

### Is Now Part of



# ON Semiconductor®

To learn more about ON Semiconductor, please visit our website at <a href="https://www.onsemi.com">www.onsemi.com</a>

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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 ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any EDA Class 3 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 ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, emplo



## FYPF1010DN

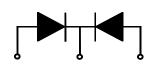
### **Features**

- · Low forward voltage drop
- High frequency properties and switching speed
- Guard ring for over-voltage protection

## **Applications**

- Switched mode power supply
- Freewheeling diodes





1. Anode 2. Cathode 3. Anode

### **SCHOTTKY BARRIER RECTIFIER**

### Absolute Maximum Ratings T<sub>C</sub>=25°C unless otherwise noted

| Symbol                           | Parameter   | Value       | Units |
|----------------------------------|---|-------------|-------|
| $V_{RRM}$                        | Maximum Repetitive Reverse Voltage  | 100         | V     |
| V <sub>R</sub>                   | Maximum DC Reverse Voltage  | 100         | V     |
| I <sub>F(AV)</sub>               | Average Rectified Forward Current @ T <sub>C</sub> = 125°C                  | 10          | Α     |
| I <sub>FSM</sub>                 | Non-repetitive Peak Surge Current (per diode)<br>60Hz Single Half-Sine Wave | 100         | А     |
| T <sub>J,</sub> T <sub>STG</sub> | Operating Junction and Storage Temperature                                  | -40 to +150 | °C    |

### **Thermal Characteristics**

| Symbol          | Parameter  | Value | Units |
|-----------------|--|-------|-------|
| $R_{\theta,JC}$ | Maximum Thermal Resistance, Junction to Case (per diode) | 4.0   | °C/W  |

## Electrical Characteristics (per diode)

| Symbol            | Parameter                             |   | Value | Units |
|-------------------|---------------------------------------|---|-------|-------|
| V <sub>FM</sub> * | Maximum Instantaneous Forward Voltage |   |       | V     |
|                   | I <sub>F</sub> = 5A                   | $T_C = 25  ^{\circ}C$   | 0.75  |       |
|                   | I <sub>F</sub> = 5A                   | $T_C = 25 ^{\circ}C$<br>$T_C = 125 ^{\circ}C$                     | 0.65  |       |
|                   | I <sub>F</sub> = 10A                  | $T_{C} = 25  ^{\circ}\text{C}$<br>$T_{C} = 125  ^{\circ}\text{C}$ | 0.95  |       |
|                   | I <sub>F</sub> = 10A                  | T <sub>C</sub> = 125 °C   | 0.73  |       |
| I <sub>RM</sub> * | Maximum Instantaneous Reverse Current |   |       | mA    |
|                   | @ rated V <sub>R</sub>                | $T_C = 25  ^{\circ}C$   | 1     |       |
|                   | ·                                     | $T_C = 25  ^{\circ}C$<br>$T_C = 125  ^{\circ}C$                   | 30    |       |

<sup>\*</sup> Pulse Test: Pulse Width=300µs, Duty Cycle=2%

# **Typical Characteristics**

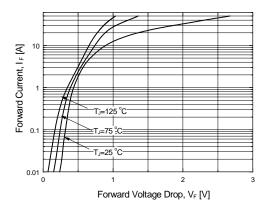


Figure 1. Typical Forward Voltage Characteristics (per diode)

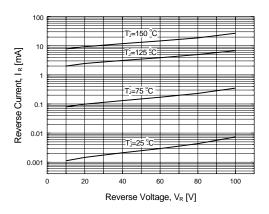


Figure 2. Typical Reverse Current vs. Reverse Voltage (per diode)

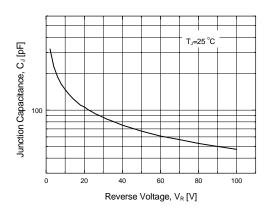


Figure 3. Typical Junction Capacitance (per diode)

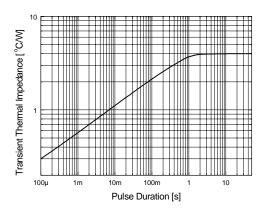


Figure 4. Thermal Impedance Characteristics (per diode)

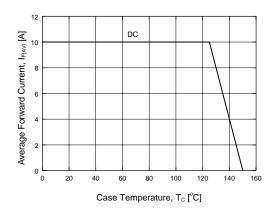


Figure 5. Forward Current Derating Curve

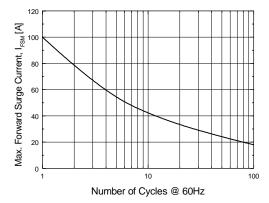
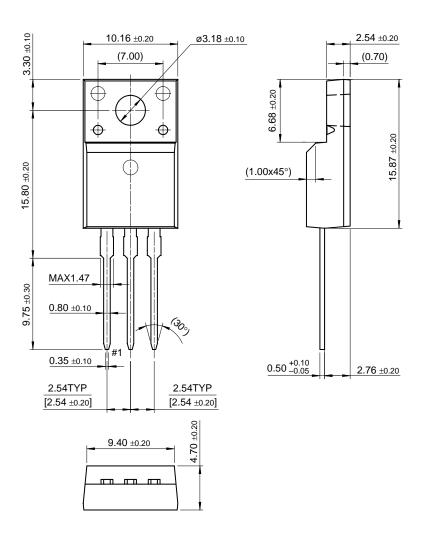


Figure 6. Non-Repetive Sureg Current (per diode)

©2001 Fairchild Semiconductor Corporation Rev. B, November 2001

# **Package Dimensions**

# TO-220F



Dimensions in Millimeters

#### **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.

| ACEx™                | FAST <sup>®</sup>   | OPTOLOGIC™               | SMART START™          | $VCX^{TM}$ |
|----------------------|---------------------|--------------------------|-----------------------|------------|
| Bottomless™          | FASTr™              | OPTOPLANAR™              | STAR*POWER™           |            |
| CoolFET™             | FRFET™              | PACMAN™                  | Stealth™              |            |
| $CROSSVOLT^{TM}$     | GlobalOptoisolator™ | POP™                     | SuperSOT™-3           |            |
| DenseTrench™         | GTO™                | Power247™                | SuperSOT™-6           |            |
| DOME™                | HiSeC™              | PowerTrench <sup>®</sup> | SuperSOT™-8           |            |
| EcoSPARK™            | ISOPLANAR™          | QFET™                    | SyncFET™              |            |
| E <sup>2</sup> CMOS™ | LittleFET™          | QS <sup>TM</sup>         | TruTranslation™       |            |
| EnSigna™             | MicroFET™           | QT Optoelectronics™      | TinyLogic™            |            |
| FACT™                | MicroPak™           | Quiet Series™            | UHC™ _                |            |
| FACT Quiet Series™   | MICROWIRE™          | SLIENT SWITCHER®         | UltraFET <sup>®</sup> |            |

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 INTERNATIONAL.

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<br>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.   |

©2001 Fairchild Semiconductor Corporation Rev. H4

ON Semiconductor and in are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at <a href="www.onsemi.com/site/pdt/Patent-Marking.pdf">www.onsemi.com/site/pdt/Patent-Marking.pdf</a>. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor 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 ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor 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 ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and exp

### **PUBLICATION ORDERING INFORMATION**

#### LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor 19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada Email: orderlit@onsemi.com N. American Technical Support: 800–282–9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support: Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81–3–5817–1050

ON Semiconductor Website: www.onsemi.com

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative