M1MA151WKT1, M1MA152WKT1, SM1MA151WKT1G

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

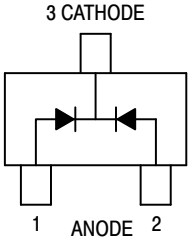
- Fast t_{rr}, < 3.0 ns
- Low C_D, < 2.0 pF
- AEC−Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb−Free Packages are Available*

ON Semiconductor®

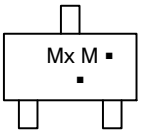
http://onsemi.com

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

SC−59
CASE 318D
STYLE 3



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.

MAXIMUM RATINGS (T_A = 25°C)

Rating	Symbol	Value	Unit
Reverse Voltage M1MA151WKT1, SM1MA151WKT1G M1MA152WKT1	V_R	 40 80	Vdc
Peak Reverse Voltage M1MA151WKT1, SM1MA151WKT1G M1MA152WKT1	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	°C
Storage Temperature	T_{stg}	−55 to +150	°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 sec

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

ORDERING INFORMATION

Device	Package	Shipping†
M1MA151WKT1	SC−59	3,000/Tape & Reel
M1MA151WKT1G	SC−59 (Pb−Free)	3,000/Tape & Reel
SM1MA151WKT1G	SC−59 (Pb−Free)	3,000/Tape & Reel
M1MA152WKT1	SC−59	3,000/Tape & Reel
M1MA152WKT1G	SC−59 (Pb−Free)	3,000/Tape & Reel

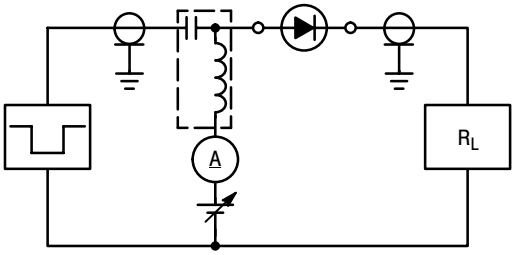
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

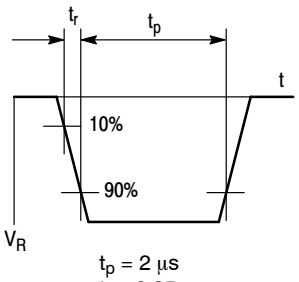
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current M1MA151WKT1, SM1MA151WKT1G M1MA152WKT1	I_R	 V_R = 35 V V_R = 75 V	 – –	 0.1 0.1	μAdc
Forward Voltage	V_F	I_F = 100 mA	–	1.2	Vdc
Reverse Breakdown Voltage M1MA151WKT1, SM1MA151WKT1G M1MA152WKT1	V_R	I_R = 100 μA	 40 80	 – –	Vdc
Diode Capacitance	C_D	V_R = 0, f = 1.0 MHz	–	2.0	pF
Reverse Recovery Time (Figure 1)	t_{rr} (Note 2)	I_F = 10 mA, V_R = 6.0 V, R_L = 100 Ω, I_{rr} = 0.1 I_R	–	3.0	ns

2. t_{rr} Test Circuit

RECOVERY TIME EQUIVALENT TEST CIRCUIT

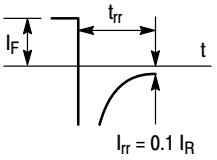


INPUT PULSE



t_p = 2 μs
t_r = 0.35 ns

OUTPUT PULSE



I_F = 10 mA
V_R = 6 V
R_L = 100 Ω

Figure 1. Reverse Recovery Time Equivalent Test Circuit

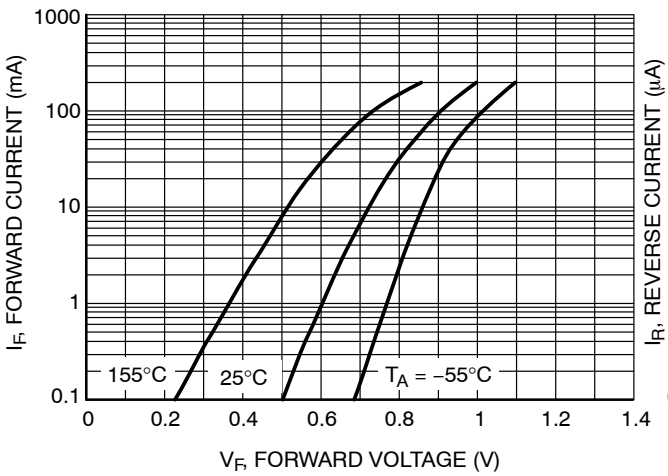


Figure 2. Forward Voltage

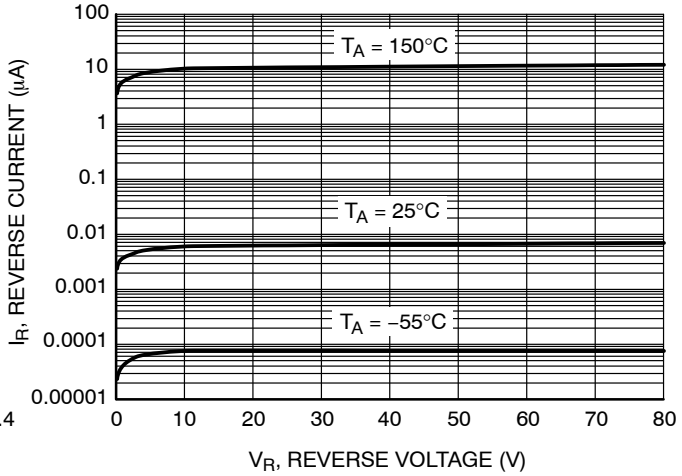


Figure 3. Reverse Leakage

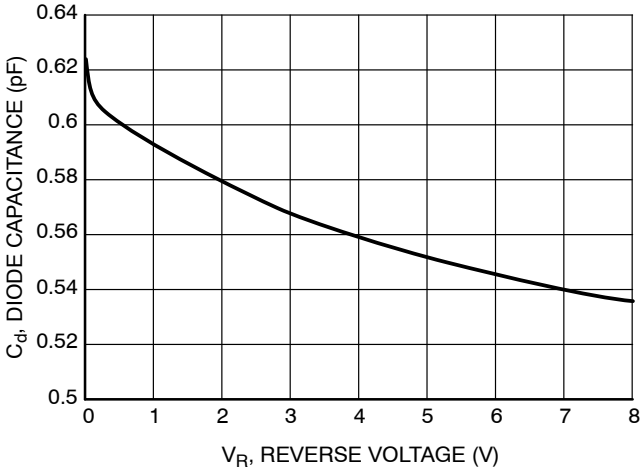
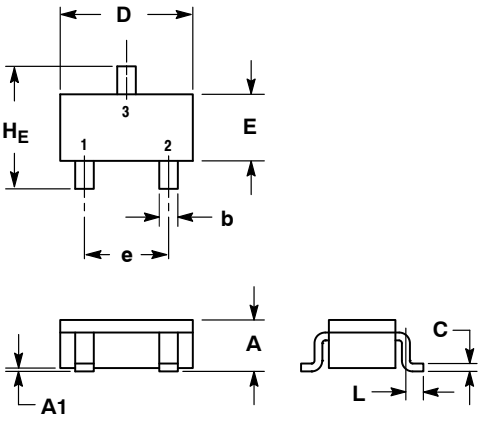


Figure 4. Diode Capacitance

PACKAGE DIMENSIONS

SC−59
CASE 318D−04
ISSUE H

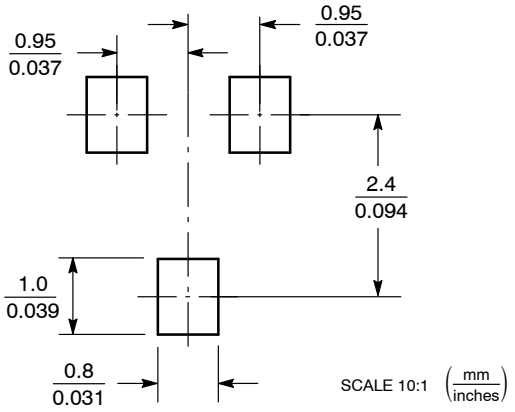


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS			INCHES		
DIM	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
H_E	2.50	2.80	3.00	0.099	0.110	0.118

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

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.

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

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**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative

M1MA151WKT1/D