30A, 100V, Very Low Forward Voltage Trench-Based Schottky Rectifier

Features

- Fine Lithography Trench-based Schottky Technology for Very Low Forward Voltage and Low Leakage
- Fast Switching with Exceptional Temperature Stability
- Low Power Loss and Lower Operating Temperature
- Higher Efficiency for Achieving Regulatory Compliance
- Low Thermal Resistance
- High Surge Capability
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

- Switching Power Supplies including Notebook / Netbook Adapters, ATX and Flat Panel Display
- High Frequency and DC-DC Converters
- Freewheeling and OR-ing Diodes
- Reverse Battery Protection
- Instrumentation

Mechanical Characteristics

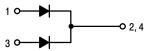
- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94-0 @ 0.125 in
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Maximum for 10 sec



ON Semiconductor®

www.onsemi.com

PIN CONNECTIONS





MARKING DIAGRAM



A = Assembly Location

Y = Year WW = Work Week AKA = Polarity Designator G = Pb-Free Package

ORDERING INFORMATION

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

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V _{RRM} V _{RWM} V _R	100	٧
Average Rectified Forward Current (Rated V_R , T_C = 116°C) (Rated V_R , T_C = 136°C)	Per device Per diode	I _{F(AV)}	30 15	Α
Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz, T_C = 109°C) (Rated V_R , Square Wave, 20 kHz, T_C = 133°C)	Per device Per diode	I _{FRM}	60 30	Α
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I _{FSM}	125	А
Operating Junction Temperature		TJ	-40 to +175	°C
Storage Temperature		T _{stg}	-40 to +175	°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.

THERMAL CHARACTERISTICS

Rating		Symbol	Value	Unit
Typical Thermal Resistance	Junction-to-Case Junction-to-Ambient	$R_{ heta JC} \ R_{ heta JA}$	1.4 47	°C/W °C/W

ELECTRICAL CHARACTERISTICS (Per Leg unless otherwise noted)

Rating	Symbol	Тур	Max	Unit
Maximum Instantaneous Forward Voltage (Note 1) $ \begin{array}{l} (I_F=5~A,~T_J=25^\circ C)\\ (I_F=7.5~A,~T_J=25^\circ C)\\ (I_F=15~A,~T_J=25^\circ C) \end{array} $	VF	0.544 0.606 0.761	- - 0.9	V
$(I_F = 5 \text{ A}, T_J = 125^{\circ}\text{C})$ $(I_F = 7.5 \text{ A}, T_J = 125^{\circ}\text{C})$ $(I_F = 15 \text{ A}, T_J = 125^{\circ}\text{C})$		0.471 0.539 0.662	- - 0.73	
Maximum Instantaneous Reverse Current (Note 1) $(V_R = 70 \text{ V}, T_J = 25^{\circ}\text{C})$ $(V_R = 70 \text{ V}, T_J = 125^{\circ}\text{C})$	I _R	1.7 2.1		μA mA
(Rated dc Voltage, $T_J = 25^{\circ}\text{C}$) (Rated dc Voltage, $T_J = 125^{\circ}\text{C}$)		_ 5.0	85 16	μA mA

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.

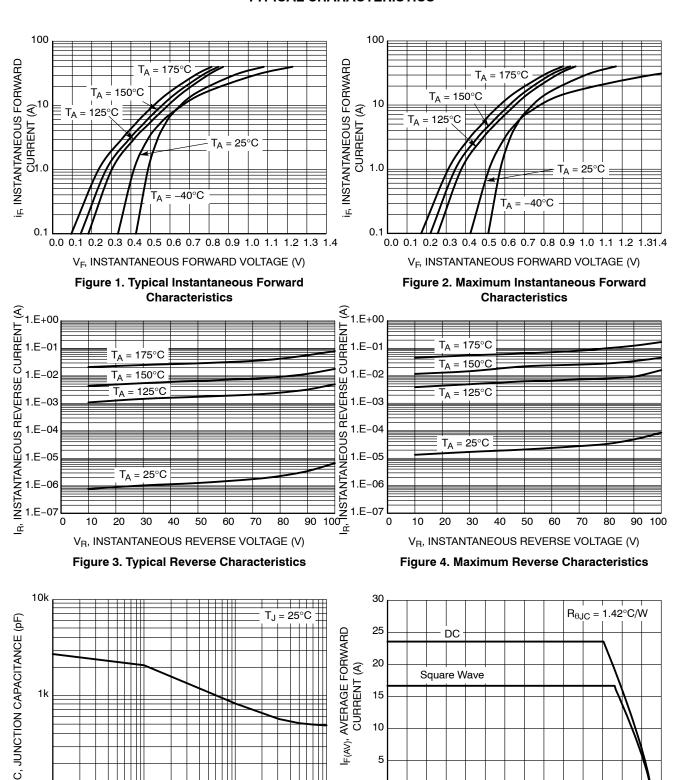
1. Pulse Test: Pulse Width = $300 \mu s$, Duty Cycle $\leq 2.0\%$

, , , ,

ORDERING INFORMATION

Device	Package	Shipping
NTSV30H100ECTG	TO-220AB (Pb-Free)	50 Units / Rail

TYPICAL CHARACTERISTICS



V_R, REVERSE VOLTAGE (V) Figure 5. Typical Junction Capacitance

10

0.1

T_C, CASE TEMPERATURE (°C) Figure 6. Current Derating per Leg

120

140

180

100

100

5

0

40

60

80

TYPICAL CHARACTERISTICS

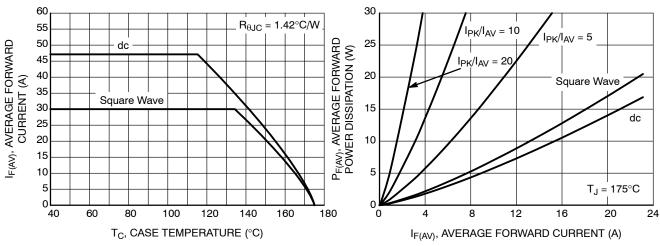


Figure 7. Current Derating per Leg

Figure 8. Forward Power Dissipation

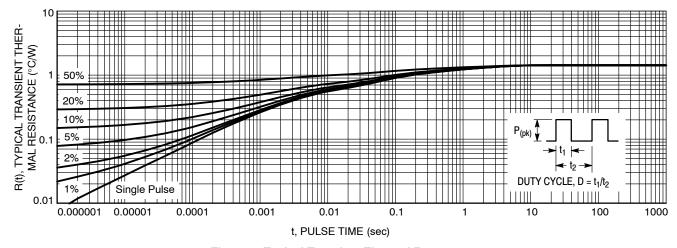


Figure 9. Typical Transient Thermal Response

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 with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$

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