



# THE DATASHEET OF DF10S1



# Bridge Rectifier

## DF005S1-DF10S1

### Description

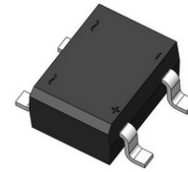
With the ever-pressing need to improve power supply efficiency, improve surge rating, improve reliability, and reduce size, the DFxS1 family sets a new standard in performance and cost saving.

The DFxS1 family balances performance against cost. The design offers a moderate surge rating of 35 A required to handle inrush surge and maintain good reliability, with fair price.

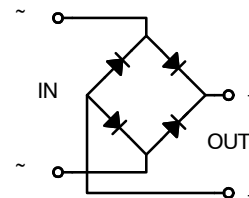
The DFxS1 achieves good performance in a SDIP surface mount form factor, reducing board space and volumetric requirements vs. competitive devices.

### Features

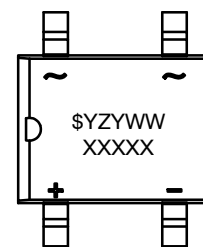
- Maximum Surge Rating:
  - ◆  $I_{FSM} = 35\text{ A}$
  - ◆  $I^2t = 5.1\text{ A}^2\text{Sec}$
- Optimized  $V_F$ : Typical 0.95 V at 1 A, 25 °C
- DF10S Socket Compatible
- Glass Passivated Junctions
- Lead Free Compliant to EU RoHS 2002/95/EU Directives
- Green Molding Compound: IEC61249
- Qualified with IR Reflow and Wave Soldering



PDIP4 GW  
CASE 709AE



### MARKING DIAGRAM



- \$Y = onsemi Logo
- Z = Assembly Plant Code
- YWW = Date Code (Year and Week)
- XXXXX = Specific Device Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

NOTE: Some of the device on this data sheet have been **DISCONTINUED**. Please refer to the table on page 4.

# DF005S1-DF10S1

**ABSOLUTE MAXIMUM RATINGS** (Values are at  $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted.)

Symbol	Parameter	Value							Unit
		DF005S1	DF01S1	DF02S1	DF04S1	DF06S1	DF08S1	DF10S1	
$V_{RRM}$	Maximum Recurrent Peak Reverse Voltage	50	100	200	400	600	800	1000	V
$V_{RMS}$	Maximum RMS Bridge Input Voltage	35	70	140	280	420	560	700	V
$V_{DC}$	Maximum DC Blocking Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Maximum Average Forward Current $T_A = 40\text{ }^\circ\text{C}$	1.0							A
$I_{FSM}$	Peak Forward Surge Current 8.3 ms Single Half-Sine Wave Superimposed on Rated Load (JEDEC Method)	35							A
$T_{STG}$	Storage Temperature Range	-55 to +150							$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-55 to +150							$^\circ\text{C}$

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 (Note 1)

Symbol	Parameter	Conditions	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	Single-Die Measurement (Maximum Land Pattern: $13 \times 13\text{ mm}$ )	65	$^\circ\text{C/W}$
		Multi-Die Measurement (Maximum Land Pattern: $13 \times 13\text{ mm}$ )	50	
		Multi-Die Measurement (Minimum Land Pattern: $1.3 \times 1.5\text{ mm}$ )	105	
$\Psi_{JL}$	Thermal Characterization Parameter, Junction to Lead	Single-Die Measurement (Maximum and Minimum Land Pattern)	27	$^\circ\text{C/W}$

1. The thermal resistances ( $R_{\theta JA}$  &  $\Psi_{JL}$ ) are characterized with the device mounted on the following FR4 printed circuit boards, as shown in Figure 1 and Figure 2. PCB size:  $76.2 \times 114.3\text{ mm}$ . Heating effect from adjacent dice is considered and only two dice are powered at the same time.

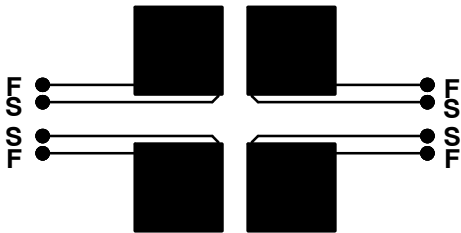


Figure 1. Maximum Pads of 2 oz Copper



Figure 2. Minimum Pads of 2 oz Copper

## ELECTRICAL CHARACTERISTICS (Values are at $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	Forward Voltage Drop per Bridge Element	$I_F = 1.0\text{ A}$			1.1	V
$I_R$	DC Reverse Current at Rated DC Blocking Voltage	$T_J = 25\text{ }^\circ\text{C}$			3	$\mu\text{A}$
		$T_J = 125\text{ }^\circ\text{C}$			500	
$I^2t$	Rating for Fusing ( $t < 8.3\text{ ms}$ )				5.1	$\text{A}^2\text{S}$
$C_J$	Junction Capacitance	$V_R = 4.0\text{ V}$ , $f = 1.0\text{ MHz}$		10		pF

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.

TYPICAL PERFORMANCE CHARACTERISTICS

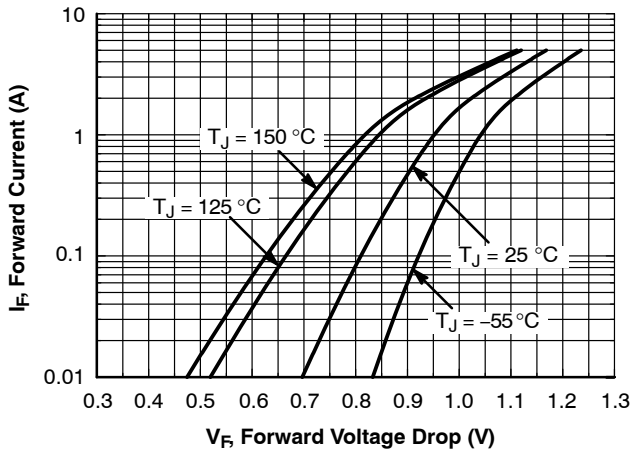


Figure 3. Typical Instantaneous Forward Characteristics

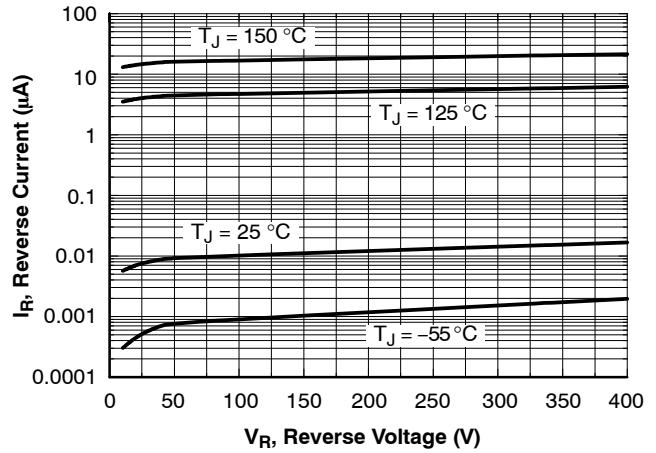


Figure 4. Typical Reverse Characteristics

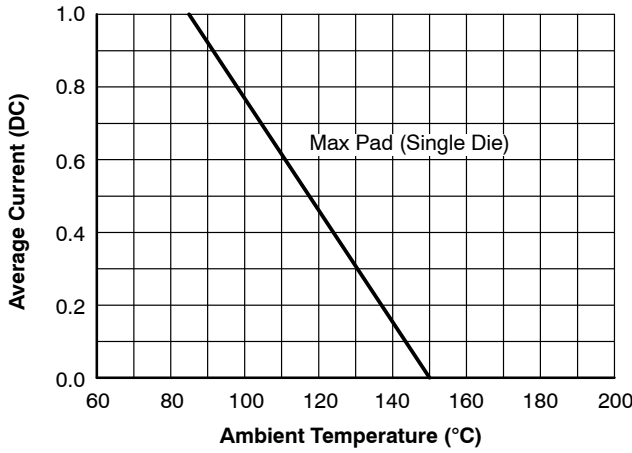


Figure 5. Maximum Average Current vs. Ambient Temperature

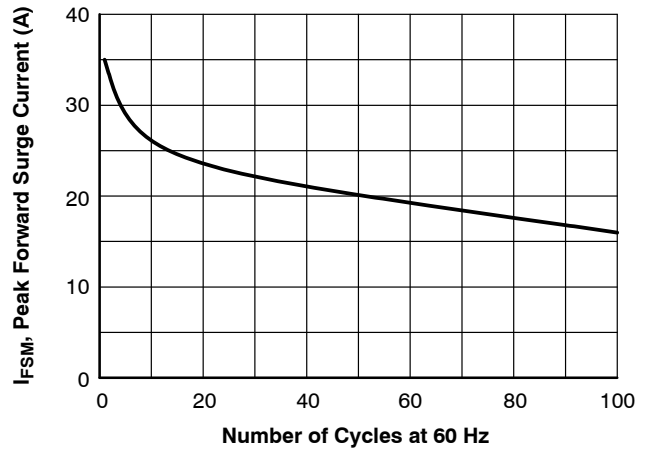


Figure 6. Peak Forward Surge Current vs. Number of Cycles at 60 Hz

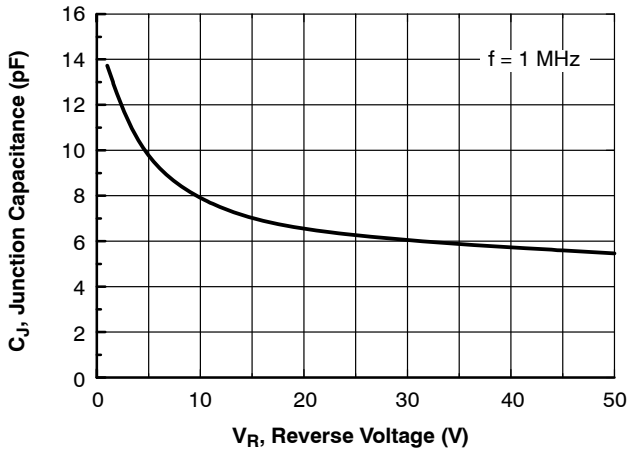


Figure 7. Typical Junction Capacitance

# DF005S1-DF10S1

## ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping <sup>†</sup>
DF08S1	DF08S1	PDIP4 GW (Pb-Free, Halide Free)	1500 / Tape & Reel

## DISCONTINUED (Note 2)

Part Number	Top Mark	Package	Shipping <sup>†</sup>
DF005S1	DF005S1	PDIP4 GW (Pb-Free, Halide Free)	1500 / Tape & Reel
DF01S1	DF01S1		
DF02S1	DF02S1		
DF04S1	DF04S1		
DF06S1	DF06S1		
DF10S1	DF10S1		

† 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](#).

2. **DISCONTINUED:** These devices are not available. Please contact your **onsemi** representative for information. The most current information on these devices may be available on [www.onsemi.com](http://www.onsemi.com).

# DF005S1-DF10S1

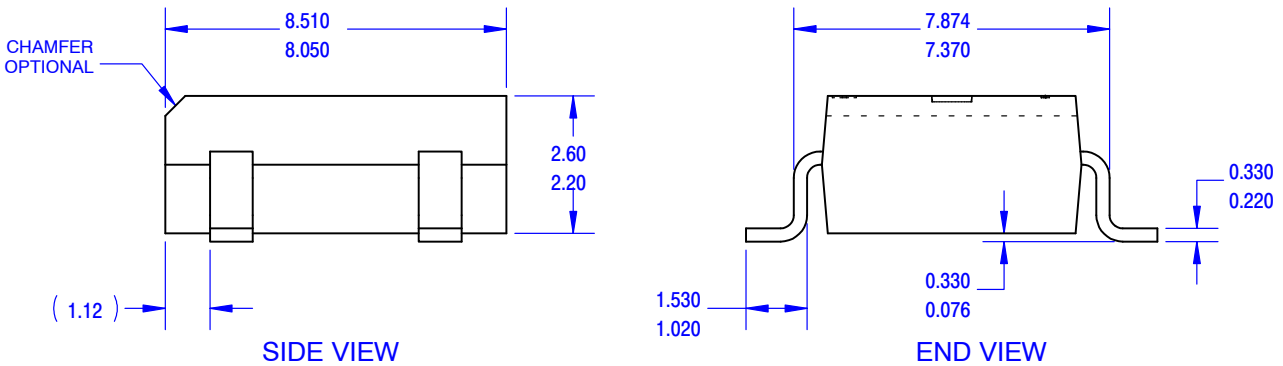
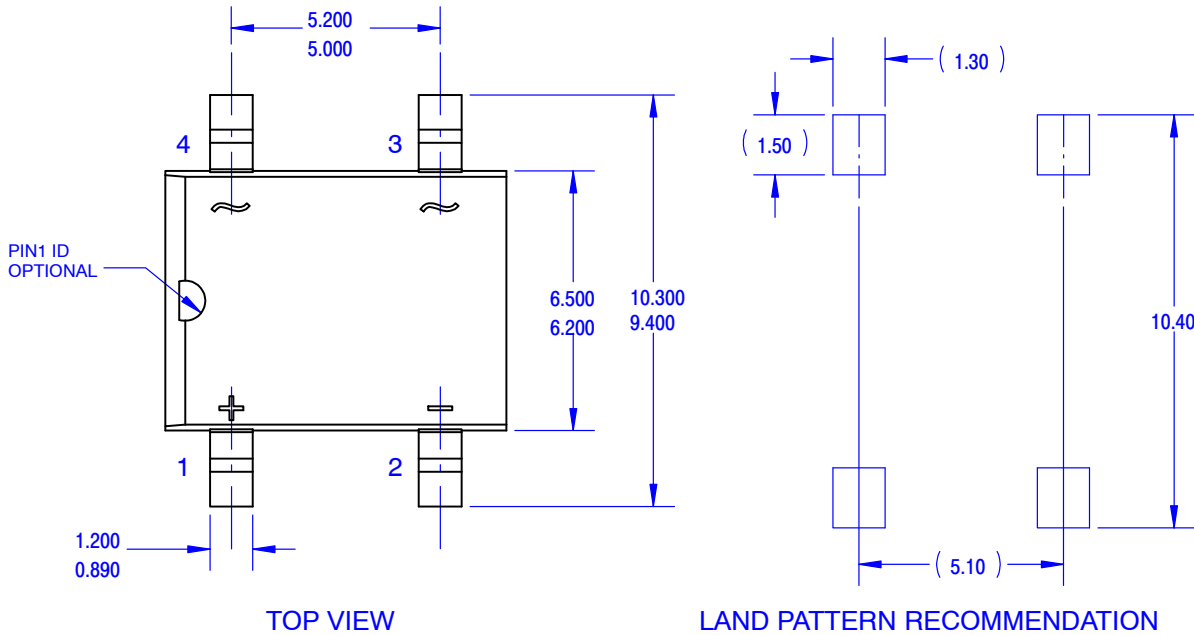
## REVISION HISTORY

Revision	Description of Changes	Date
4	Removed "Discontinued" watermark and updated Ordering Information table according to current part number availability.	4/13/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

**PDIP4 GW**  
**CASE 709AE**  
**ISSUE O**

DATE 31 JUL 2016



**NOTES:**

- A. THIS PACKAGE DOES NOT CONFORM TO ANY REFERENCE STANDARD.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.

<b>DOCUMENT NUMBER:</b>	<b>98AON13473G</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>PDIP4 GW</b>	<b>PAGE 1 OF 1</b>

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](http://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:

Technical Library: [www.onsemi.com/design/resources/technical-documentation](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)



### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at [www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)



## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View DF10S1 on WIN SOURCE](#)
-  [ON Semiconductor](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management