

# 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

- Pb-Free Package is Available
- Fast  $t_{rr}$ , < 10 ns
- Low  $C_D$ , < 15 pF
- Available in 8 mm Tape and Reel

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

Rating	Symbol	Value	Unit	
Reverse Voltage	M1MA141WAT1	$V_R$	40	Vdc
	M1MA142WAT1		80	
Peak Reverse Voltage	M1MA141WAT1	$V_{RM}$	40	Vdc
	M1MA142WAT1		80	
Forward Current	Single	$I_F$	100	mAdc
	Dual		150	
Peak Forward Current	Single	$I_{FM}$	225	mAdc
	Dual		340	
Peak Forward Surge Current	Single	$I_{FSM}$ (Note 1)	500	mAdc
	Dual		750	

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.

### THERMAL CHARACTERISTICS

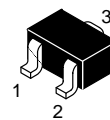
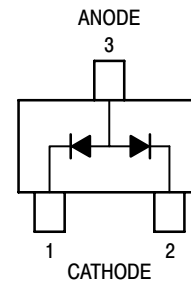
Rating	Symbol	Max	Unit
Power Dissipation	$P_D$	150	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

1.  $t = 1$  sec



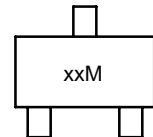
ON Semiconductor®

<http://onsemi.com>



SC-70 (SOT-323)  
CASE 419  
Style 4

### MARKING DIAGRAM



xx = MN for 141  
= MO for 142  
M = Date Code

### 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

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

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

# M1MA141WAT1, M1MA142WAT1

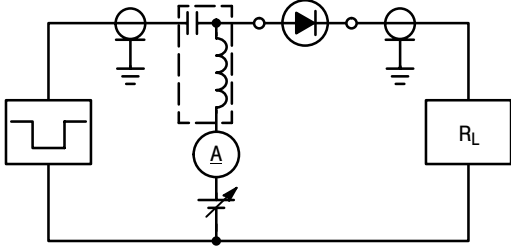
## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

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

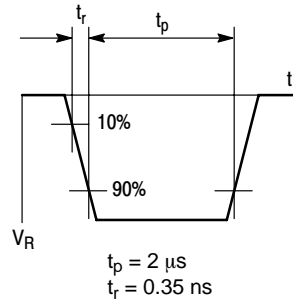
2.  $t_{rr}$  Test Circuit

# M1MA141WAT1, M1MA142WAT1

## RECOVERY TIME EQUIVALENT TEST CIRCUIT



## INPUT PULSE



## OUTPUT PULSE

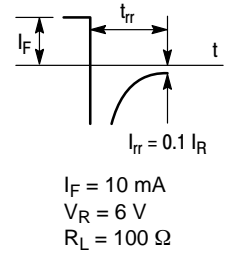


Figure 1. Recovery Time Equivalent Test Circuit

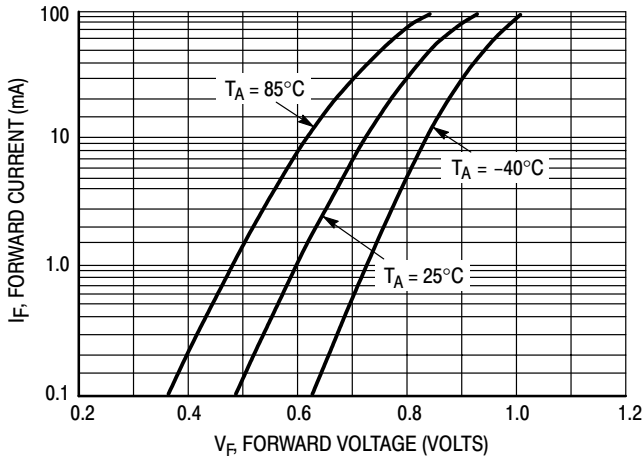


Figure 2. Forward Voltage

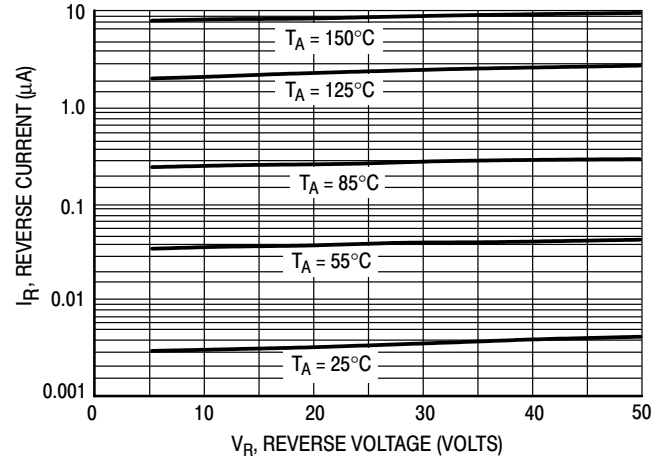


Figure 3. Reverse Current

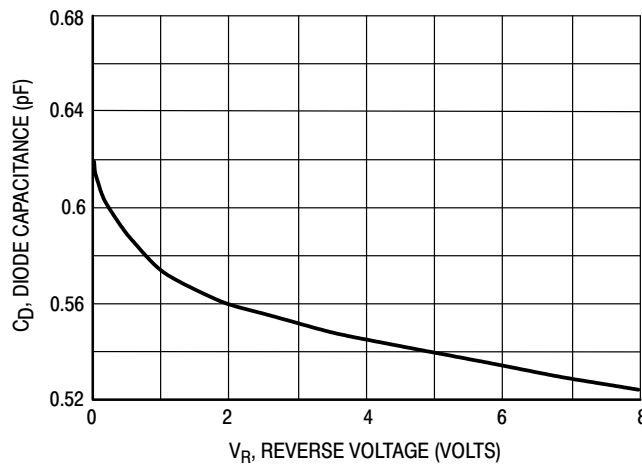
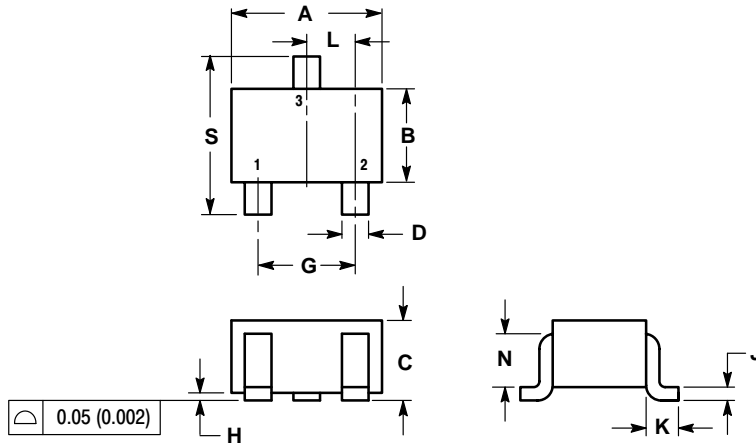


Figure 4. Diode Capacitance

# M1MA141WAT1, M1MA142WAT1

## PACKAGE DIMENSIONS

SC-70 (SOT-323)  
CASE 419-04  
ISSUE L

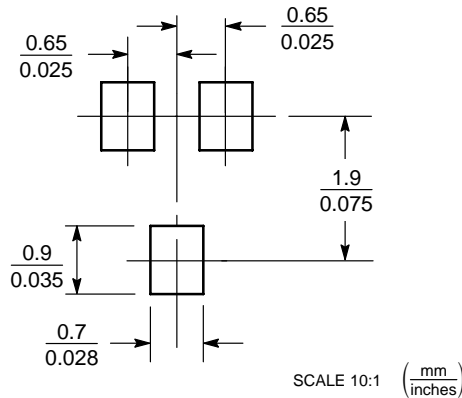


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.032	0.040	0.80	1.00
D	0.012	0.016	0.30	0.40
G	0.047	0.055	1.20	1.40
H	0.000	0.004	0.00	0.10
J	0.004	0.010	0.10	0.25
K	0.017	REF	0.425	REF
L	0.026	BSC	0.650	BSC
N	0.028	REF	0.700	REF
S	0.079	0.095	2.00	2.40

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

### 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.

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