

# M1MA151WK, M1MA152WK

## Common Cathode Silicon Dual Switching Diodes

These Common Cathode 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  $t_{rr}$ , < 3.0 ns
- Low  $C_D$ , < 2.0 pF
- S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free and are RoHS Compliant

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

Rating	Symbol	Value	Unit
Reverse Voltage M1MA151WK M1MA152WK	$V_R$	40 80	Vdc
Peak Reverse Voltage M1MA151WK M1MA152WK	$V_{RM}$	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 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.

1.  $t = 1$  sec



**ON Semiconductor**<sup>®</sup>

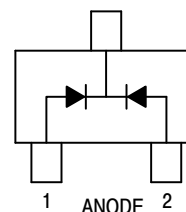
[www.onsemi.com](http://www.onsemi.com)

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

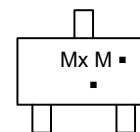


**SC-59  
CASE 318D  
STYLE 3**

3 CATHODE



### MARKING DIAGRAM



Mx = Device Code  
x = T for 151  
U 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 <sup>†</sup>
M1MA151WKT1G	SC-59 (Pb-Free)	3,000 / Tape & Reel
SM1MA151WKT1G	SC-59 (Pb-Free)	3,000 / Tape & Reel
M1MA152WKT1G	SC-59 (Pb-Free)	3,000 / Tape & Reel
NSVM1MA152WKT1G	SC-59 (Pb-Free)	3,000 / Tape & Reel

<sup>†</sup>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.

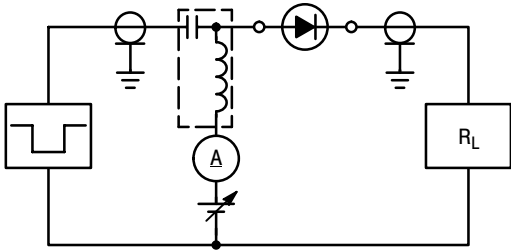
# M1MA151WK, M1MA152WK

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

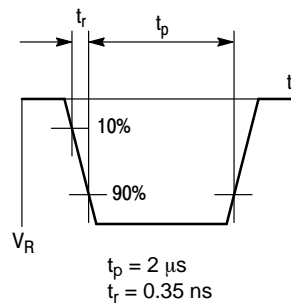
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current M1MA151WK M1MA152WK	$I_R$	$V_R = 35\text{ V}$ $V_R = 75\text{ V}$	– –	0.1 0.1	$\mu\text{A dc}$
Forward Voltage	$V_F$	$I_F = 100\text{ mA}$	–	1.2	Vdc
Reverse Breakdown Voltage M1MA151WK M1MA152WK	$V_R$	$I_R = 100\text{ }\mu\text{A}$	40 80	– –	Vdc
Diode Capacitance	$C_D$	$V_R = 0, f = 1.0\text{ MHz}$	–	2.0	pF
Reverse Recovery Time (Figure 1)	$t_{rr}$ (Note 2)	$I_F = 10\text{ mA}, V_R = 6.0\text{ V},$ $R_L = 100\text{ }\Omega, I_{rr} = 0.1 I_R$	–	3.0	ns

2.  $t_{rr}$  Test Circuit

### RECOVERY TIME EQUIVALENT TEST CIRCUIT



### INPUT PULSE



### OUTPUT PULSE

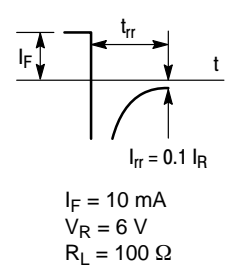


Figure 1. Reverse Recovery Time Equivalent Test Circuit

# M1MA151WK, M1MA152WK

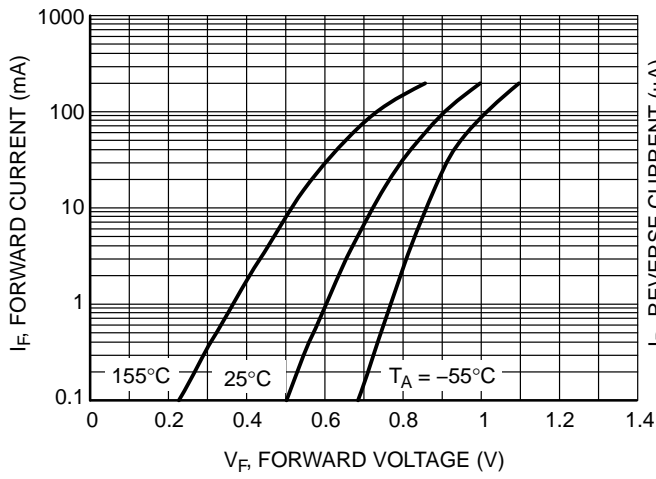


Figure 2. Forward Voltage

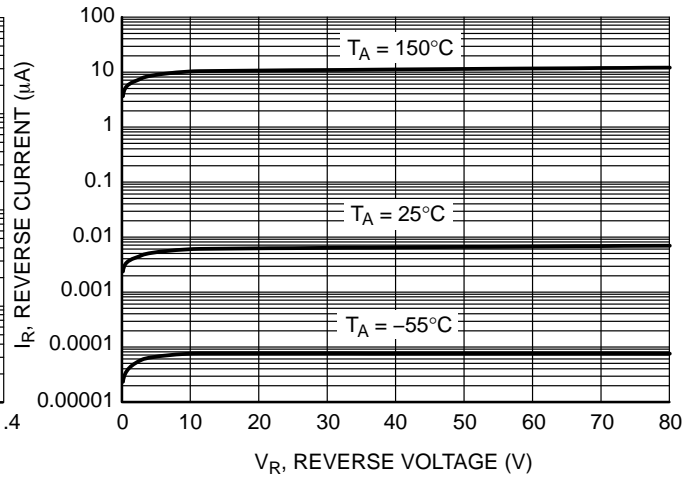


Figure 3. Reverse Leakage

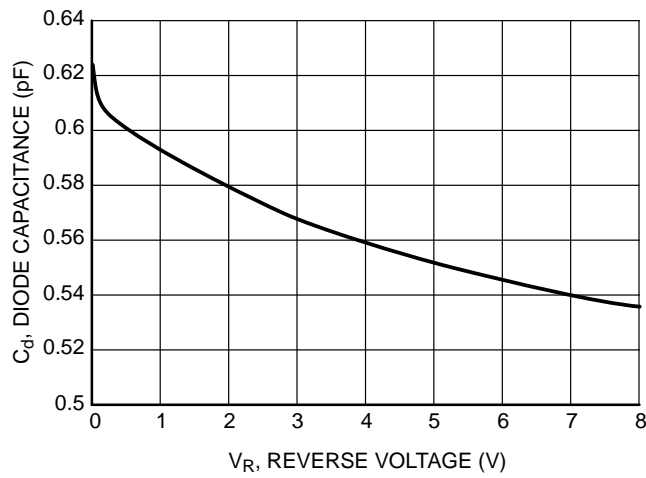


Figure 4. Diode Capacitance

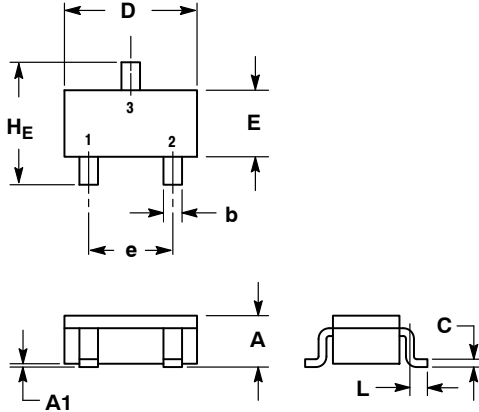
# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



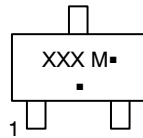
SCALE 2:1

SC-59  
CASE 318D-04  
ISSUE H

DATE 28 JUN 2012



### GENERIC MARKING DIAGRAM\*



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

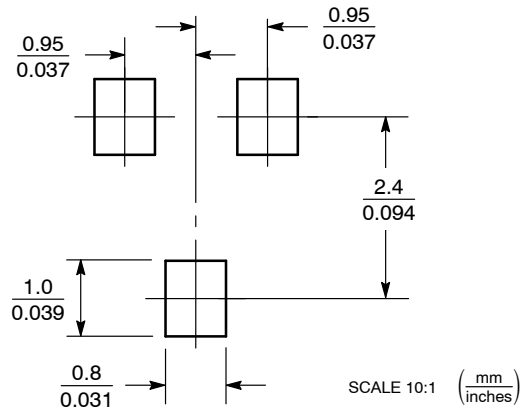
(\*Note: Microdot may be in either location)

\*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.

- 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

### RECOMMENDED SOLDERING FOOTPRINT\*



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

- |   |  |  |
|---|--|--|
| <p>STYLE 1:<br/>PIN 1. BASE<br/>2. EMITTER<br/>3. COLLECTOR</p> | <p>STYLE 2:<br/>PIN 1. ANODE<br/>2. N.C.<br/>3. CATHODE</p>    | <p>STYLE 3:<br/>PIN 1. ANODE<br/>2. ANODE<br/>3. CATHODE</p>         |
| <p>STYLE 4:<br/>PIN 1. CATHODE<br/>2. N.C.<br/>3. ANODE</p>     | <p>STYLE 5:<br/>PIN 1. CATHODE<br/>2. CATHODE<br/>3. ANODE</p> | <p>STYLE 6:<br/>PIN 1. ANODE<br/>2. CATHODE<br/>3. ANODE/CATHODE</p> |

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DESCRIPTION:	SC-59	PAGE 1 OF 1

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