



**THE DATASHEET OF  
M1MA151WAT1**



# 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 M1MA151WAT1 M1MA152WAT1	$V_R$	40 80	Vdc
Peak Reverse Voltage M1MA151WAT1 M1MA152WAT1	$V_{RM}$	40 80	Vdc
Forward Current Single Dual	$I_F$	100 150	mAdc
Peak Forward Current Single Dual	$I_{FM}$	225 340	mAdc
Peak Forward Surge Current Single Dual	$I_{FSM}$ (Note 1)	500 750	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	$^\circ\text{C}$

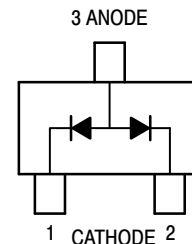
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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



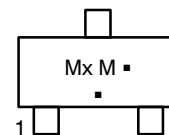
ON Semiconductor®

<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 (Pb-Free)	3000/Tape & Reel
M1MA152WAT1	SC-59	3000/Tape & Reel
M1MA152WAT1G	SC-59 (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.

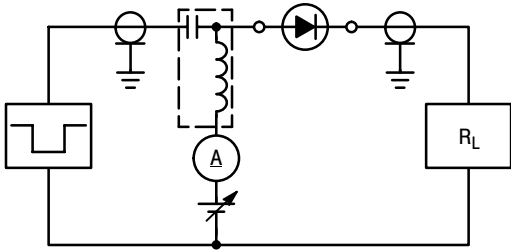
# M1MA151WAT1, M1MA152WAT1

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

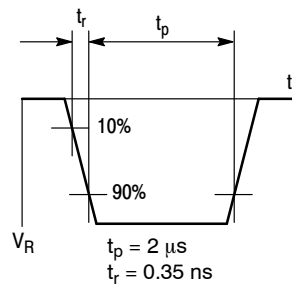
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current M1MA151WAT1 M1MA152WAT1	$I_R$	$V_R = 35\text{ V}$ $V_R = 75\text{ V}$	-	0.1	$\mu\text{A dc}$
Forward Voltage	$V_F$	$I_F = 100\text{ mA}$	-	1.2	Vdc
Reverse Breakdown Voltage M1MA151WAT1 M1MA152WAT1	$V_R$	$I_R = 100\ \mu\text{A}$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

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

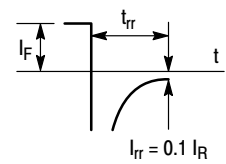
#### RECOVERY TIME EQUIVALENT TEST CIRCUIT



#### INPUT PULSE



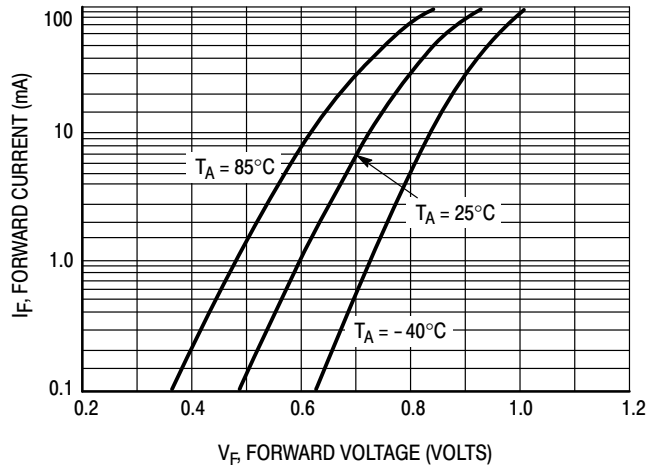
#### OUTPUT PULSE



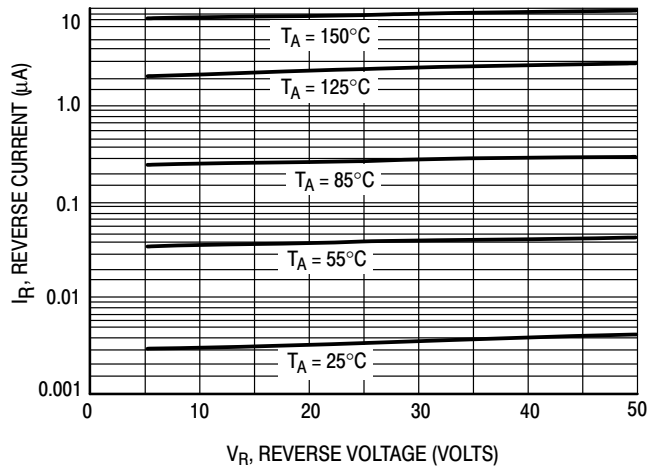
$I_F = 10\text{ mA}$   
 $V_R = 6\text{ V}$   
 $R_L = 100\ \Omega$

Figure 1. Reverse Recovery Time Equivalent Test Circuit

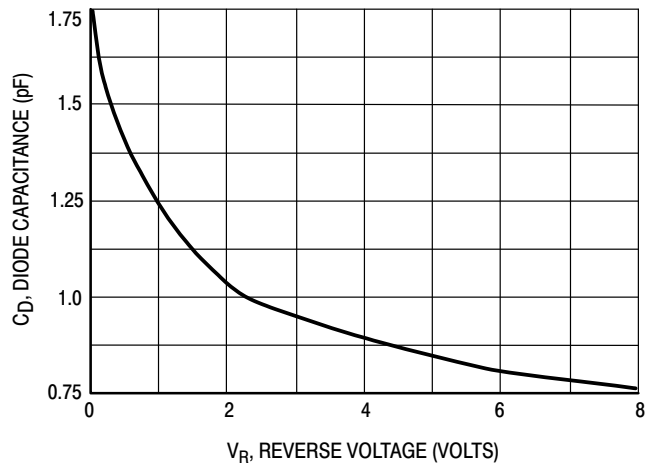
# M1MA151WAT1, M1MA152WAT1



**Figure 2. Forward Voltage**

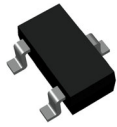


**Figure 3. Leakage Current**



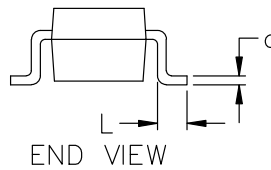
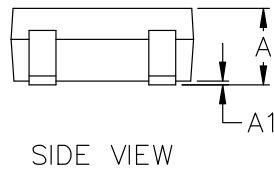
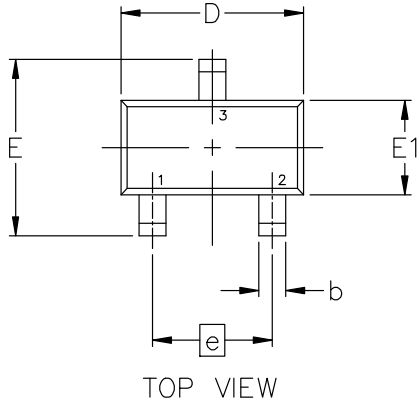
**Figure 4. Capacitance**

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



**SC-59-3 2.90x1.50x1.15, 1.90P**  
CASE 318D  
ISSUE J

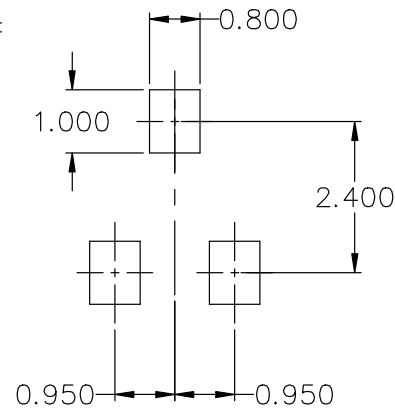
DATE 15 FEB 2024



NOTES:

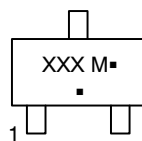
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.00	1.15	1.30
A1	0.01	0.06	0.10
b	0.35	0.43	0.50
c	0.09	0.14	0.18
D	2.70	2.90	3.10
E	2.50	2.80	3.00
E1	1.30	1.50	1.70
e	1.90 BSC		
L	0.20	0.40	0.60



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

**GENERIC MARKING DIAGRAM\***



- XXX = Specific Device Code
- M = Date Code
- = Pb-Free Package\*

(\*Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

- STYLE 1:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR
- STYLE 2:  
PIN 1. ANODE  
2. N.C.  
3. CATHODE
- STYLE 3:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE
- STYLE 4:  
PIN 1. CATHODE  
2. N.C.  
3. ANODE
- STYLE 5:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE
- STYLE 6:  
PIN 1. ANODE  
2. CATHODE  
3. ANODE/CATHODE

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<b>DESCRIPTION:</b>	<b>SC-59-3 2.90x1.50x1.15, 1.90P</b>	<b>PAGE 1 OF 1</b>

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