

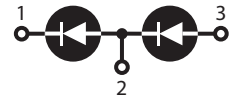
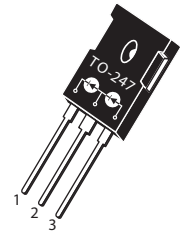
## ULTRAFAST SOFT RECOVERY RECTIFIER DIODE

### PRODUCT APPLICATIONS

- Output Rectifiers for Switchmode Power Supply

### PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular TO-247 Package
- Low Forward Voltage
- Low Leakage Current
- Low Losses
- Low Noise Switching
- Cooler Operation
- Higher Reliability Systems
- Increased System Power Density



1 - Cathode 1  
 2 - Anode 1  
 Cathode 2  
 3 - Anode 2

### MAXIMUM RATINGS

All Ratings Per Leg:  $T_C = 25^\circ\text{C}$  unless otherwise specified.

| Symbol         | Characteristic / Test Conditions                                               | APT30D100BHB(G) | UNIT             |
|----------------|--------------------------------------------------------------------------------|-----------------|------------------|
| $V_R$          | Maximum D.C. Reverse Voltage                                                   | 1000            | Volts            |
| $V_{RRM}$      | Maximum Peak Repetitive Reverse Voltage                                        |                 |                  |
| $V_{RWM}$      | Maximum Working Peak Reverse Voltage                                           |                 |                  |
| $I_{F(AV)}$    | Maximum Average Forward Current ( $T_C = 54^\circ\text{C}$ , Duty Cycle = 0.5) | 30              | Amps             |
| $I_{F(AV)}$    | RMS Forward Current (Square wave, 50% duty)                                    | 42              |                  |
| $I_{FSM}$      | Non-Repetitive Forward Surge Current ( $T_J = 45^\circ\text{C}$ , 8.3ms)       | 210             |                  |
| $T_J, T_{STG}$ | Operating and Storage Temperature Range                                        | -55 to 175      | $^\circ\text{C}$ |
| $T_L$          | Lead Temperature for 10 Sec.                                                   | 300             |                  |

### STATIC ELECTRICAL CHARACTERISTICS

| Symbol   | Characteristic / Test Conditions          | MIN | TYP                                                | MAX | UNIT          |
|----------|-------------------------------------------|-----|----------------------------------------------------|-----|---------------|
| $V_F$    | Forward Voltage                           |     | $I_F = 30\text{A}$                                 | 1.9 | Volts         |
|          |                                           |     | $I_F = 60\text{A}$                                 | 2.2 |               |
|          |                                           |     | $I_F = 30\text{A}, T_J = 125^\circ\text{C}$        | 1.7 |               |
| $I_{RM}$ | Maximum Reverse Leakage Current           |     | $V_R = V_R \text{ Rated}$                          | 250 | $\mu\text{A}$ |
|          |                                           |     | $V_R = V_R \text{ Rated}, T_J = 125^\circ\text{C}$ | 500 |               |
| $C_T$    | Junction Capacitance, $V_R = 200\text{V}$ |     | 32                                                 |     | pF            |

# DYNAMIC CHARACTERISTICS

APT30D100BHB(G)

| Symbol    | Characteristic                   | Test Conditions                                                              | MIN | TYP  | MAX | UNIT |
|-----------|----------------------------------|------------------------------------------------------------------------------|-----|------|-----|------|
| $t_{rr}$  | Reverse Recovery Time            | $I_F = 1A$ , $di_F/dt = -100A/\mu s$ , $V_R = 30V$ , $T_J = 25^\circ C$      | -   | 29   |     | ns   |
| $t_{rr}$  | Reverse Recovery Time            | $I_F = 30A$ , $di_F/dt = -200A/\mu s$<br>$V_R = 667V$ , $T_C = 25^\circ C$   | -   | 290  |     |      |
| $Q_{rr}$  | Reverse Recovery Charge          |                                                                              | -   | 670  |     | nC   |
| $I_{RRM}$ | Maximum Reverse Recovery Current |                                                                              | -   | 5    | -   | Amps |
| $t_{rr}$  | Reverse Recovery Time            | $I_F = 30A$ , $di_F/dt = -200A/\mu s$<br>$V_R = 667V$ , $T_C = 125^\circ C$  | -   | 390  |     | ns   |
| $Q_{rr}$  | Reverse Recovery Charge          |                                                                              | -   | 2350 |     | nC   |
| $I_{RRM}$ | Maximum Reverse Recovery Current |                                                                              | -   | 11   | -   | Amps |
| $t_{rr}$  | Reverse Recovery Time            | $I_F = 30A$ , $di_F/dt = -1000A/\mu s$<br>$V_R = 667V$ , $T_C = 125^\circ C$ | -   | 160  |     | ns   |
| $Q_{rr}$  | Reverse Recovery Charge          |                                                                              | -   | 3500 |     | nC   |
| $I_{RRM}$ | Maximum Reverse Recovery Current |                                                                              | -   | 38   |     | Amps |

# THERMAL AND MECHANICAL CHARACTERISTICS

| Symbol          | Characteristic / Test Conditions       | MIN | TYP  | MAX | UNIT         |
|-----------------|----------------------------------------|-----|------|-----|--------------|
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance    |     |      | 1.8 | $^\circ C/W$ |
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance |     |      | 40  |              |
| $W_T$           | Package Weight                         |     | 0.22 |     | oz           |
|                 |                                        |     | 5.9  |     | g            |
| Torque          | Maximum Mounting Torque                |     |      | 10  | lb•in        |
|                 |                                        |     |      | 1.1 | N•m          |

Microsemi Reserves the right to change, without notice, the specifications and information contained herein.

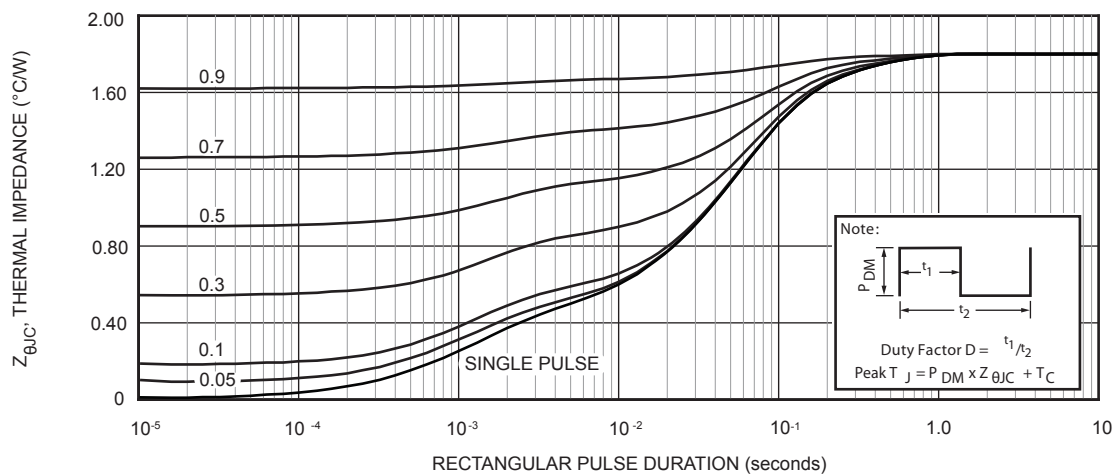


FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

## TYPICAL PERFORMANCE CURVES

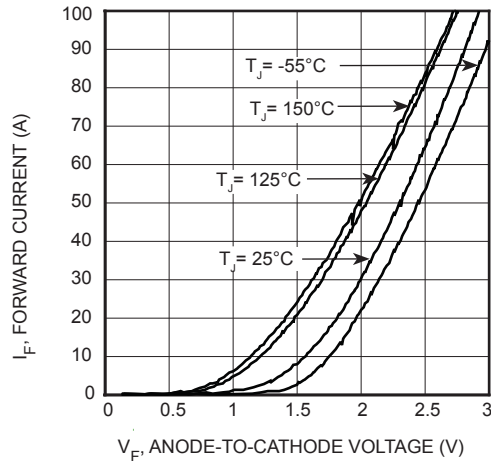


FIGURE 2, Forward Current vs. Forward Voltage

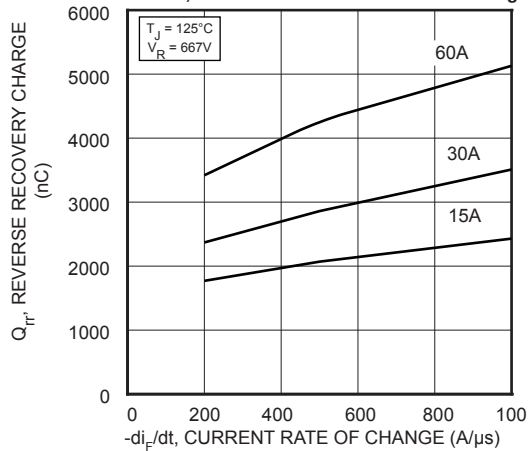


FIGURE 4, Reverse Recovery Charge vs. Current Rate of Change

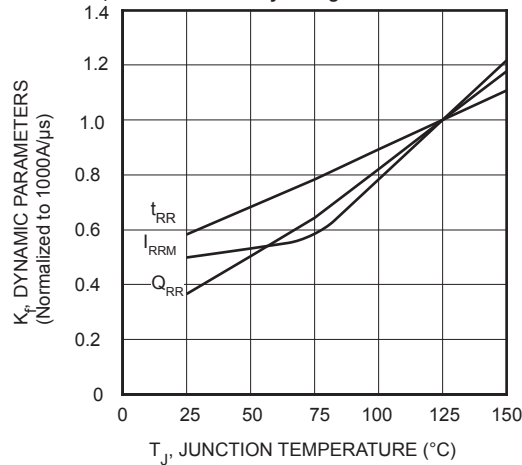


FIGURE 6, Dynamic Parameters vs. Junction Temperature

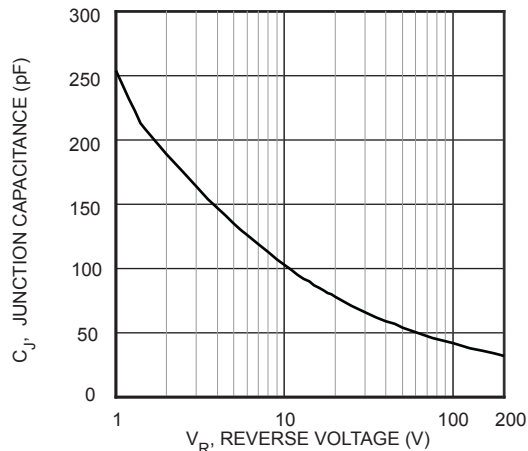


FIGURE 8, Junction Capacitance vs. Reverse Voltage

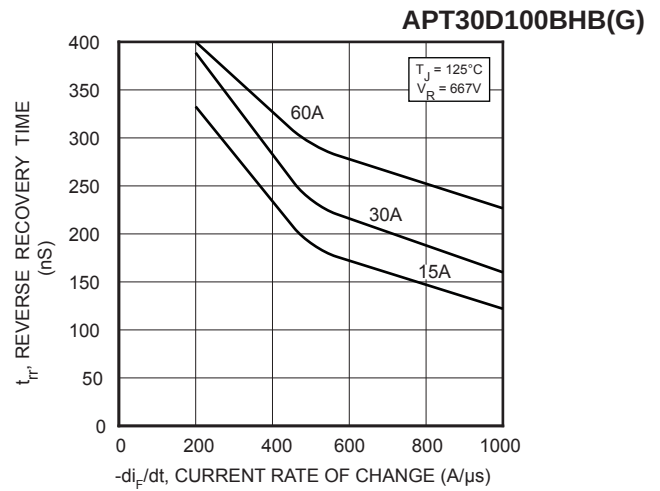


FIGURE 3, Reverse Recovery Time vs. Current Rate of Change

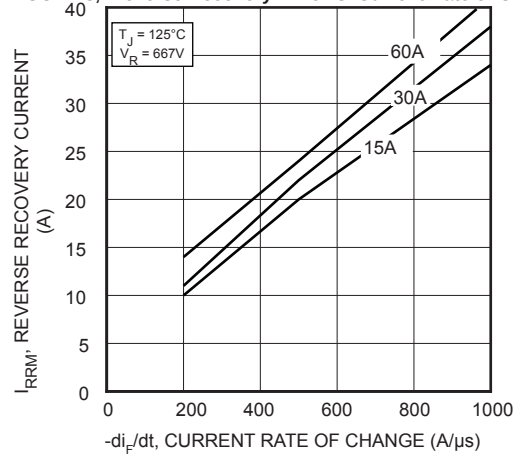


FIGURE 5, Reverse Recovery Current vs. Current Rate of Change

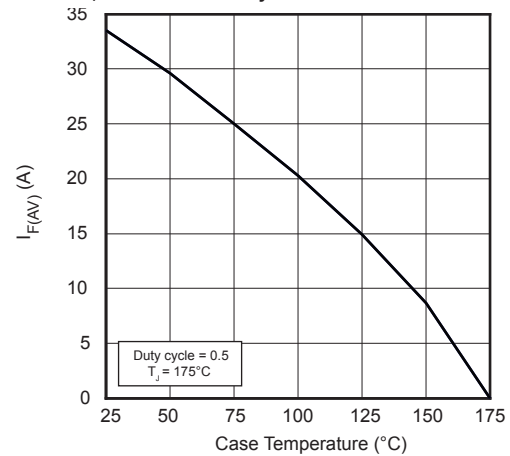
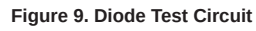


FIGURE 7, Maximum Average Forward Current vs. Case Temperature



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### Figure 10. Diode Reverse Recovery Waveform Definition

(e1) SAC: Tin, Silver, Copper



## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

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Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

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