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2013 年 11 月

# FFH60UP40S, FFH60UP40S3

## 60 A、400 V 超快速二极管

### 特性

- 超快速恢复,  $T_{rr} = 85 \text{ ns}$  (@  $I_f = 60 \text{ A}$ )
- 最大正向电压,  $V_F = 1.3 \text{ V}$  (@  $T_C = 25^\circ\text{C}$ )
- 雪崩能量额定值
- 符合 RoHS 标准

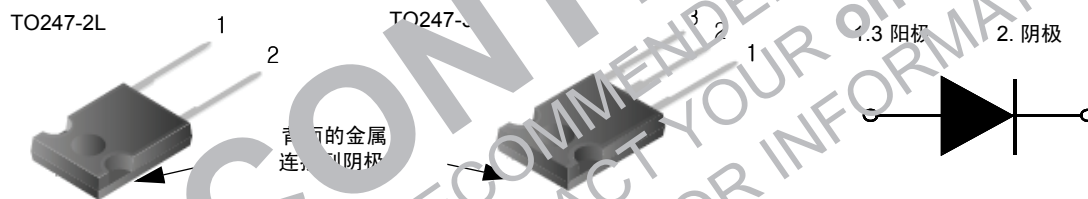
### 说明

FFH60UP40S, FFH60UP40S3 是具备低正向压降和强健 UIS 能力的超快速二极管。该器件在各种开关电源及其他电源开关应用中用作续流和箝位二极管。特别适合用于开关电源与焊接器和 UPS 等工业应用。

### 应用

- 一般用途
- SMPS, 焊接器, UPS
- 用于电机的续流二极管
- 功率开关电路

### 引脚配置



绝对最大额定值 @  $T_C = 25^\circ\text{C}$  除非另有说明

符号	参数	额定值	单位
$V_{RM}$	反向峰值电压	400	V
$V_{RSM}$	反向峰值工作电压	400	V
$V_R$	直流阻断电压	400	V
$I_{F(AV)}$	平均正向整流电流 @ $T_C = 139^\circ\text{C}$	60	A
$I_{FSM}$	非重复浪涌峰值电流 60 Hz 单侧半正弦波	600	A
$T_C, T_{STG}$	工作和存储温度范围	-65 至 +150	$^\circ\text{C}$

### 热性能

符号	参数	额定值	单位
$R_{\theta JC}$	结点 - 壳体的最大热阻	0.2	$^\circ\text{C}/\text{W}$

### 封装标识与订购信息

器件标识	器件	封装	包装方法	卷尺寸	带宽	数量
FFH60UP40S	FFH60UP40S	TO247-2L	塑料管	不适用	不适用	30
FFH60UP40S3	FFH60UP40S3	TO247-3L	塑料管	不适用	不适用	30

FFH60UP40S, FFH60UP40S3 超快速二极管

**电气特性**  $T_C = 25^\circ\text{C}$  除非另有说明

符号	参数	最小值	典型值	最大值	单位
$V_{F1}$	$I_F = 60\text{ A}$	$T_C = 25^\circ\text{C}$ -	1.06	1.3	V
		$T_C = 100^\circ\text{C}$ -	0.99	-	
$I_{R1}$	$V_R = 400\text{ V}$	$T_C = 25^\circ\text{C}$ -	-	100	$\mu\text{A}$
		$T_C = 100^\circ\text{C}$ -	-	500	
$t_{rr}$	$I_F = 60\text{ A}, di_F/dt = 200\text{ A}/\mu\text{s}, V_R = 260\text{ V}$	$T_C = 25^\circ\text{C}$ -	59	85	ns
		$T_C = 100^\circ\text{C}$ -	96	-	
$W_{AVL}$	雪崩能量 ( $L = 40\text{ mH}$ )	50	-	-	mJ

注意:

1: 脉冲: 测试脉宽 = 300  $\mu\text{s}$ , 占空比 = 2%

**测试电路与波形**

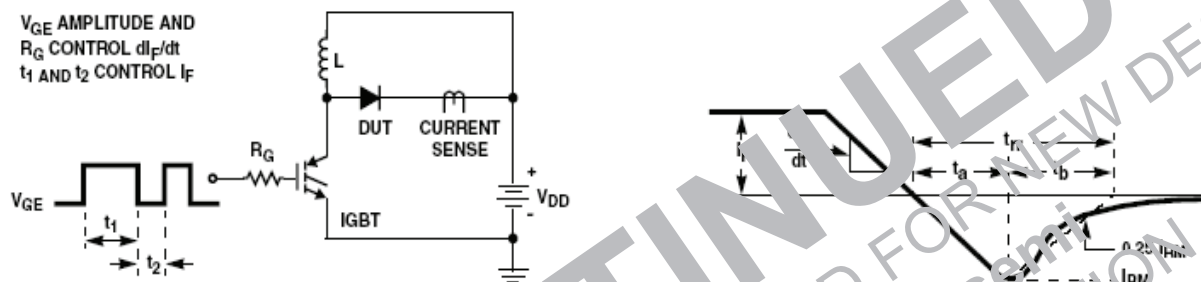


图 1. 二极管反向恢复测试电路与波形

$L = 40\text{ mH}$   
 $R < 0.1\Omega$   
 $V_{DD} = 50\text{ V}$   
 $E_{AVL} = 1/2 L I^2 [ (V_{CE(sat)} - V_{AVL}) / V_{DD} ]$   
 $Q1 = \text{IGBT}, V_{CE(sat)} = \text{DUT } V_{AVL}$

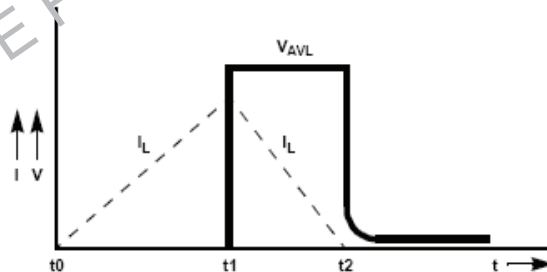
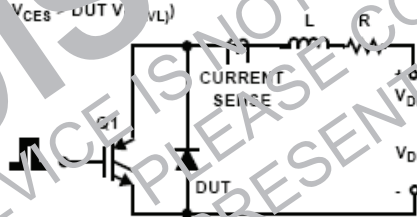


图 2. 非箝位感性开关测试电路与波形

典型性能特征

图 3. 典型正向电压降与正向电流的关系

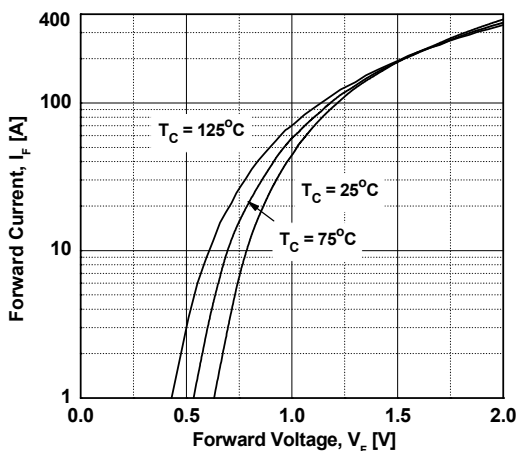


图 4. 典型反向电流与反向电压的关系

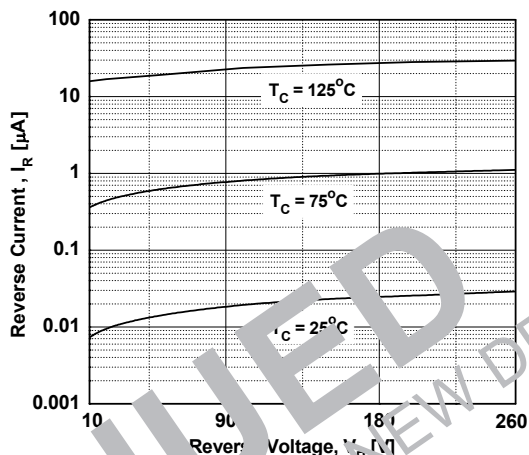


图 5. 典型结电容

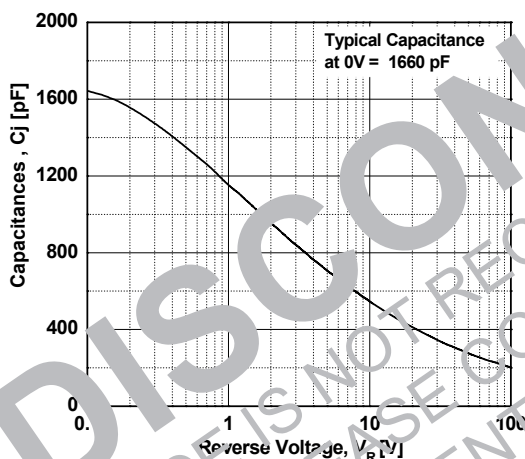


图 6. 典型反向恢复时间与 di/dt 的关系

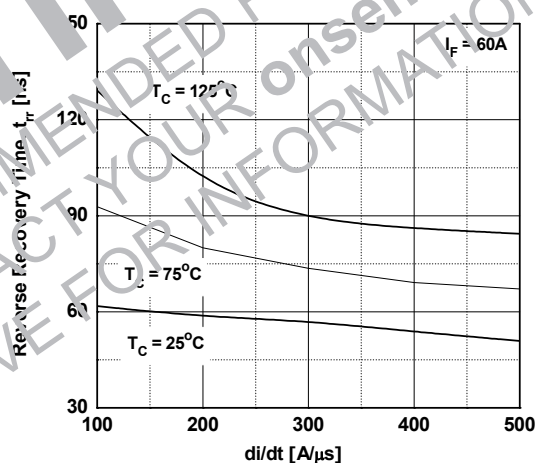


图 7. 典型反向恢复电流与 di/dt 的关系

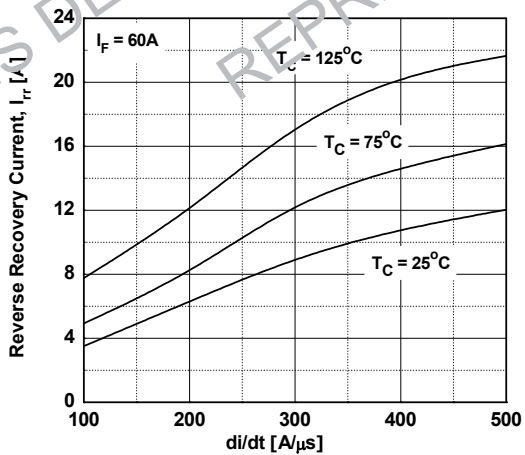
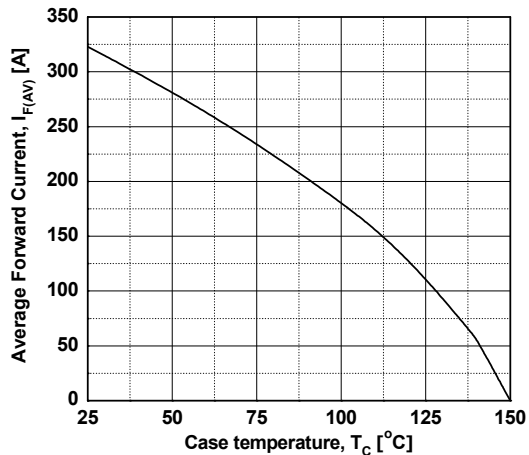
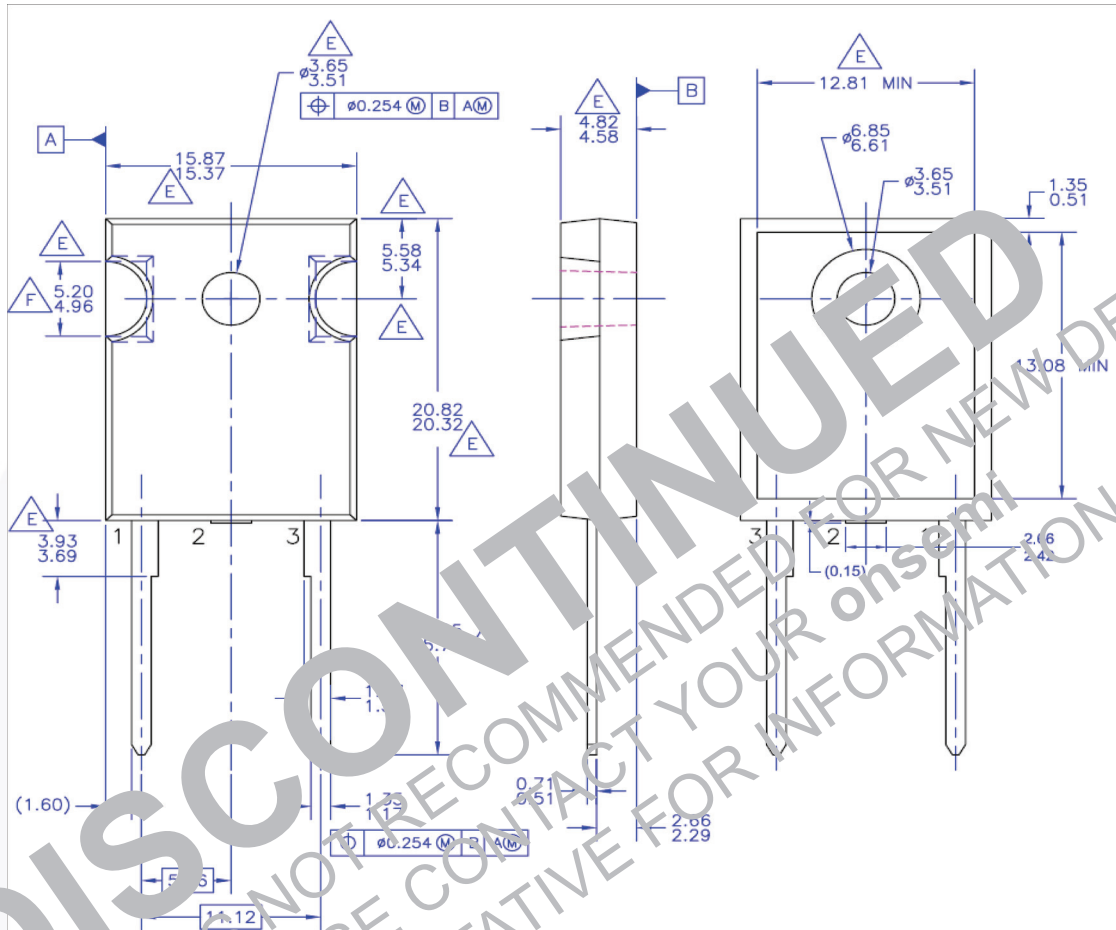


图 8. 正向电流降额曲线



机械尺寸

TO247-2L



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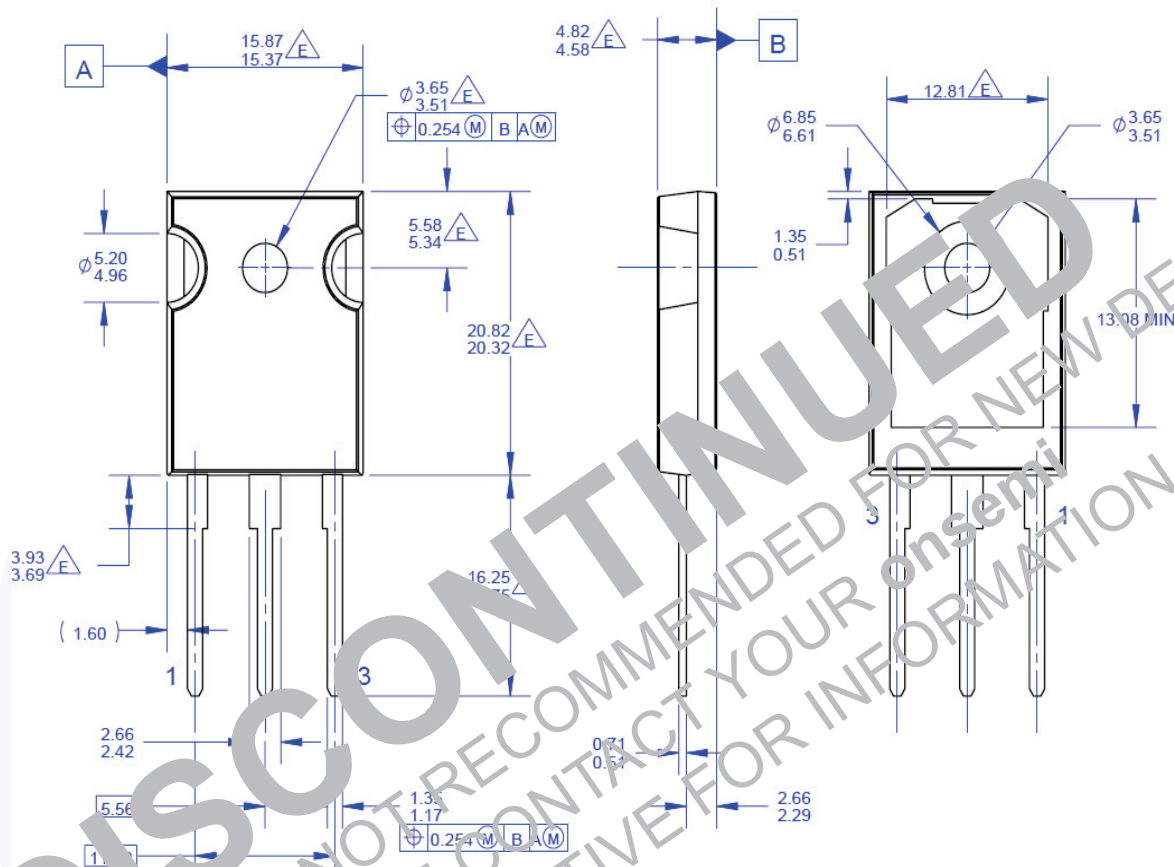
图 9. TO-247, Molded, 2LD, Jedec Option AB

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图 10. TO-247, Molded, 3LD, Jedec Option AB

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