

# M1MA151WAT1, M1MA152WAT1

Preferred Device

## Common Anode Silicon Dual Switching Diodes

These Common Anode Silicon Epitaxial Planar Dual Diodes are designed for use in ultra high speed switching applications. These devices are housed in the SC-59 package which is designed for low power surface mount applications.

### Features

- Fast  $t_{rr}$ , < 10 ns
- Low  $C_D$ , < 15 pF
- Pb-Free Packages are Available

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

| Rating   | Symbol                | Value      | Unit |
|--|-----------------------|------------|------|
| Reverse Voltage<br>M1MA151WAT1<br>M1MA152WAT1      | $V_R$                 | 40<br>80   | Vdc  |
| Peak Reverse Voltage<br>M1MA151WAT1<br>M1MA152WAT1 | $V_{RM}$              | 40<br>80   | Vdc  |
| Forward Current<br>Single<br>Dual                  | $I_F$                 | 100<br>150 | mAdc |
| Peak Forward Current<br>Single<br>Dual             | $I_{FM}$              | 225<br>340 | mAdc |
| Peak Forward Surge Current<br>Single<br>Dual       | $I_{FSM}$<br>(Note 1) | 500<br>750 | mAdc |

### THERMAL CHARACTERISTICS

| Rating               | Symbol    | Max         | Unit             |
|----------------------|-----------|-------------|------------------|
| Power Dissipation    | $P_D$     | 200         | mW               |
| Junction Temperature | $T_J$     | 150         | $^\circ\text{C}$ |
| Storage Temperature  | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

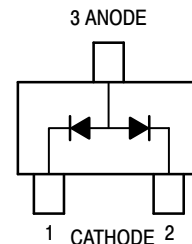
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1.  $t = 1 \text{ SEC}$



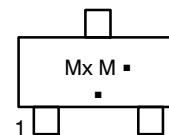
ON Semiconductor®

<http://onsemi.com>



SC-59  
CASE 318D

### MARKING DIAGRAM



Mx = Device Code  
x = N for 151  
O for 152

M = Date Code\*  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device       | Package            | Shipping†        |
|--------------|--------------------|------------------|
| M1MA151WAT1  | SC-59              | 3000/Tape & Reel |
| M1MA151WAT1G | SC-59<br>(Pb-Free) | 3000/Tape & Reel |
| M1MA152WAT1  | SC-59              | 3000/Tape & Reel |
| M1MA152WAT1G | SC-59<br>(Pb-Free) | 3000/Tape & Reel |

†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.

Preferred devices are recommended choices for future use and best overall value.

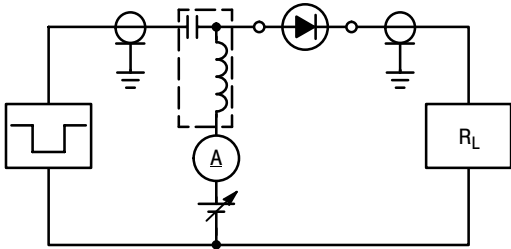
# M1MA151WAT1, M1MA152WAT1

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

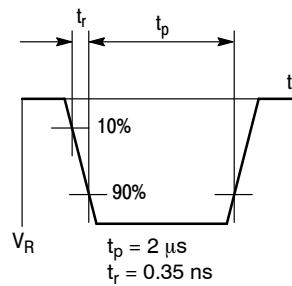
| Characteristic  | Symbol               | Condition  | Min      | Max | Unit             |
|---|----------------------|--|----------|-----|------------------|
| Reverse Voltage Leakage Current<br>M1MA151WAT1<br>M1MA152WAT1 | $I_R$                | $V_R = 35\text{ V}$<br>$V_R = 75\text{ V}$   | -        | 0.1 | $\mu\text{A dc}$ |
| Forward Voltage   | $V_F$                | $I_F = 100\text{ mA}$  | -        | 1.2 | Vdc              |
| Reverse Breakdown Voltage<br>M1MA151WAT1<br>M1MA152WAT1       | $V_R$                | $I_R = 100\ \mu\text{A}$   | 40<br>80 | -   | Vdc              |
| Diode Capacitance   | $C_D$                | $V_R = 0, f = 1.0\text{ MHz}$  | -        | 15  | pF               |
| Reverse Recovery Time (Figure 1)                              | $t_{rr}$<br>(Note 2) | $I_F = 10\text{ mA}, V_R = 6.0\text{ V},$<br>$R_L = 100\ \Omega, I_{rr} = 0.1 I_R$ | -        | 10  | ns               |

### 2. $t_{rr}$ Test Circuit

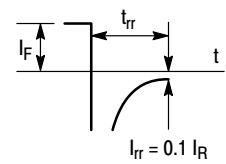
#### RECOVERY TIME EQUIVALENT TEST CIRCUIT



#### INPUT PULSE



#### OUTPUT PULSE



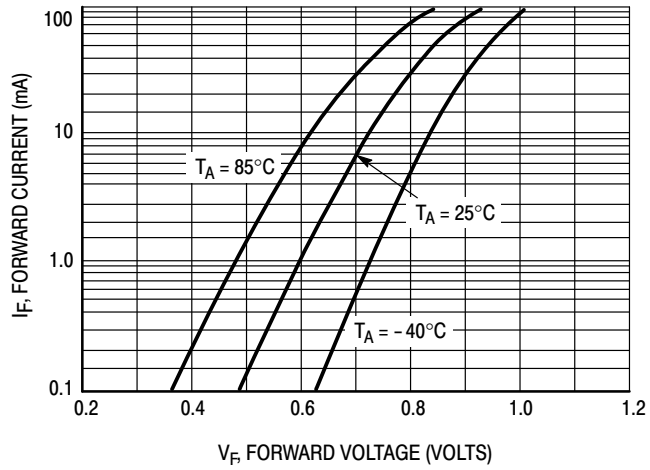
$$I_F = 10\text{ mA}$$

$$V_R = 6\text{ V}$$

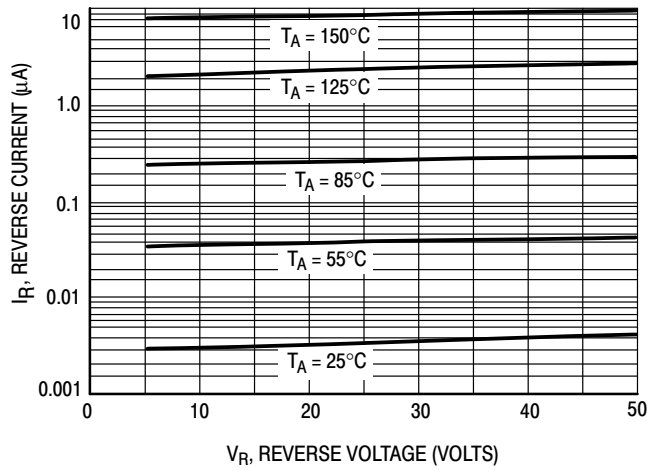
$$R_L = 100\ \Omega$$

Figure 1. Reverse Recovery Time Equivalent Test Circuit

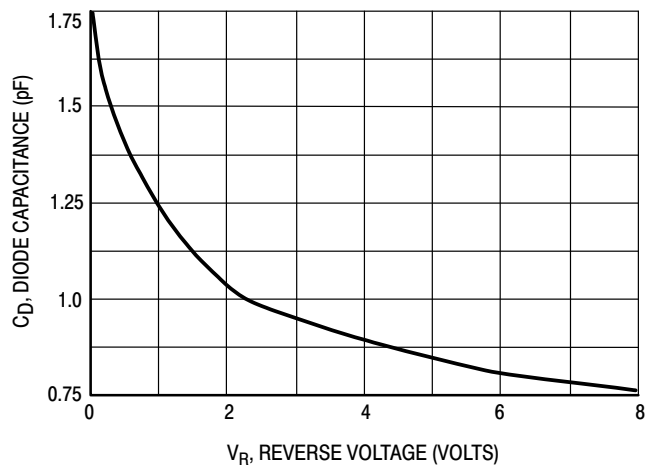
# M1MA151WAT1, M1MA152WAT1



**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**

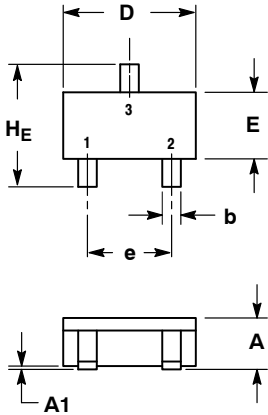


**Figure 4. Capacitance**

# M1MA151WAT1, M1MA152WAT1

## PACKAGE DIMENSIONS

SC-59  
CASE 318D-04  
ISSUE H

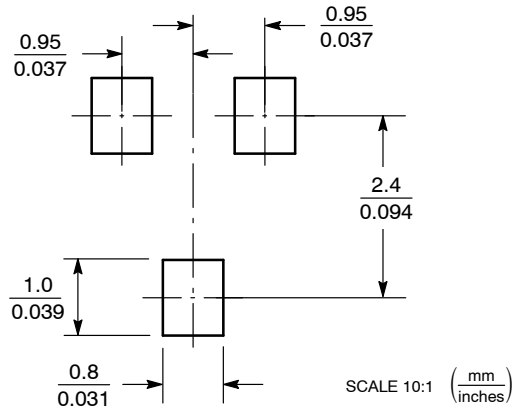


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: MILLIMETER.

| DIM | MILLIMETERS |      |      | INCHES |       |       |
|-----|-------------|------|------|--------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN    | NOM   | MAX   |
| A   | 1.00        | 1.15 | 1.30 | 0.039  | 0.045 | 0.051 |
| A1  | 0.01        | 0.06 | 0.10 | 0.001  | 0.002 | 0.004 |
| b   | 0.35        | 0.43 | 0.50 | 0.014  | 0.017 | 0.020 |
| c   | 0.09        | 0.14 | 0.18 | 0.003  | 0.005 | 0.007 |
| D   | 2.70        | 2.90 | 3.10 | 0.106  | 0.114 | 0.122 |
| E   | 1.30        | 1.50 | 1.70 | 0.051  | 0.059 | 0.067 |
| e   | 1.70        | 1.90 | 2.10 | 0.067  | 0.075 | 0.083 |
| L   | 0.20        | 0.40 | 0.60 | 0.008  | 0.016 | 0.024 |
| HE  | 2.50        | 2.80 | 3.00 | 0.099  | 0.110 | 0.118 |

- STYLE 5:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

### SOLDERING FOOTPRINT\*



\*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 are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). 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](http://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](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

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А