

# M1MA151KT1, M1MA152KT1

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
- Available in 8 mm Tape and Reel
  - Use M1MA151/2KT1 to order the 7 inch/3000 unit reel.
  - Use M1MA151/2KT3 to order the 13 inch/10,000 unit reel.
- Pb-Free Packages are Available

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

Rating		Symbol	Value	Unit
Reverse Voltage	M1MA151KT1	$V_R$	40	Vdc
	M1MA152KT1		80	
Peak Reverse Voltage	M1MA151KT1	$V_{RM}$	40	Vdc
	M1MA152KT1		80	
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	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

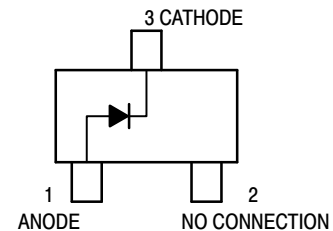
1.  $t = 1 \text{ SEC}$



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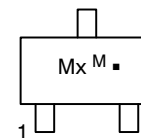
<http://onsemi.com>

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



SC-59  
CASE 318D

### MARKING DIAGRAM



- Mx = Device Code
  - x = H for 151  
I 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.

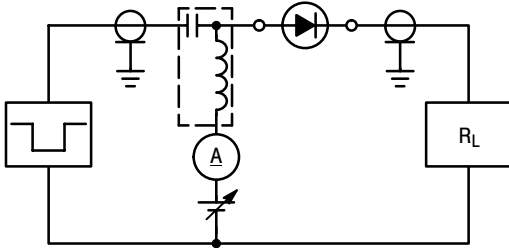
# M1MA151KT1, M1MA152KT1

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

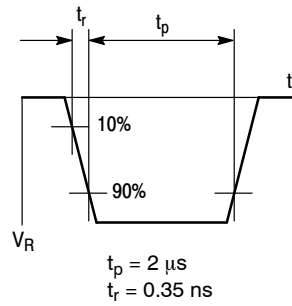
Characteristic		Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current	M1MA151KT1	I <sub>R</sub>	V <sub>R</sub> = 35 V	–	0.1	μA <sub>dc</sub>
	M1MA152KT1		V <sub>R</sub> = 75 V	–	0.1	
Forward Voltage		V <sub>F</sub>	I <sub>F</sub> = 100 mA	–	1.2	V <sub>dc</sub>
Reverse Breakdown Voltage	M1MA151KT1	V <sub>R</sub>	I <sub>R</sub> = 100 μA	40	–	V <sub>dc</sub>
	M1MA152KT1			80	–	
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

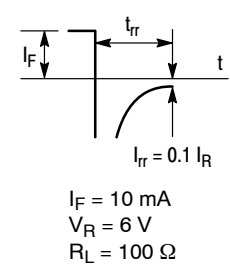


Figure 1. Reverse Recovery Time Equivalent Test Circuit

## ORDERING INFORMATION

Device	Package	Shipping†
M1MA151KT1	SC-59	3000 Units / Tape & Reel
M1MA151KT1G	SC-59 (Pb-Free)	3000 Units / Tape & Reel
M1MA152KT1	SC-59	3000 Units / Tape & Reel
M1MA152KT1G	SC-59 (Pb-Free)	3000 Units / 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.

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

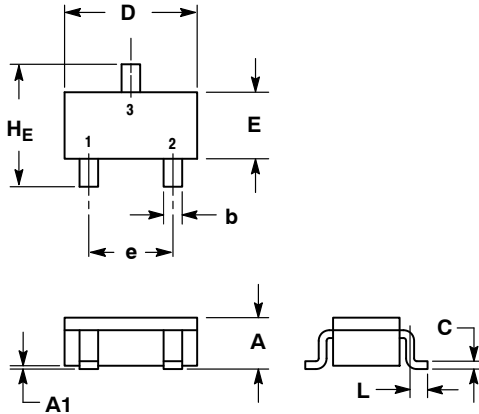
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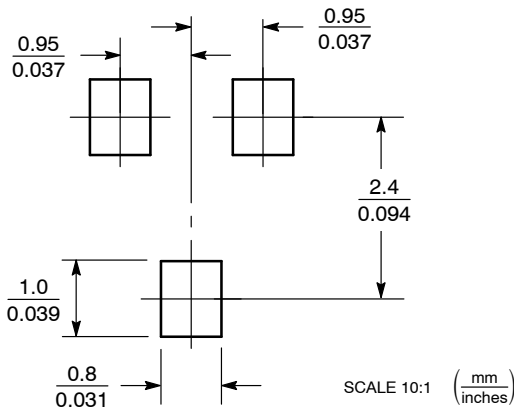
**SC-59**  
CASE 318D-04  
ISSUE H

DATE 28 JUN 2012

SCALE 2:1



### SOLDERING FOOTPRINT\*

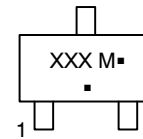


\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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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