M1MA141WAT1, M1MA142WAT1

Preferred Device

Common Anode Silicon Dual Switching Diode

This Common Anode Silicon Epitaxial Planar Dual Diode is designed for use in ultra high speed switching applications. This device is housed in the SC−70 package which is designed for low power surface mount applications.

Features

- Fast t_{rr}, < 10 ns
- Low C_D, < 15 pF
- Pb−Free Package is Available

MAXIMUM RATINGS (T_A = 25°C)

Rating	Symbol	Value	Unit
Reverse Voltage M1MA141WAT1 M1MA142WAT1	V_R	 40 80	Vdc
Peak Reverse Voltage M1MA141WAT1 M1MA142WAT1	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 M1MA141WAT1 M1MA142WAT1	I_{FSM} (Note 1)	 500 750	mAdc

THERMAL CHARACTERISTICS

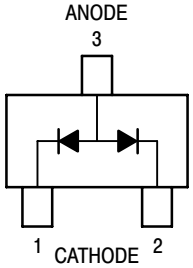
Rating	Symbol	Max	Unit
Power Dissipation	P_D	150	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	−55 ~ +150	°C

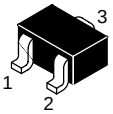
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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

1. t = 1 sec

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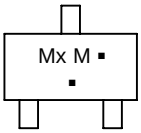
http://onsemi.com





SC−70 (SOT−323)
CASE 419
STYLE 4

MARKING DIAGRAM



Mx = Device Code
x = N for 141
O for 142
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†
M1MA141WAT1	SC−70	3000/Tape & Reel
M1MA141WAT1G	SC−70 (Pb−Free)	3000/Tape & Reel
M1MA142WAT1	SC−70	3000/Tape & Reel
M1MA142WAT1G	SC−70 (Pb−Free)	3000/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.

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

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic	Condition	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current M1MA141WAT1 M1MA142WAT1	 V_R = 35 V V_R = 75 V	I_R	−	0.1	μAdc
Forward Voltage	I_F = 100 mA	V_F	−	1.2	Vdc
Reverse Breakdown Voltage M1MA141WAT1 M1MA142WAT1	I_R = 100 μA	V_R	 40 80	−	Vdc
Diode Capacitance	V_R = 0, f = 1.0 MHz	C_D	−	15	pF
Reverse Recovery Time (Figure 1)	I_F = 10 mA, V_R = 6.0 V, R_L = 100 Ω, I_{rr} = 0.1 I_R	t_{rr} (Note 2)	−	10	ns

2. t_{rr} Test Circuit

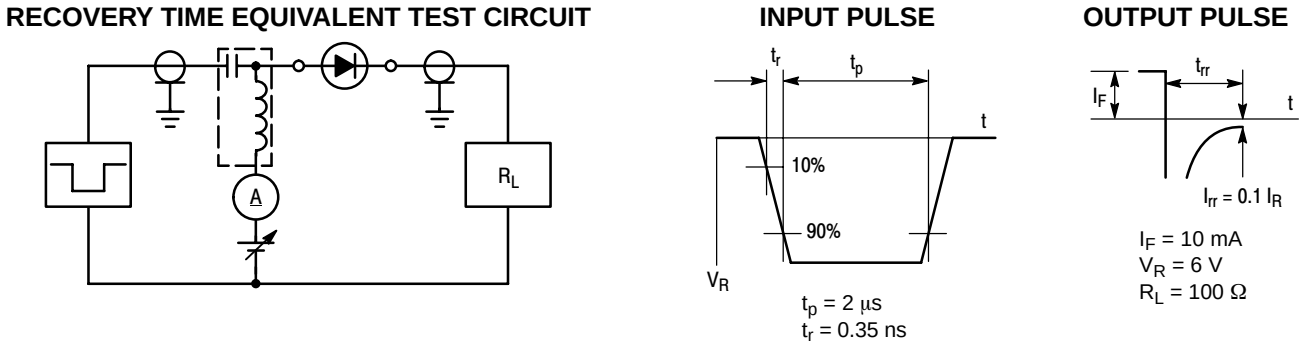


Figure 1. Recovery Time Equivalent Test Circuit

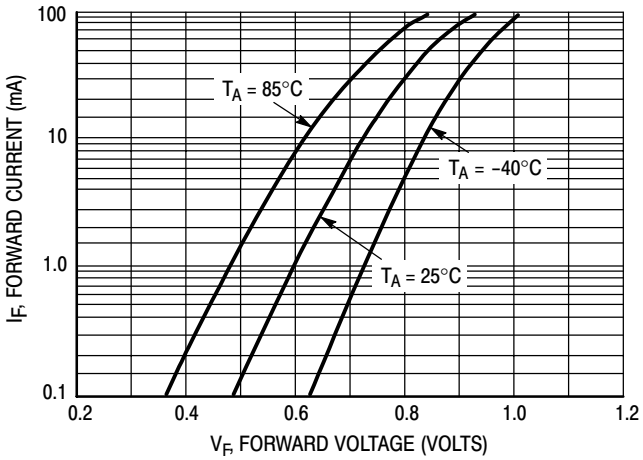


Figure 2. Forward Voltage

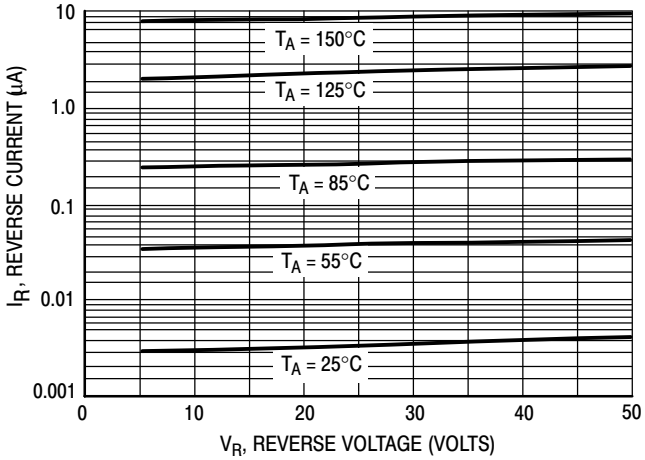


Figure 3. Reverse Current

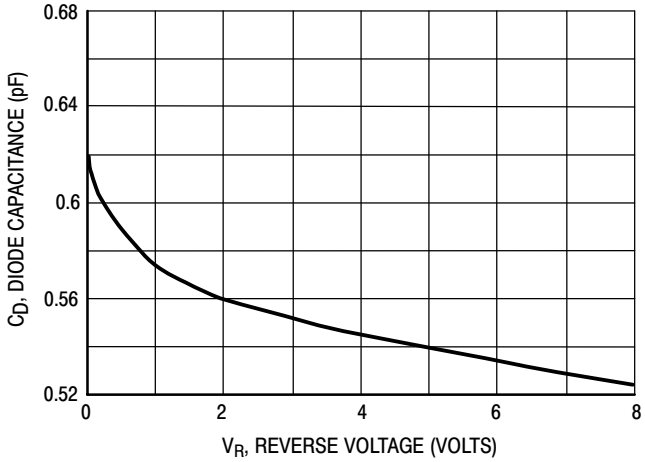
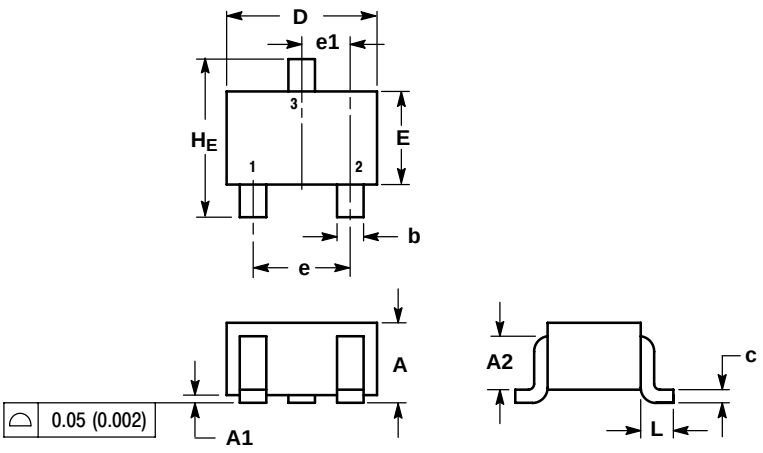


Figure 4. Diode Capacitance

PACKAGE DIMENSIONS

SC−70 (SOT−323)
CASE 419−04
ISSUE M

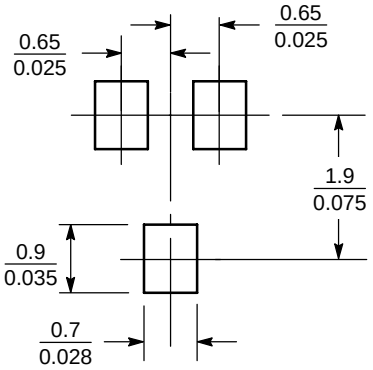


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2		0.7 REF			0.028 REF	
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1		0.65 BSC			0.026 BSC	
L		0.425 REF			0.017 REF	
H_E	2.00	2.10	2.40	0.079	0.083	0.095

STYLE 4:
PIN 1. CATHODE
2. CATHODE
3. ANODE

SOLDERING FOOTPRINT*



SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

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

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