

超快速双二极管

60 A, 200 V

FFA60UP20DN

说明

FFA60UP20DN 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。

特性

- 超快速恢复, $T_{rr} = 32 \text{ ns}$ (@ $I_F = 30 \text{ A}$)
- 最大正向电压, $V_F = 1.15 \text{ V}$ (@ $T_C = 25^\circ\text{C}$)
- 反向电压: $V_{RRM} = 200 \text{ V}$
- 雪崩能量额定值
- 符合 RoHS 标准

应用

- 功率开关电路
- 输出整流器
- 续流二极管
- SMPS
- 焊接器
- UPS

绝对最大额定值

(每个二极管) $T_C = 25^\circ\text{C}$ 除非另有说明

参数	符号	额定值	单位
外部晶闸管的门极驱动	V_R	200	V
重复反向峰值电压	V_{RRM}	200	V
反向峰值工作电压	V_{RWM}	200	V
平均正向整流电流 (@ $T_C = 100^\circ\text{C}$)	$I_{F(AV)}$	30	A
非重复浪涌峰值电流 60 Hz 单侧半正弦波	I_{FSM}	300	A
工作结温和存储温度	T_J, T_{STG}	-65 至 +175	$^\circ\text{C}$

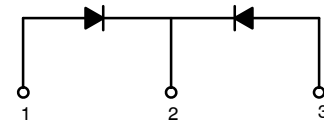
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

(参考译文)

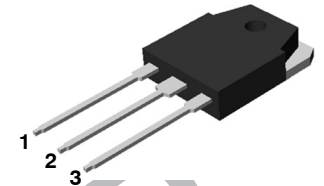
如果电压超过最大额定值表中列出的值范围, 器件可能会损坏。如果超过任何这些限值, 将无法保证器件功能, 可能会导致器件损坏, 影响可靠性。

热性能

参数	符号	额定值	单位
结点 - 壳体的最大热阻	$R_{\theta JC}$	1.4	$^\circ\text{C/W}$



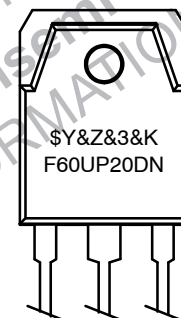
1. Anode 2. Cathode 3. Anode



1. Anode 2. Cathode 3. Anode

TO-3P-3LD / EIAJ SC-65, ISOLATED
CASE 340BZ

MARKING DIAGRAM



\$Y = Logo
&Z = Assembly Plant Code
&3 = Date Code
&K = Lot Run Traceability Code
F60UP20DN = Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

电气特性

(每个二极管) $T_C = 25^\circ\text{C}$ 除非另有说明

符号	参数	单位	最小值	典型值	最大值	单位
V_F (Note 1)	最大瞬时正向电压	$I_F = 30\text{ A}, T_C = 25^\circ\text{C}$ $I_F = 30\text{ A}, T_C = 100^\circ\text{C}$	— —	— —	1.15 1.0	V
I_R (Note 1)	最大瞬时反向电流	$V_R = 200\text{ V}, T_C = 25^\circ\text{C}$ $V_R = 200\text{ V}, T_C = 100^\circ\text{C}$	— —	— —	10 100	μA
t_{rr}	反向恢复时间	$I_F = 30\text{ A}, di_F/dt = 200\text{ A}/\mu\text{s}, V_R = 130\text{ V}$	—	32	—	ns
I_{rr}	反向恢复电流		—	2.4	—	A
Q_{rr}	反向恢复电荷		—	38.4	—	nC
t_{rr}	最大反向恢复时间	$I_F = 1\text{ A}, di_F/dt = 100\text{ A}/\mu\text{s}$	—	—	40	ns
W_{AVL}	雪崩能量	$L = 40\text{ mH}$	2	—	—	mJ

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

(参考译文)

除非另有说明，“电气特性”表格中列出的是所列测试条件下的产品性能参数。如果在不同条件下运行，产品性能可能与“电气特性”表格中所列性能参数不一致。

1. 脉冲测试：脉冲宽度 = 300 μs , 占空比 = 2%

测试电路与波形

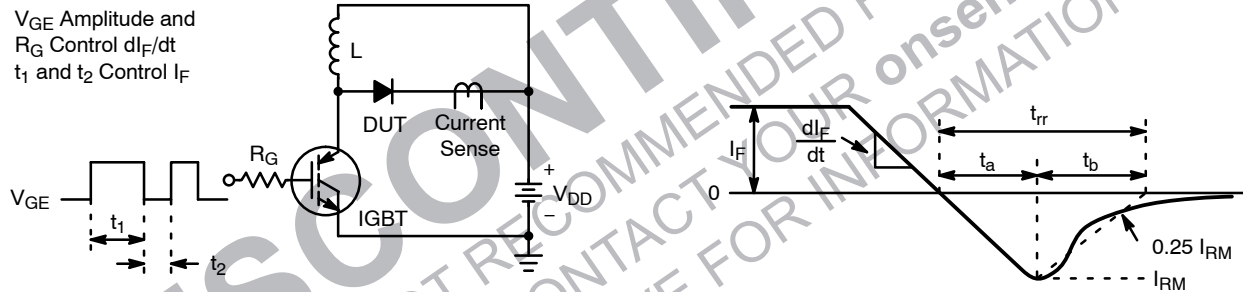


图 1. 二极管反向恢复测试电路与波形

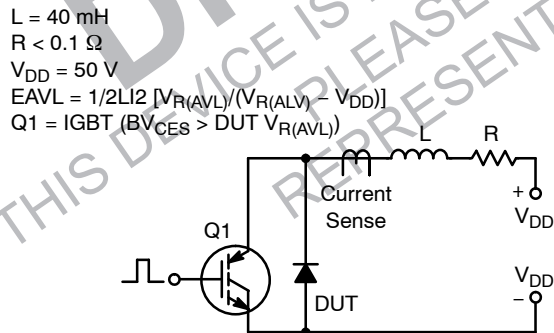


图 2. 非箱位感性开关测试电路与波形

封装标识与订购信息

器件编号	正面标记	封装	Shipping
FFA60UP20DNTU	F60UP20DN	TO-3P-3LD (Pb-Free)	30 Units / Tube

典型特性

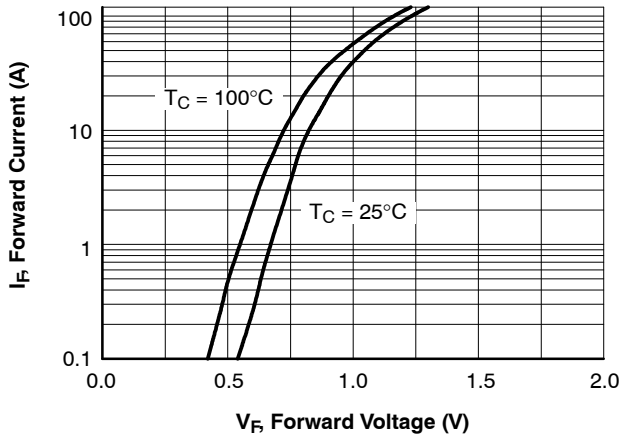


图 3. 典型正向电压降与正向电流的关系

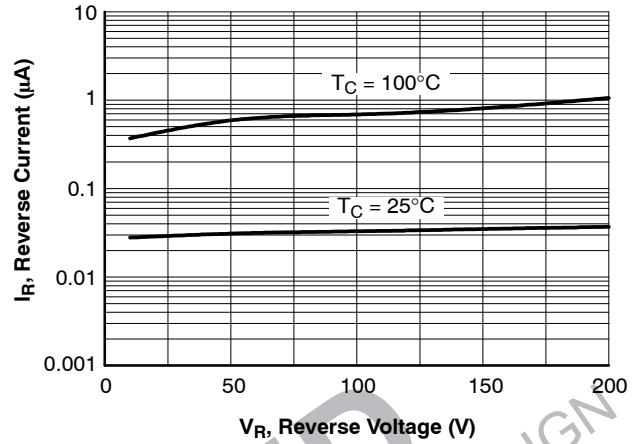


图 4. 典型反向电流与反向电压的关系

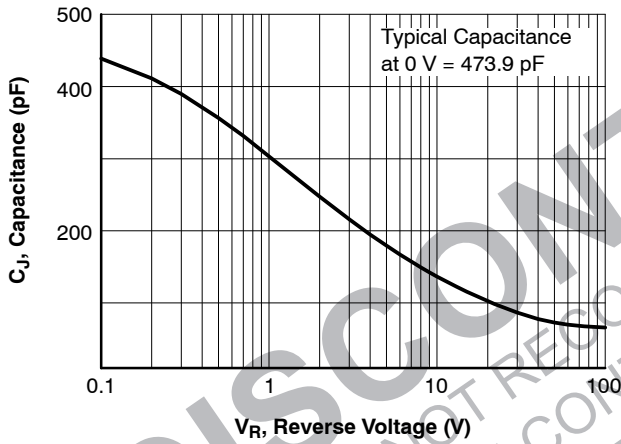


图 5. 典型结电容

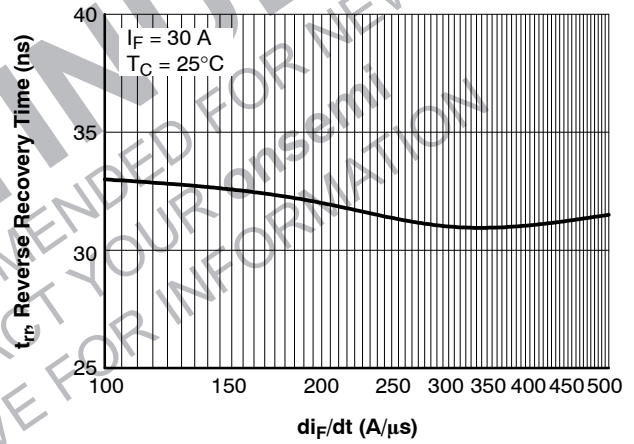
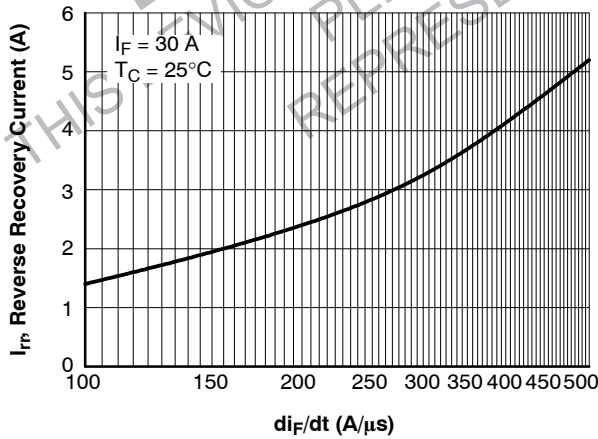
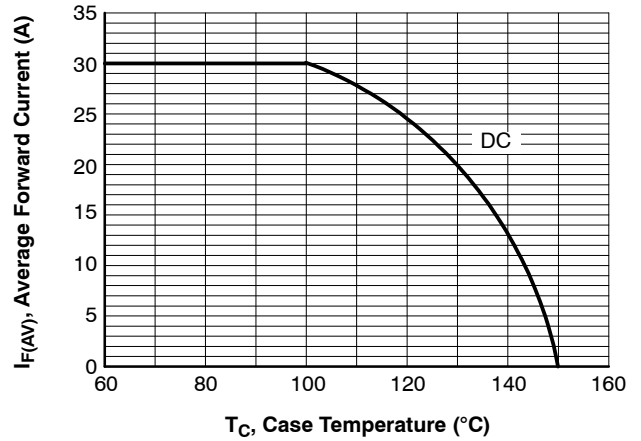
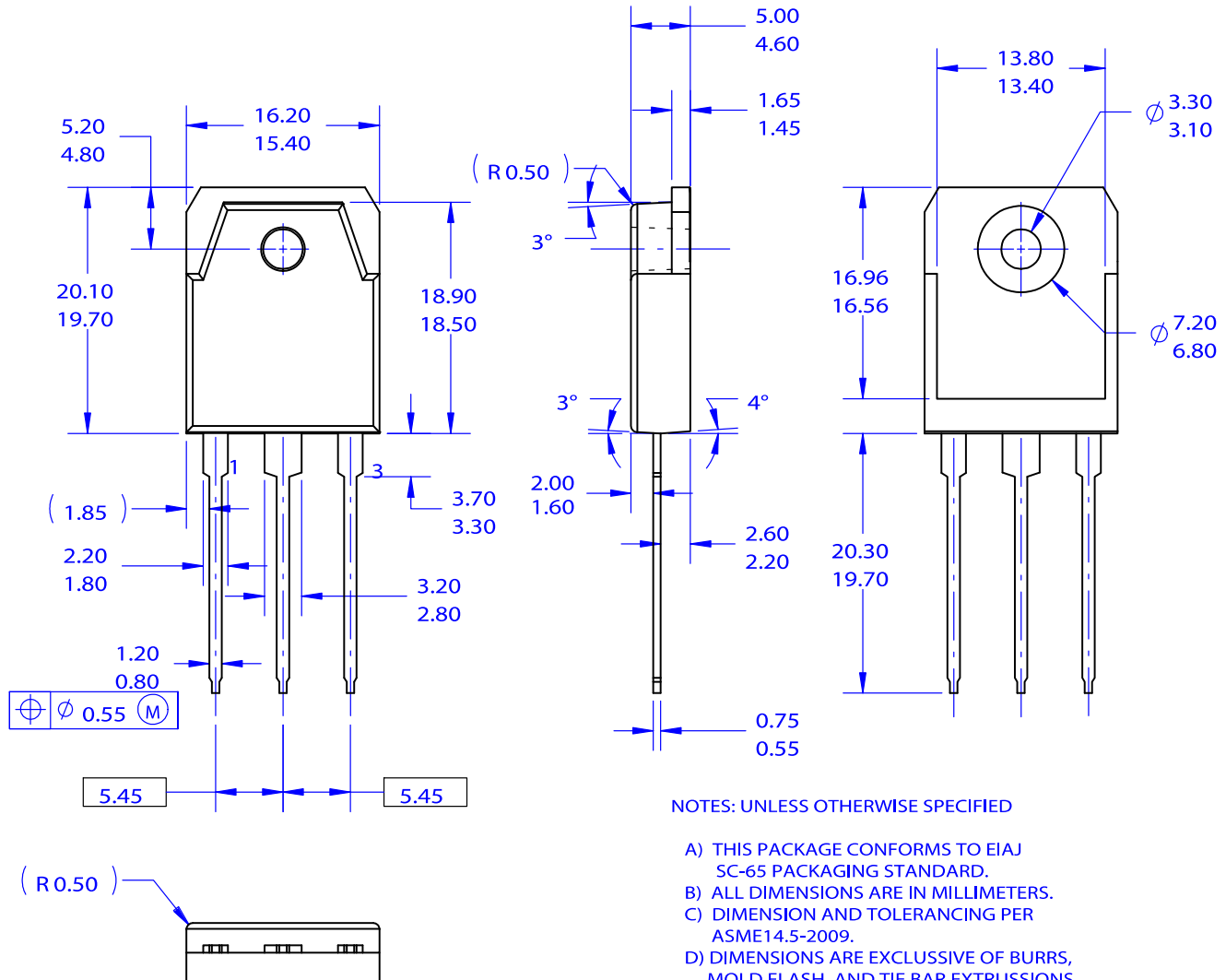
图 6. 典型反向恢复时间与 di_F/dt 的关系图 7. 典型反向恢复电流与 di_F/dt 的关系

图 8. 正向电流降额曲线

TO-3P-3LD / EIAJ SC-65, ISOLATED
CASE 340BZ
ISSUE O

DATE 31 OCT 2016



NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO EIAJ SC-65 PACKAGING STANDARD.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSION AND TOLERANCING PER ASME14.5-2009.
- D) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

DOCUMENT NUMBER:	98AON13862G	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	TO-3P-3LD / EIAJ SC-65, ISOLATED	PAGE 1 OF 1

onsemi and Onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at
www.onsemi.com/support/sales