

# M1MA151AT1, M1MA152AT1

Preferred Device

## Single Silicon Switching Diodes

These Silicon Epitaxial Planar 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  $t_{rr}$ , < 3.0 ns
- Low  $C_D$ , < 2.0 pF
- Pb-Free Packages are Available

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

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	40 80	Vdc
Peak Reverse Voltage	$V_{RM}$	40 80	Vdc
Forward Current	$I_F$	100	mAdc
Peak Forward Current	$I_{FM}$	225	mAdc
Peak Forward Surge Current	$I_{FSM}$ (Note 1)	500	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.

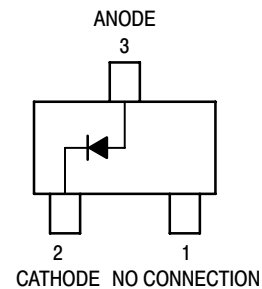
1.  $t = 1 \text{ SEC}$



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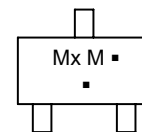
<http://onsemi.com>

SC-59 PACKAGE SINGLE SILICON  
SWITCHING DIODES 40/80 V-100 mA  
SURFACE MOUNT



SC-59  
CASE 318D

### MARKING DIAGRAM



Mx = Device Code  
x = A for 151  
B 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

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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

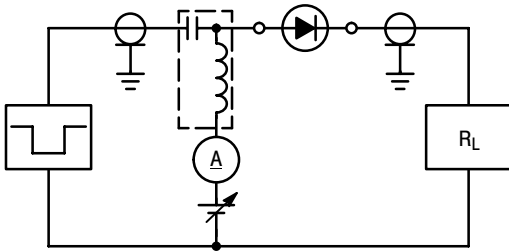
# M1MA151AT1, M1MA152AT1

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

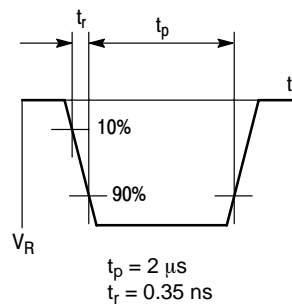
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current M1MA151AT1 M1MA152AT1	I <sub>R</sub>	V <sub>R</sub> = 35 V V <sub>R</sub> = 75 V	–	0.1	μA <sub>dc</sub>
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 100 mA	–	1.2	V <sub>dc</sub>
Reverse Breakdown Voltage M1MA151AT1 M1MA152AT1	V <sub>R</sub>	I <sub>R</sub> = 100 μA	40 80	–	V <sub>dc</sub>
Diode Capacitance	C <sub>D</sub>	V <sub>R</sub> = 0, f = 1.0 MHz	–	2.0	pF
Reverse Recovery Time (Figure 1)	t <sub>rr</sub> (Note 2)	I <sub>F</sub> = 10 mA, V <sub>R</sub> = 6.0 V, R <sub>L</sub> = 100 Ω, I <sub>rr</sub> = 0.1 I <sub>R</sub>	–	3.0	ns

2. t<sub>rr</sub> Test Circuit

### RECOVERY TIME EQUIVALENT TEST CIRCUIT



### INPUT PULSE



### OUTPUT PULSE

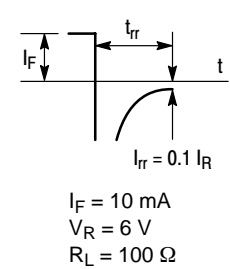


Figure 1. Reverse Recovery Time Equivalent Test Circuit

### ORDERING INFORMATION

Device	Package	Shipping†
M1MA151AT1	SC-59	3000 /Tape & Reel
M1MA151AT1G	SC-59 (Pb-Free)	
M1MA152AT1	SC-59	
M1MA152AT1G	SC-59 (Pb-Free)	

†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.

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

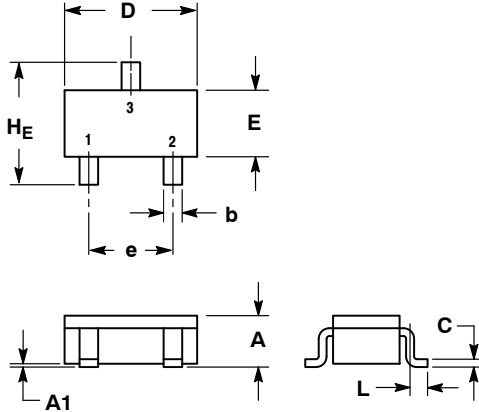
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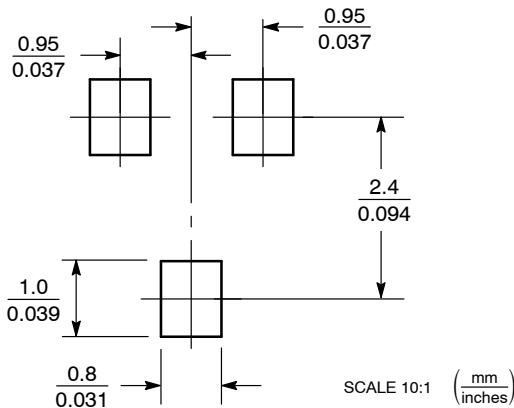
SC-59  
CASE 318D-04  
ISSUE H

DATE 28 JUN 2012

SCALE 2:1



### SOLDERING FOOTPRINT\*

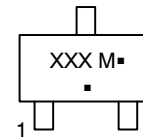


\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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

### 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.

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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DESCRIPTION:	SC-59	PAGE 1 OF 1

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