MURHD560T4G, SURHD8560T4G, MURHD560W1T4G, SURHD8560W1T4G, SURHD8560T4G-VF01

600 V, 5 A Power Rectifier

Features and Benefits

- Ultrafast 30 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- High Temperature Glass Passivated Junction
- High Voltage Capability to 600 Volts
- SURHD8 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

Applications

- Power Supplies
- Inverters
- Free Wheeling Diodes

Mechanical Characteristics

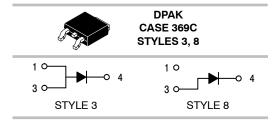
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 0.4 g (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- ESD Ratings:
 - Machine Model = C (> 400 V)
 - Human Body Model = 3B (> 8000 V)



ON Semiconductor®

www.onsemi.com

ULTRAFAST RECTIFIER 5.0 AMPERES 600 VOLTS



MARKING DIAGRAMS



560W1 = MURHD560W1T4 A = Assembly Location

Y = Year WW = Work Week G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping [†]
MURHD560T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
SURHD8560T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
MURHD560W1T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
SURHD8560W1T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
SSURHD8560W1T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
SSURHD8560T4G- VF01	DPAK (Pb-Free)	2,500 / Tape & Reel

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

^{*} The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

MURHD560T4G, SURHD8560T4G, MURHD560W1T4G, SURHD8560W1T4G,

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 = 159°C)	I _{F(AV)}	5.0	Α
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I _{FSM}	50	А
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-65 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
Maximum Thermal Resistance, Junction to Case	$R_{ heta JC}$	2.5	°C/W
Maximum Thermal Resistance, Junction to Ambient (Note 1)	$R_{ heta JA}$	49.5	°C/W

^{1.} Rating applies when surface mounted on a 1.5 mm FR4 PC board with a 1 oz. thick, 700 mm² Cu area.

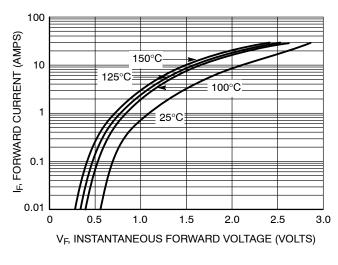
ELECTRICAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 5.0 \text{ Amps}, T_C = 25^{\circ}\text{C}$) ($I_F = 5.0 \text{ Amps}, T_C = 125^{\circ}\text{C}$)	V _F	2.7 1.65	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T _C = 25°C) (Rated dc Voltage, T _C = 125°C)	I _R	10 70	μΑ
Maximum Reverse Recovery Time (I _F = 1.0 Amp, di/dt = 50 Amps/μs, V _R = 30 V, T _J = 25°C)	t _{rr}	30	ns

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.

^{2.} Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

MURHD560T4G, SURHD8560T4G, MURHD560W1T4G, SURHD8560W1T4G,



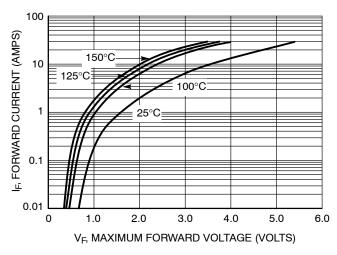


Figure 1. Typical Forward Voltage

Figure 2. Maximum Forward Voltage

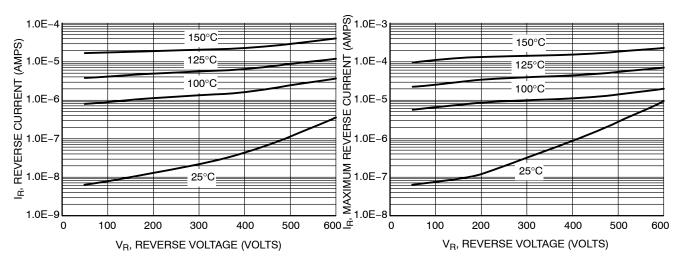


Figure 3. Typical Reverse Current

Figure 4. Maximum Reverse Current

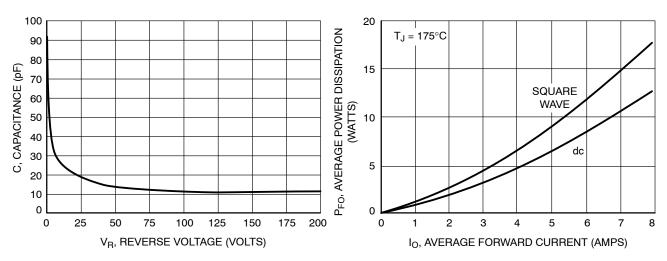


Figure 5. Typical Capacitance

Figure 6. Forward Power Dissipation

MURHD560T4G, SURHD8560T4G, MURHD560W1T4G, SURHD8560W1T4G,

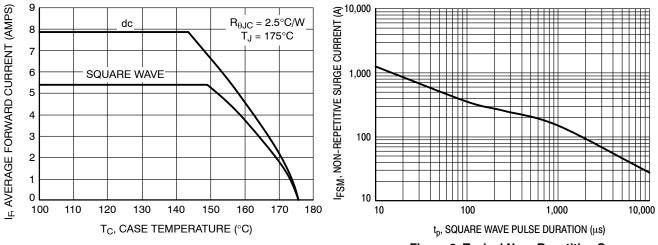


Figure 7. Current Derating

Figure 8. Typical Non-Repetitive Surge Current

^{*} Typical performance based on a limited sample size. ON Semiconductor does not guarantee ratings not listed in the Maximum Ratings table.

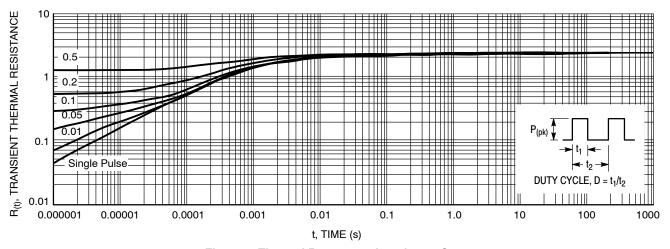


Figure 9. Thermal Response, Junction to Case

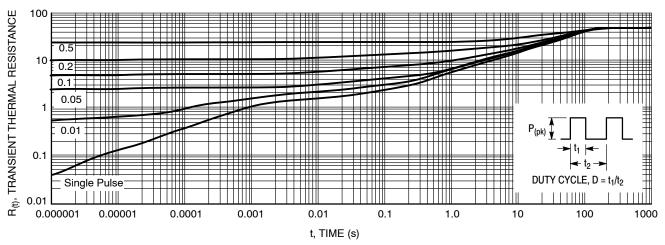
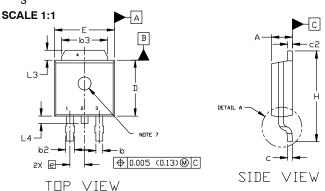


Figure 10. Thermal Response, Junction to Ambient





DATE 31 MAY 2023



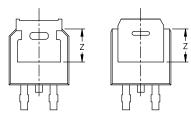


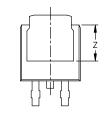
- DIMENSIONING AND TOLERANCING ASME Y14.5M, 1994. CONTROLLING DIMENSION: INCHES
- THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS 63,
- L3. AND Z. L3, AND Z.

 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.
 DIMENSIONS D AND E ARE DETERMINED AT THE
 OUTERMOST EXTREMES OF THE PLASTIC BODY.
 DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
 DETININAL MOLD ESCALUPE.

- OPTIONAL MOLD FEATURE.

DIM	INCHES		MILLIMETERS	
MIM	MIN.	MAX.	MIN.	MAX.
Α	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	0.028	0.045	0.72	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	
Н	0.370	0.410	9.40	10.41
L	0.055	0.070	1.40	1.78
L1	0.114 REF		2.90	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	

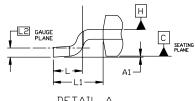




BOTTOM VIEW

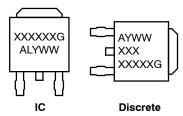
BOTTOM VIEW ALTERNATE CONSTRUCTIONS

5.80 [0.228] 6.20 [0.244] 2.58 3.00 [0.102] [0.118] 1.60 [0.063] 6.17 [0.243]



DETAIL A ROTATED 90° CW

GENERIC MARKING DIAGRAM*



XXXXXX	= Device Code
Α	= Assembly Location
L	= Wafer Lot
Υ	= Year
WW	= Work Week
G	= Pb-Free Package

*This information is generic. Please refer to

*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DUWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

3 FMITTER

4. COLLECTOR

s

3 GATE

RECOMMENDED MOUNTING FOOTPRINT*

STYLE 1: STYLE 2: PIN 1. BASE PIN 1. GATE 2. COLLECTOR 2. DRAIL 3. EMITTER 3. SOUF 4. COLLECTOR 4. DRAIL	N 2. CATHODE RCE 3. ANODE	3. GATE	STYLE 5: PIN 1. GATE 2. ANODE 3. CATHODE 4. ANODE
--	------------------------------	---------	---

STYLE 7: PIN 1. GATE 2. COLLECTOR STYLE 6: STYLE 8: STYLE 9: STYLE 10: PIN 1. MT1 2. MT2 PIN 1. N/C 2. CATHODE 3. ANODE PIN 1. ANODE 2. CATHODE

4. CATHODE

device data sheet for actual part marking. PIN 1. CATHODE 2. ANODE 3. CATHODE Pb-Free indicator, "G" or microdot "■", may or may not be present. Some products may 3 RESISTOR ADJUST not follow the Generic Marking. 4. ANODE

DOCUMENT NUMBER:	98AON10527D	Electronic versions are uncontrolled except when accessed directly from the Document Reposito Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	DPAK (SINGLE GAUGE)		PAGE 1 OF 1

4. CATHODE

onsemi and ONSEMI are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the 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. onsemi does not convey any license under its patent rights nor the rights of others.

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 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 **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** 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 **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

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