



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



NHPD660, NRVHPD660

Switch Mode Power Rectifier

DPAK Surface Mount Package

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Ultrafast 30 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- High Voltage Capability of 600 V
- Low Forward Drop
- Low Leakage Specified @ 125°C Case Temperature
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- ESD Ratings:
 - ◆ Machine Model = C (> 400 V)
 - ◆ Human Body Model = 3B (> 8 kV)

Applications

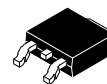
- Boost Rectifier for SMPS PFC Operating in Continuous Conduction Mode (CCM)
- LED Lighting Power Conversion
- Automotive Diesel Piezo Injection
- Thin and Ultra Thin Flat Panel Display
- Output Rectification in High Frequency High Output Voltage Applications



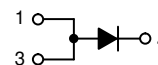
ON Semiconductor®

www.onsemi.com

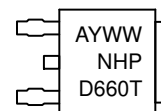
PLANAR ULTRAFast RECTIFIER 6.0 AMPERES, 600 VOLTS



DPAK
CASE 369C



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping†
NHPD660T4G	DPAK (Pb-Free)	2,500/Tape & Reel 16 mm
NRVHPD660T4G	DPAK (Pb-Free)	2,500/Tape & Reel 16 mm

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

NHPD660, NRVHPD660

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	600	V
Average Rectified Forward Current (Rated V_R , $T_C = 145^\circ\text{C}$)	$I_{F(AV)}$	6.0	A
Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz, $T_C = 135^\circ\text{C}$)	I_{FRM}	12.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 60 Hz)	I_{FSM}	60	A
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-65 to +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.

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance – Junction-to-Case	$R_{\theta JC}$	4.2	$^\circ\text{C/W}$
Thermal Resistance – Junction-to-Ambient (Note 1)	$R_{\theta JA}$	95.7	$^\circ\text{C/W}$

1. Rating applies when surface mounted on the minimum pad sizes recommended.

ELECTRICAL CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 2)	$(I_F = 6 \text{ A}, T_C = 125^\circ\text{C})$ $(I_F = 6 \text{ A}, T_C = 25^\circ\text{C})$	V_F	1.45 2.4	1.8 3.0	V
Instantaneous Reverse Current (Note 2)	(Rated DC Voltage, $T_C = 125^\circ\text{C}$) (Rated DC Voltage, $T_C = 25^\circ\text{C}$)	i_R	35 0.035	300 30	μA
Reverse Recovery Time	$(I_F = 0.5 \text{ A}, I_{rr} = 0.25 \text{ A}, I_R = 1 \text{ A})$ $(I_F = 1 \text{ A}, dI_F/dt = -50 \text{ A}/\mu\text{s}, V_R = 30 \text{ V})$	t_{rr}	– –	30 50	ns
Reverse Recovery Time Peak Reverse Recovery Current Total Reverse Recovery Charge Softness Factor	$(I_F = 6 \text{ A}, dI_F/dt = -200 \text{ A}/\mu\text{s}, T_C = 25^\circ\text{C})$	t_{rr} I_{RM} Q_{rr} S	30 2.3 37 2	50 3 50 –	ns A nC –
Reverse Recovery Time Peak Reverse Recovery Current Total Reverse Recovery Charge Softness Factor	$(I_F = 6 \text{ A}, dI_F/dt = -200 \text{ A}/\mu\text{s}, T_C = 125^\circ\text{C})$	t_{rr} I_{RM} Q_{rr} S	45 5.5 150 0.35	– – – –	ns A nC –
Forward Recovery Time Forward Voltage Time	$(I_F = 6 \text{ A}, dI_F/dt = 120 \text{ A}/\mu\text{s}, T_C = 25^\circ\text{C})$	t_{fr} V_{FP}	– –	200 6	ns V

2. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

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.

NHPD660, NRVHPD660

TYPICAL CHARACTERISTICS

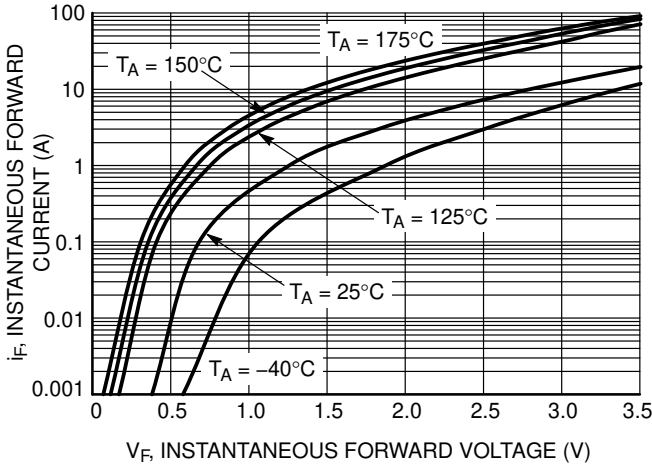


Figure 1. Typical Instantaneous Forward Characteristics

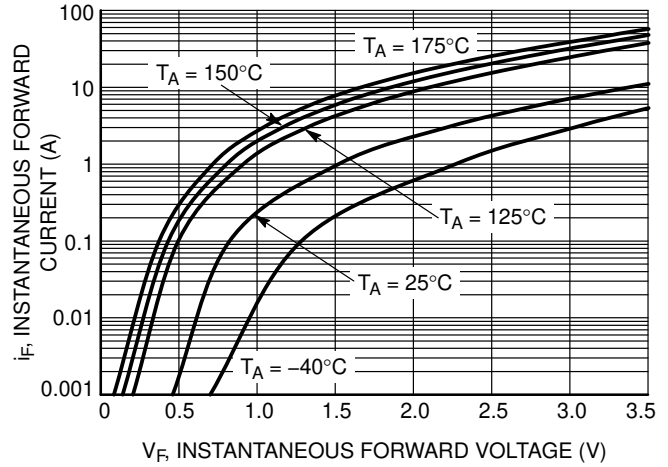


Figure 2. Maximum Instantaneous Forward Characteristics

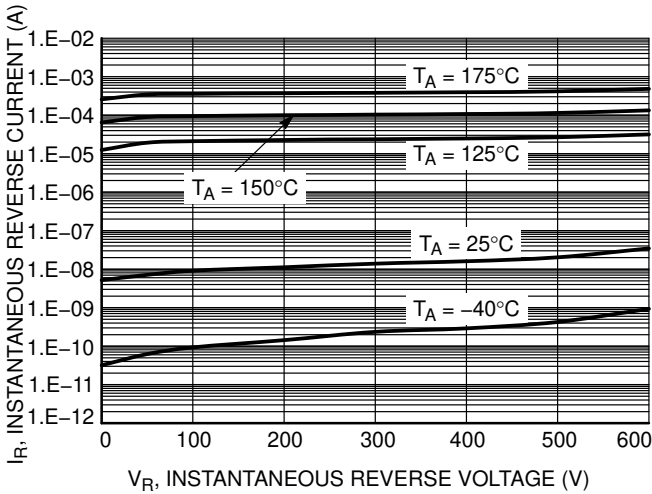


Figure 3. Typical Reverse Characteristics

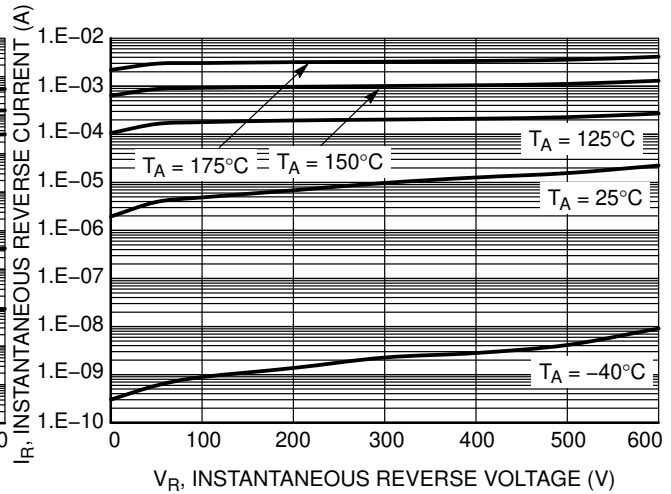


Figure 4. Maximum Reverse Characteristics

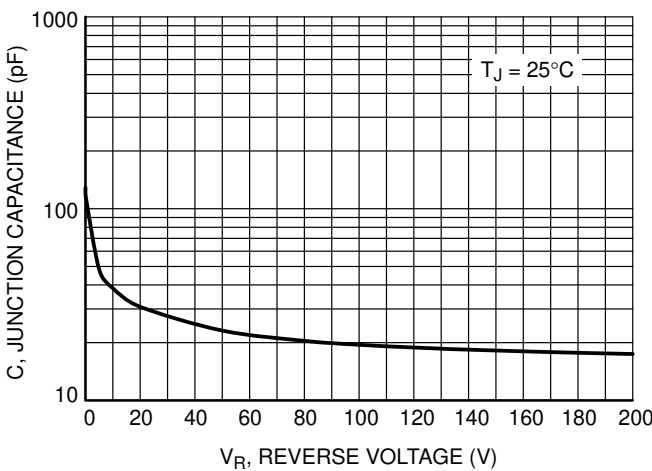


Figure 5. Typical Junction Capacitance

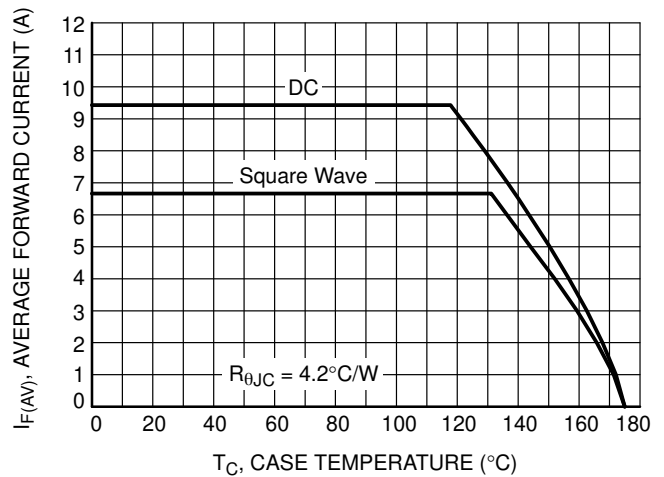


Figure 6. Current Derating

NHPD660, NRVHPD660

TYPICAL CHARACTERISTICS

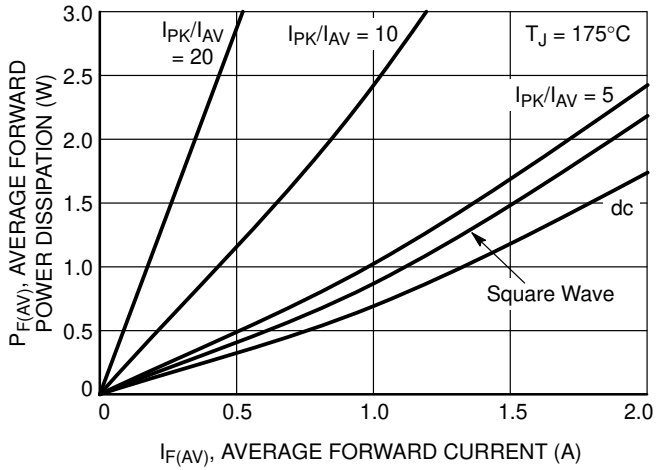


Figure 7. Forward Power Dissipation

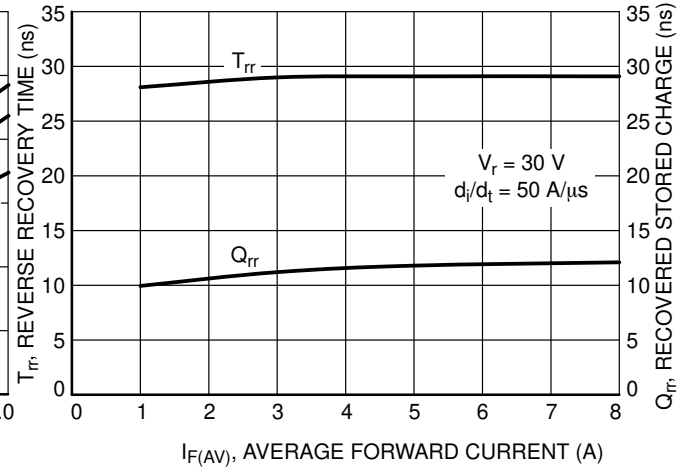


Figure 8. Typical Recovery Characteristics

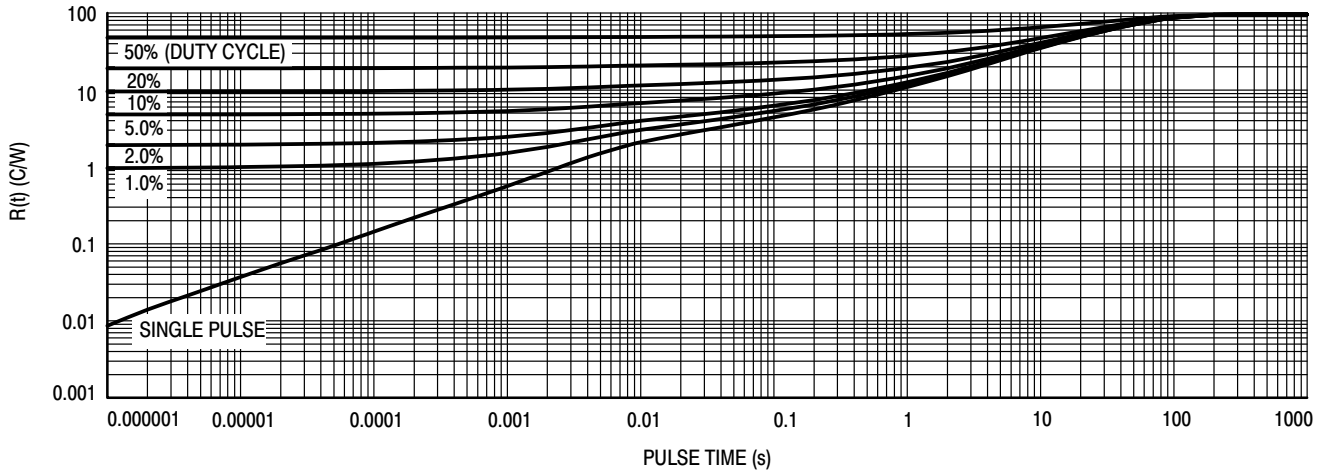
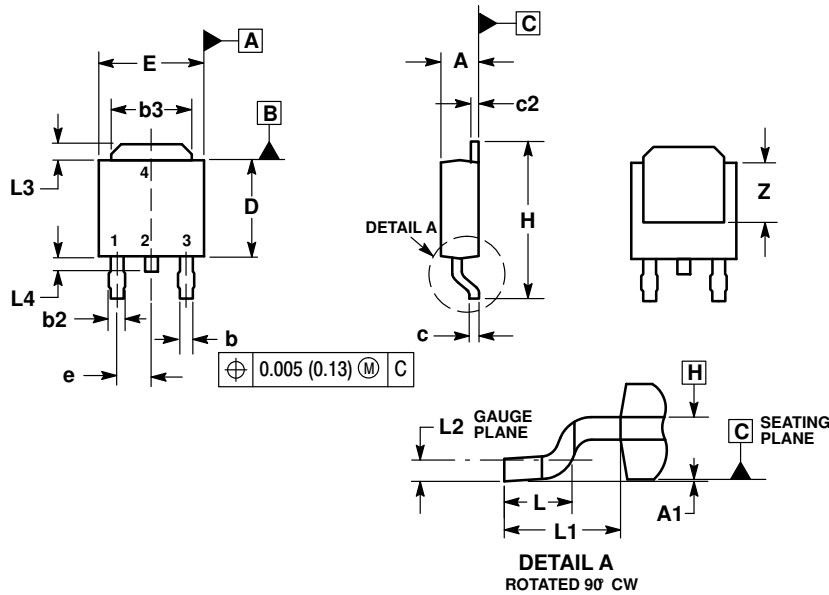


Figure 9. Thermal Response

NHPD660, NRVHPD660

PACKAGE DIMENSIONS

DPAK (SINGLE GAUGE) CASE 369C-01 ISSUE D

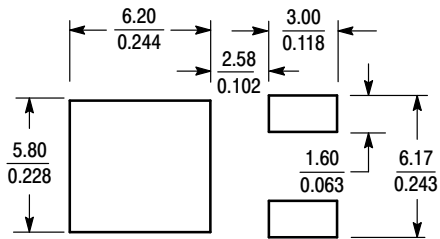


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3 and Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.086	0.094	2.18	2.38
A1	0.000	0.005	0.00	0.13
b	0.025	0.035	0.63	0.89
b2	0.030	0.045	0.76	1.14
b3	0.180	0.215	4.57	5.46
c	0.018	0.024	0.46	0.61
c2	0.018	0.024	0.46	0.61
D	0.235	0.245	5.97	6.22
E	0.250	0.265	6.35	6.73
e	0.090	BSC	2.29	BSC
H	0.370	0.410	9.40	10.41
L	0.055	0.070	1.40	1.78
L1	0.108	REF	2.74	REF
L2	0.020	BSC	0.51	BSC
L3	0.035	0.050	0.89	1.27
L4	—	0.040	—	1.01
Z	0.155	—	3.93	—

SOLDERING FOOTPRINT*



SCALE 3:1 (mm/inches)

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor and the are registered trademarks of Semiconductor Components Industries, LLC (SCILLC) or its subsidiaries in the United States and/or other countries. SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC 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. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC 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 SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 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