



Is Now Part of



**ON Semiconductor®**

To learn more about ON Semiconductor, please visit our website at  
[www.onsemi.com](http://www.onsemi.com)

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](http://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 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 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 ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.



August 2016

# UF4001 - UF4007 Fast Rectifiers

## Features

- Low Forward Voltage Drop
- High Surge Current Capability
- High Reliability
- High Current Capability
- Glass-Passivated Junction



**DO-41 (Plastic)**  
COLOR BAND DENOTES CATHODE

## Ordering Information

Part Number	Top Mark	Package	Packing Method
UF4001	UF4001	DO-204AL (DO-41)	Tape and Reel
UF4002	UF4002	DO-204AL (DO-41)	Tape and Reel
UF4003	UF4003	DO-204AL (DO-41)	Tape and Reel
UF4004	UF4004	DO-204AL (DO-41)	Tape and Reel
UF4005	UF4005	DO-204AL (DO-41)	Tape and Reel
UF4006	UF4006	DO-204AL (DO-41)	Tape and Reel
UF4007	UF4007	DO-204AL (DO-41)	Tape and Reel

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value							Unit
		UF 4001	UF 4002	UF 4003	UF 4004	UF 4005	UF 4006	UF 4007	
$V_{RRM}$	Maximum Repetitive Reverse Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Rectified Forward Current .375 " Lead Length at $T_A = 75^\circ\text{C}$	1.0							A
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave	30							A
$T_{STG}$	Storage Temperature Range	-65 to +150							$^\circ\text{C}$
$T_J$	Operating Junction Temperature	-65 to +150							$^\circ\text{C}$

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	2.08	W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	60	$^\circ\text{C}/\text{W}$
$R_{\theta JL}$	Thermal Resistance, Junction-to-Lead	30	$^\circ\text{C}/\text{W}$

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Value						Unit
			UF 4001	UF 4002	UF 4003	UF 4004	UF 4005	UF 4006	
$V_F$	Maximum Forward Voltage	$I_F = 1.0\text{ A}$	1.0			1.7			V
$t_{rr}$	Maximum Reverse Recovery Time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{RR} = 0.25\text{ A}$	50			75			ns
$I_R$	Maximum Reverse Current at Rated $V_R$	$T_A = 25^\circ\text{C}$	10						$\mu\text{A}$
		$T_A = 100^\circ\text{C}$	50						
$C_T$	Maximum Total Capacitance	$V_R = 4.0\text{ V}$ , $f = 1.0\text{ MHz}$	17						pF

## Typical Performance Characteristics

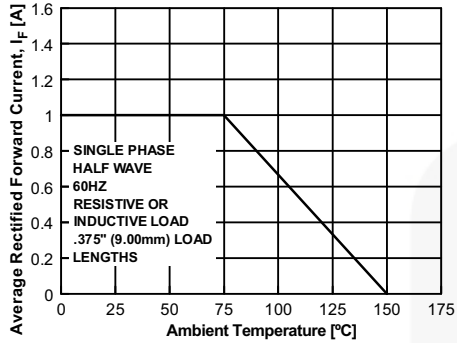


Figure 1. Forward Current Derating Curve

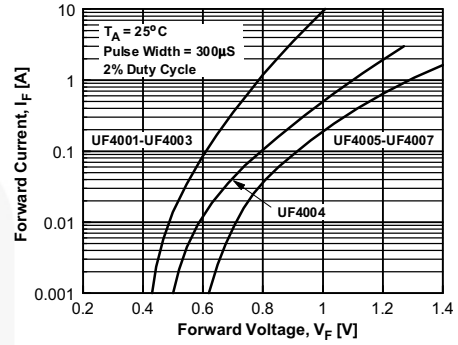


Figure 2. Forward Characteristics

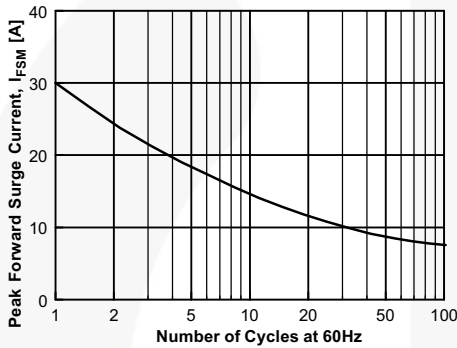


Figure 3. Non-Repetitive Surge Current

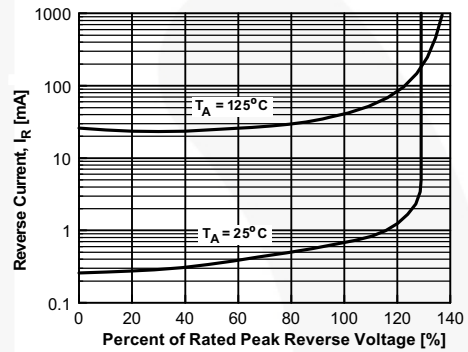


Figure 4. Reverse Characteristics

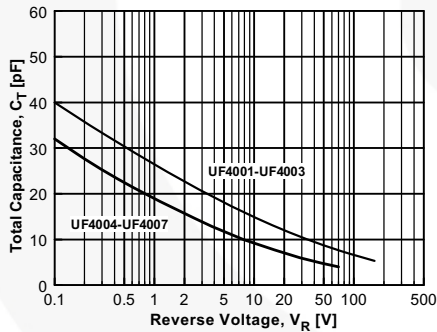
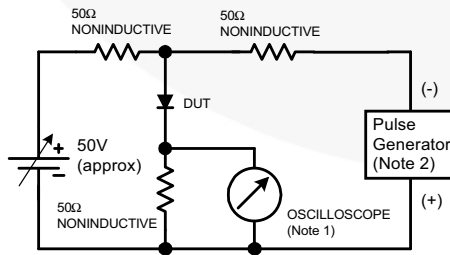
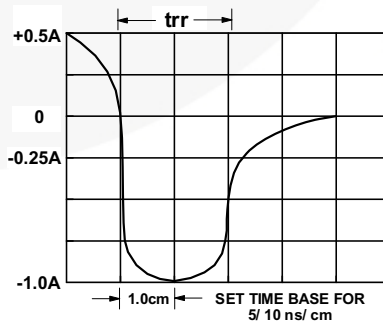


Figure 5. Typical Junction Capacitance



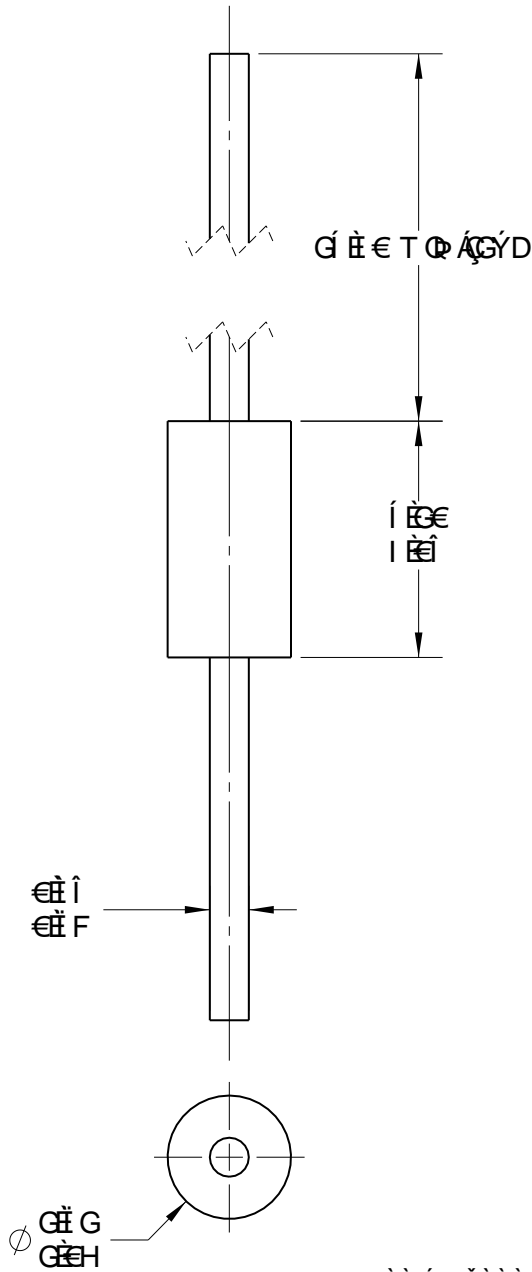
- NOTES:  
 1. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.  
 2. Rise time = 10 ns max; Source impedance = 50 ohms.

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram



VP:SHOBY @ OABAP OAUUOYVAI OABO O P S A M O T S H P O N O V U U O U U O U O B V P B H U A M O  
 VP O U O U P S S O O T Q D O A V P O A P Q B E U A B O O O U E O A K U O A U U U U O S E A I A M O T Q V O O  
 V U A B O O P S A M O T S H P O N O V U U O U U O U O B V P B H U A M O O A O O Y O O V O O B O U P S U O T Q Y  
 Y Q P A N O P A U U U U O S E A N S O U A P O U U O U O A I A N O S E S S O P S A M O T S H P O N O V U A B U E  
 O U U O S V P A N G A U O X A N V S Y A O O A I O V A O O B H A G E V A I O A P S A O U Y @ O A P S S O O  
 O U U O A U G A N S S O O A I O A U O U B V O P V U O B O S U O O O P O B O U T S V P A O U P V B O O  
 U B A P S A O U Y @ O A B O U P S S O P V B E A P O A U U O U O B V E

Ü Ö Χ Θ Ψ ß Æ			
Π Ο Ψ	Ö Ö U Ö W Ö P	Ö Ö V Ö	Ö Y Ö U Ö C Ö
F	Ü Ö S Ö U Ö O Ä U Ö O Ö	G J R M S e i	P Y Ö B Ö U M Z P U W
G	Ö P Ö Ö O Ä E E Ä U Ä E E E Ö P Ö Ö O Ä U V O A O A C E O O Ä J S C E V Ö O U Ö Y E Ü Ö T U X O A G S O U A U P A V Q S O E	F J U Ö U e i	P Y Ö B Ö U M Z P U W



Π U V Ö U Ä M P S Ö U U Ä J V P Ö U Y Q I Ö Ä J U Ö O Ö O Ö

Ä Ä C E Ä U Ö S C E Ö O Ä U V Ö P Ö C E J Ö Ä J Ö Z Ö U Ö P Ö Ö K Ä  
 R Ö Ö O Ö Ä U E G E I Ä K E J Ö E V Ö P A C S E  
 Ä M O D Ä U Ö S C E Ö O Ä U Ö Y Ä C E P A C Ä J S C E V Ö Ä U U Ä  
 Ä Ä Ä Ä Ä P Ö U T Ö N Ö C E S S Y Ä J Ö C S Ö O A Ö S C E U Ä E  
 Ä M O D Ä U Ö S S Ö Q Ö P Ü Ö P U Ä C E J Ö A P Ä T S S Q Ö N Ö U Ü E  
 Ä M O D Ä U Ö C Y @ Ö A Z S O Ä P E T Ö K Ö U I F Ö U Ö X G

Ö Ö U Ö U X C S Ö	Ö Ö V Ö				
Ö Ö B P K Ö Ö U Y Ä C E Ö U	F J U Ö U e i				
Ö P Ö S Ö O K P Ö P Ü Y Ä C E Ö					
Ö Ö U U X Ö O K Ö Y Ä V Ö B Ö					
Ö Ö U U X Ö O K P U Y Ö U Ö A S S Ö P		Ö Y Ö E S Ö C E Ö Ö Ö Ä R Ö Ö O Ö Ä U E I Ä K E J Ö E V Ö P A C S E			
Ü Ö U R Ö Ö V Ö P		Ü Ö C Ö B F K F	Ü Ö Z Ö P B E	Ö Ö B P @ Ö A V I T Ö Ö U T S V E Ö U I F C E	Ü Ö K G
Z T Ä φ Ö P		Ö U T Ö Ö S T K P B E		Ü P Ö Ö V Ä K F A U Ö F	

ON Semiconductor and  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](http://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 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 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 ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor 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  
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](mailto: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](http://www.onsemi.com)  
**Order Literature:** <http://www.onsemi.com/orderlit>  
For additional information, please contact your local  
Sales Representative