

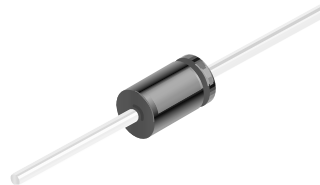


SB320 - SB3100

SB320-SB3100

Features

- 3.0 ampere operation at $T_A = 75^\circ\text{C}$ with no thermal runaway.
- For use in low voltage, high frequency inverters free wheeling, and polarity protection applications.



DO-201AD
COLOR BAND DENOTES CATHODE

Schottky Rectifiers

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | | | | | | | Units |
|-------------|---|-------------|-----|-----|-----|-----|-----|------|------------------|
| | | 320 | 330 | 340 | 350 | 360 | 380 | 3100 | |
| V_{RRM} | Maximum Repetitive Reverse Voltage | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current .375" lead length @ $T_A = 75^\circ\text{C}$ | 3.0 | | | | | | | A |
| I_{FSM} | Non-repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave | 80 | | | | | | | A |
| T_{stg} | Storage Temperature Range | -65 to +125 | | | | | | | $^\circ\text{C}$ |
| T_J | Operating Junction Temperature | -65 to +125 | | | | | | | $^\circ\text{C}$ |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Thermal Characteristics

| Symbol | Parameter | Value | Units |
|-----------------|---|-------|--------------------|
| P_D | Power Dissipation | 3.6 | W |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 40 | $^\circ\text{C/W}$ |

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Device | | | | | | | Units |
|----------|---|--------|-----|-----|-----|-----|-----|------|-------|
| | | 320 | 330 | 340 | 350 | 360 | 380 | 3100 | |
| V_F | Forward Voltage @ 3.0 A | 500 | | | 740 | | 850 | | mV |
| I_R | Reverse Current @ rated V_R $T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$ | 0.5 | | | | | | | mA |
| | | 20 | | | 10 | | 10 | | mA |
| I_{rr} | Maximum Full Load Reverse Current, Full Cycle $T_A = 100^\circ\text{C}$ | 30 | | | | | | | mA |
| C_T | Total Capacitance $V_R = 4.0\text{ V}$, $f = 1.0\text{ MHz}$ | 180 | | | | | | | pF |

Typical Characteristics

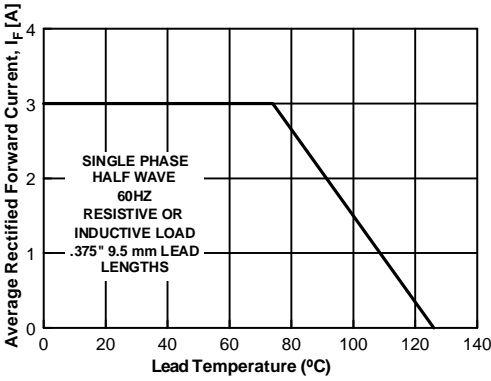


Figure 1. Forward Current Derating Curve

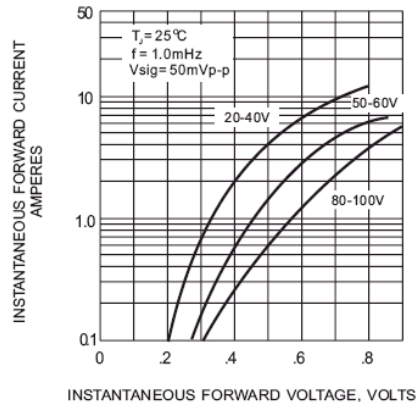


Figure 2. Forward Voltage Characteristics

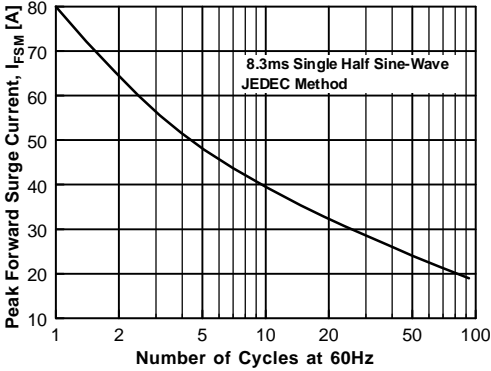


Figure 3. Non-Repetitive Surge Current

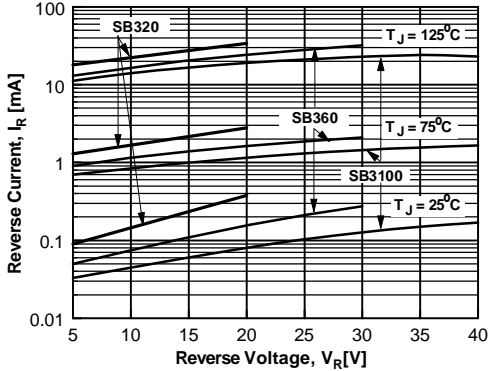


Figure 4. Reverse Current vs Reverse Voltage

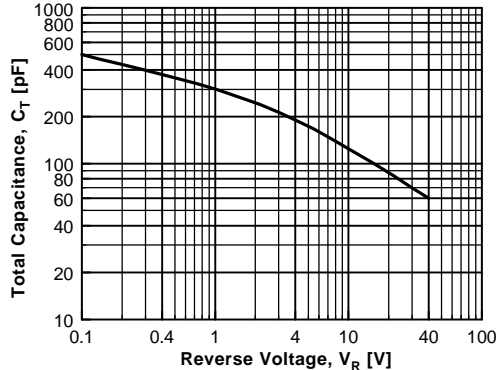


Figure 5. Total Capacitance

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

| | | | | |
|-----------------------------------|----------------------------------|----------------------------------|------------------------------|-------------------|
| ACE _x TM | FAST [®] | OPTOLOGIC TM | SMART START TM | VCX TM |
| Bottomless TM | FAST _r TM | OPTOPLANAR TM | STAR*POWER TM | |
| CoolFET TM | FRFET TM | PACMAN TM | Stealth TM | |
| CROSSVOLT TM | GlobalOptoisolator TM | POP TM | SuperSOT TM -3 | |
| DenseTrench TM | GTO TM | Power247 TM | SuperSOT TM -6 | |
| DOMET TM | HiSeC TM | PowerTrench [®] | SuperSOT TM -8 | |
| EcoSPARK TM | ISOPLANAR TM | QFET TM | SyncFET TM | |
| E ² CMOS TM | LittleFET TM | QST TM | TinyLogic TM | |
| EnSigna TM | MicroFET TM | QT Optoelectronics TM | TruTranslation TM | |
| FACT TM | MicroPak TM | Quiet Series TM | UHC TM | |
| FACT Quiet Series TM | MICROWIRE TM | SILENT SWITCHER [®] | UltraFET [®] | |

STAR*POWER is used under license

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

| Datasheet Identification | Product Status | Definition |
|--------------------------|------------------------|---|
| Advance Information | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. |
| Preliminary | First Production | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
| No Identification Needed | Full Production | This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
| Obsolete | Not In Production | This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only. |