Common Cathode Silicon Dual Switching Diodes

M1MA151WK, M1MA152WK

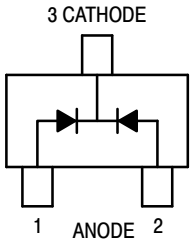
SC−59 PACKAGE SINGLE SILICON SWITCHING DIODES 40 V/80 V 100 mA SURFACE MOUNT

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.

SC−59
CASE 318D
STYLE 3

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°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

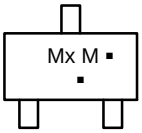
THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	−55 to +150	°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

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†
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

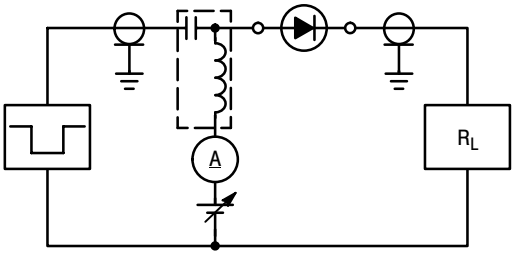
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

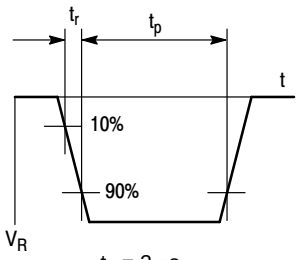
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current M1MA151WK M1MA152WK	I_R	 V_R = 35 V V_R = 75 V	 – –	 0.1 0.1	 μAdc
Forward Voltage	V_F	I_F = 100 mA	–	1.2	Vdc
Reverse Breakdown Voltage M1MA151WK M1MA152WK	V_R	I_R = 100 μA	 40 80	 – –	Vdc
Diode Capacitance	C_D	V_R = 0, f = 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

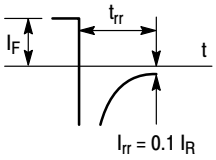


INPUT PULSE



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

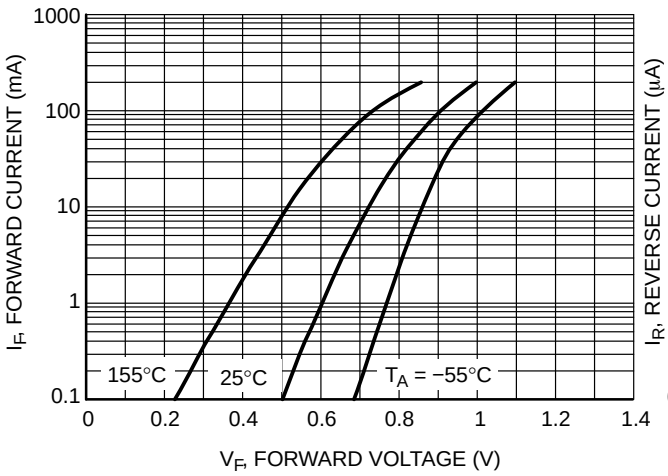


Figure 2. Forward Voltage

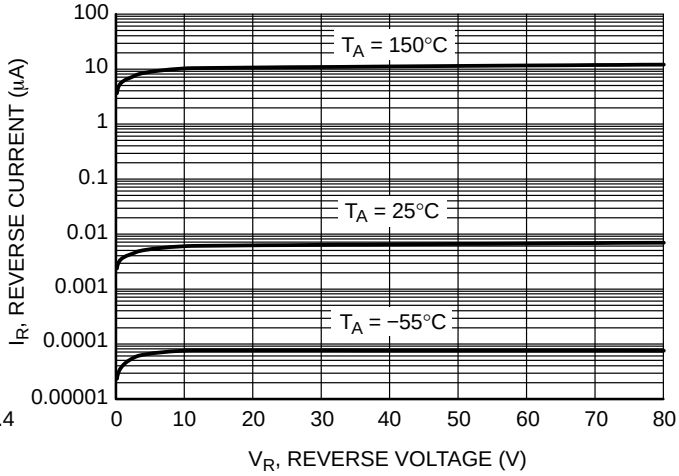


Figure 3. Reverse Leakage

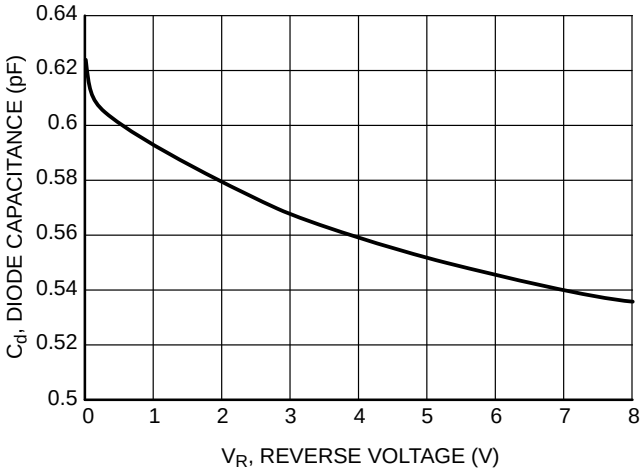
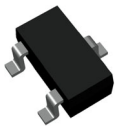
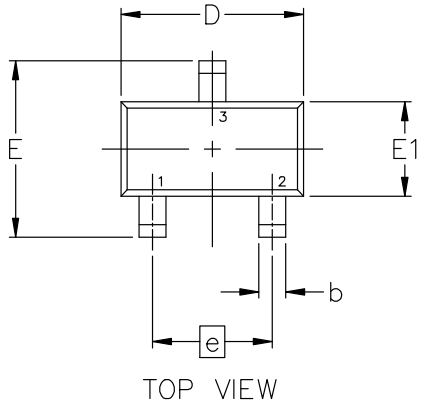


Figure 4. Diode Capacitance

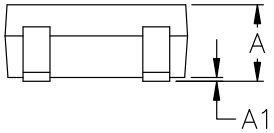


SC−59−3 2.90x1.50x1.15, 1.90P
CASE 318D
ISSUE J

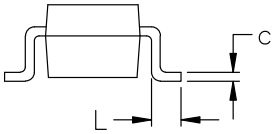
DATE 15 FEB 2024



TOP VIEW



SIDE VIEW

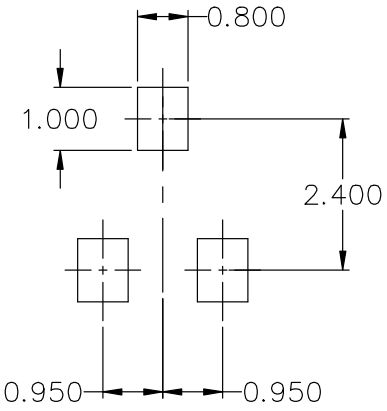


END VIEW

NOTES:

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

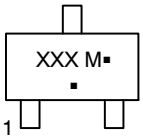
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.00	1.15	1.30
A1	0.01	0.06	0.10
b	0.35	0.43	0.50
c	0.09	0.14	0.18
D	2.70	2.90	3.10
E	2.50	2.80	3.00
E1	1.30	1.50	1.70
e	1.90 BSC		
L	0.20	0.40	0.60



RECOMMENDED MOUNTING 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.

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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DESCRIPTION:	**SC−59−3 2.90x1.50x1.15, 1.90P**	**PAGE 1 OF 1**

ADDITIONAL INFORMATION

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