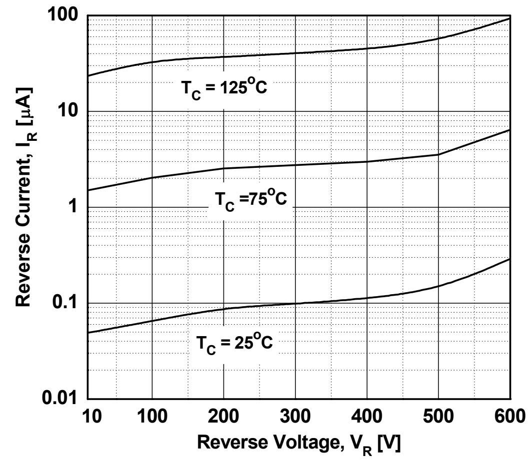


Figure 5. Typical Junction Capacitance

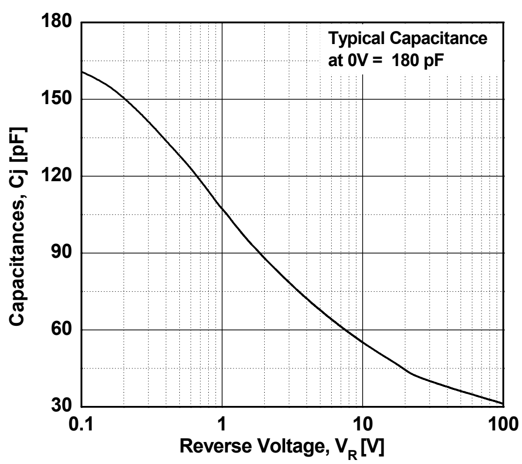


Figure 6. Typical Reverse Recovery Time vs. di/dt

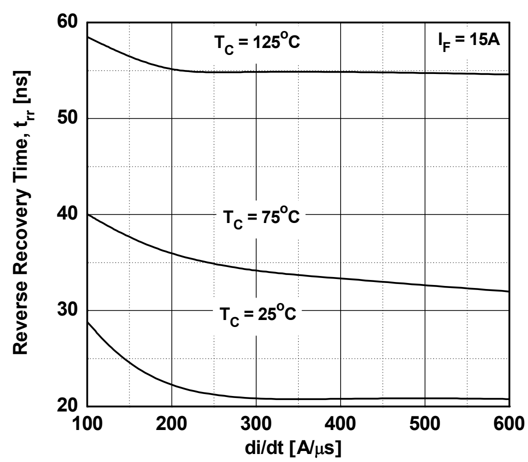


Figure 7. Typical Reverse Recovery Current vs. di/dt

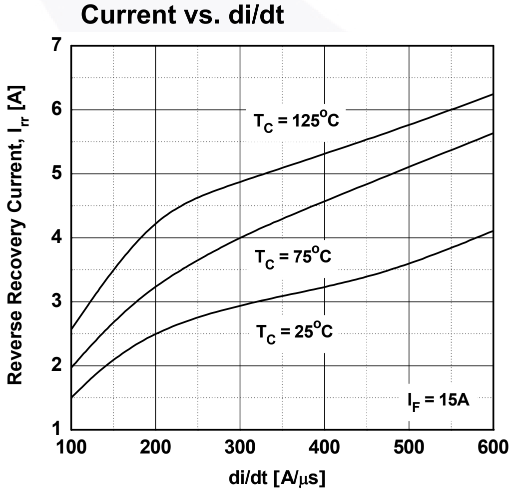
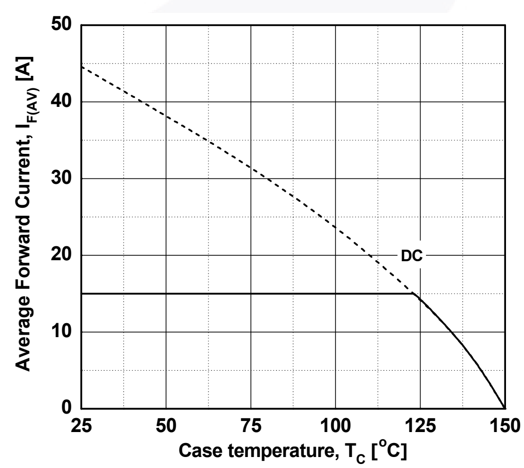


Figure 8. Forward Current Derating Curve



Mechanical Dimensions

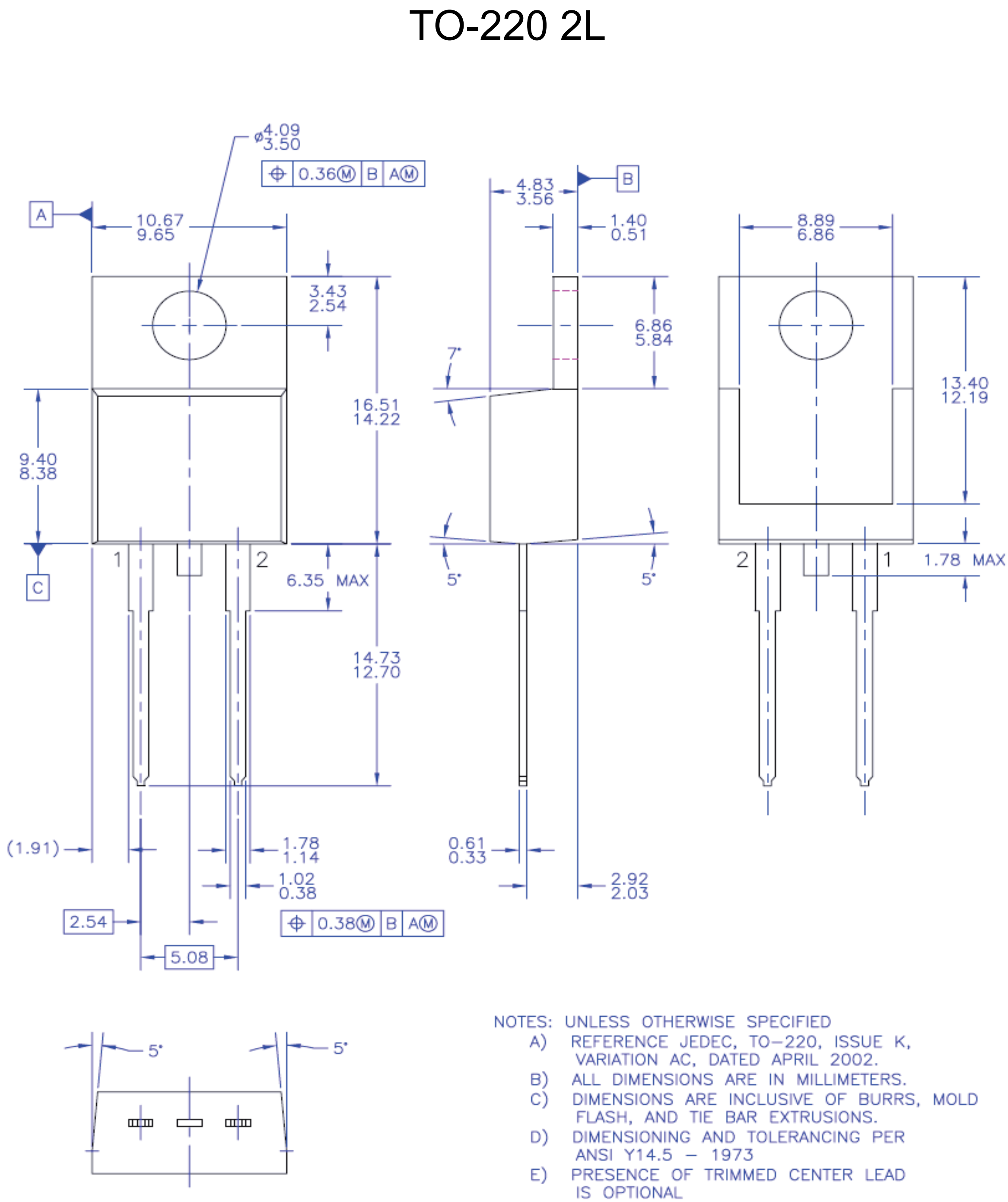


Figure 9. TO-220 2L - TO-220, MOLDED, 2LD

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