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°C)

Rating	Symbol	Value	Unit
Reverse Voltage M1MA151AT1 M1MA152AT1	V_R	 40 80	Vdc
Peak Reverse Voltage M1MA151AT1 M1MA152AT1	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	°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

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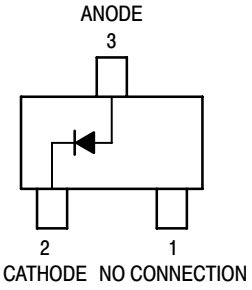
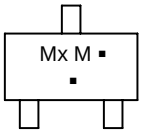
SC−59 PACKAGE SINGLE SILICON SWITCHING DIODES 40/80 V−100 mA SURFACE MOUNT



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.

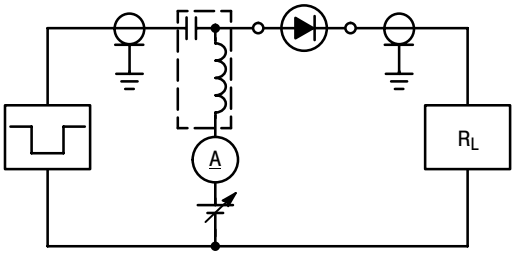
Preferred devices are recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

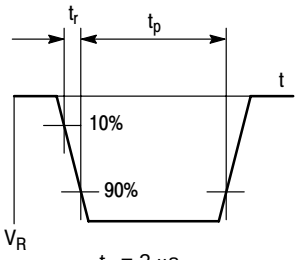
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current M1MA151AT1 M1MA152AT1	I_R	 V_R = 35 V V_R = 75 V	−	0.1	μAdc
Forward Voltage	V_F	I_F = 100 mA	−	1.2	Vdc
Reverse Breakdown Voltage M1MA151AT1 M1MA152AT1	V_R	I_R = 100 μA	 40 80	−	Vdc
Diode Capacitance	C_D	V_R = 0, f = 1.0 MHz	−	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

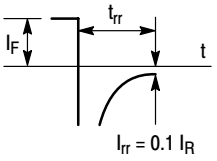


INPUT PULSE



t_p = 2 μs
t_r = 0.35 ns

OUTPUT PULSE



I_F = 10 mA
V_R = 6 V
R_L = 100 Ω

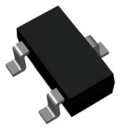
Figure 1. Reverse Recovery Time Equivalent Test Circuit

ORDERING INFORMATION

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

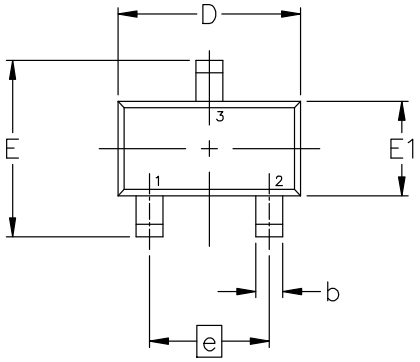
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

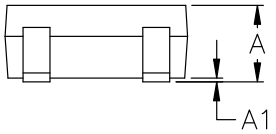


SC−59−3 2.90x1.50x1.15, 1.90P
CASE 318D
ISSUE J

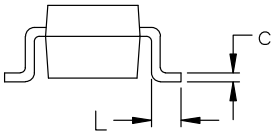
DATE 15 FEB 2024



TOP VIEW



SIDE VIEW

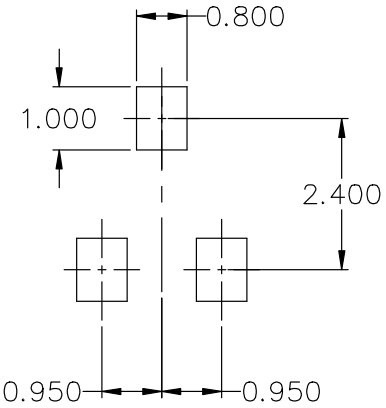


END VIEW

NOTES:

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

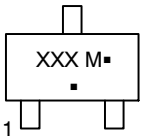
	MILLIMETERS		
DIM	MIN.	NOM.	MAX.
A	1.00	1.15	1.30
A1	0.01	0.06	0.10
b	0.35	0.43	0.50
c	0.09	0.14	0.18
D	2.70	2.90	3.10
E	2.50	2.80	3.00
E1	1.30	1.50	1.70
e	1.90 BSC		
L	0.20	0.40	0.60



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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