

# M1MA141WKT1, M1MA142WKT1

Preferred Device

## Common Cathode Silicon Dual Switching Diode

This Common Cathode 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  $t_{rr}$ , < 3.0 ns
- Low  $C_D$ , < 2.0 pF
- Pb-Free Packages are Available

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

Rating	Symbol	Value	Unit
Reverse Voltage M1MA141WKT1 M1MA142WKT1	$V_R$	40 80	Vdc
Peak Reverse Voltage M1MA141WKT1 M1MA142WKT1	$V_{RM}$	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 M1MA141WKT1 M1MA142WKT1	$I_{FSM}$ (Note 1)	500 750	mAdc

### 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 to +150	$^\circ\text{C}$

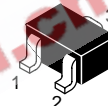
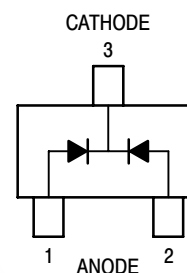
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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

1.  $t = 1 \text{ SEC}$



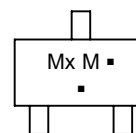
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SC-70 (SOT-323)  
CASE 419  
STYLE 5

### MARKING DIAGRAM



Mx = Device Code

x = T for 141

U 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†
M1MA141WKT1	SC-70	3000/Tape & Reel
M1MA141WKT1G	SC-70 (Pb-Free)	3000/Tape & Reel
M1MA142WKT1	SC-70	3000/Tape & Reel
M1MA142WKT1G	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.

## M1MA141WKT1, M1MA142WKT1

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

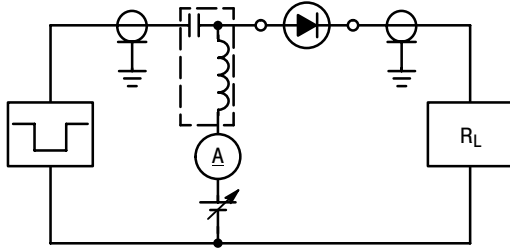
Characteristic	Condition	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current M1MA141WKT1 M1MA142WKT1	$V_R = 35\text{ V}$ $V_R = 75\text{ V}$	$I_R$	–	0.1	$\mu\text{A}$
Forward Voltage	$I_F = 100\text{ mA}$	$V_F$	–	1.2	Vdc
Reverse Breakdown Voltage M1MA141WKT1 M1MA142WKT1	$I_R = 100\ \mu\text{A}$	$V_R$	40 80	–	Vdc
Diode Capacitance	$V_R = 0, f = 1.0\text{ MHz}$	$C_D$	–	2.0	pF
Reverse Recovery Time (Figure 1)	$I_F = 10\text{ mA}, V_R = 6.0\text{ V},$ $R_L = 100\ \Omega, I_{rr} = 0.1 I_R$	$t_{rr}$ (Note 2)	–	3.0	ns

2.  $t_{rr}$  Test Circuit

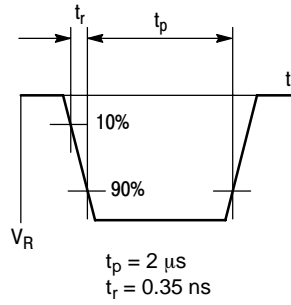
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# M1MA141WKT1, M1MA142WKT1

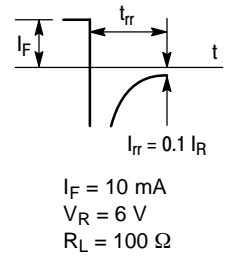
**RECOVERY TIME EQUIVALENT TEST CIRCUIT**



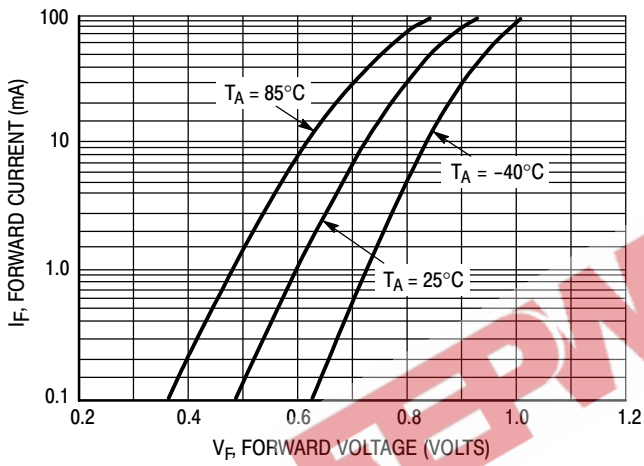
**INPUT PULSE**



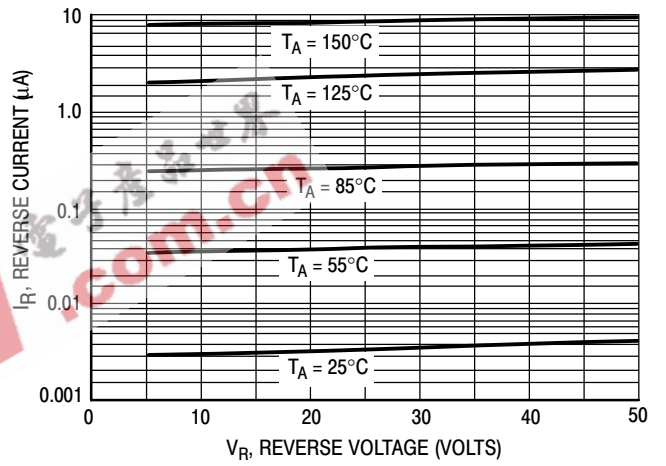
**OUTPUT PULSE**



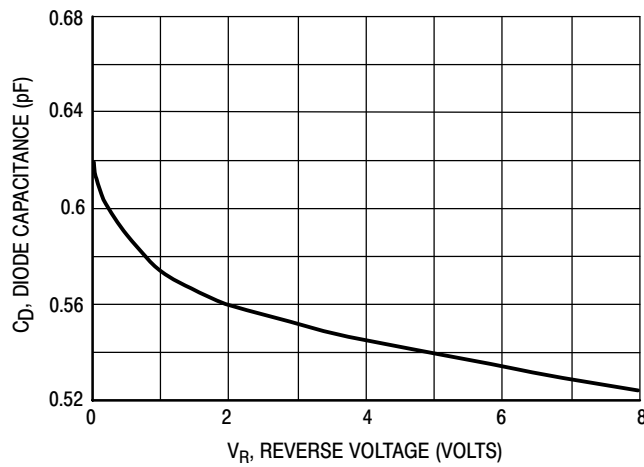
**Figure 1. Recovery Time Equivalent Test Circuit**



**Figure 2. Forward Voltage**



**Figure 3. Reverse Current**

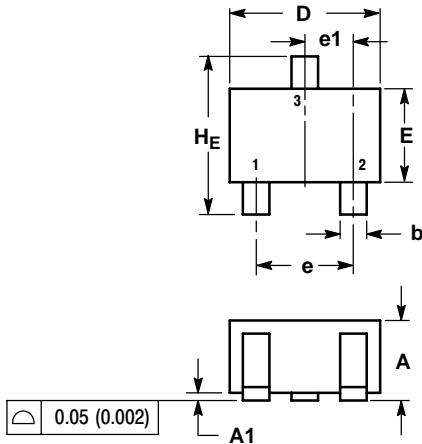


**Figure 4. Diode Capacitance**

# M1MA141WKT1, M1MA142WKT1

## PACKAGE DIMENSIONS

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

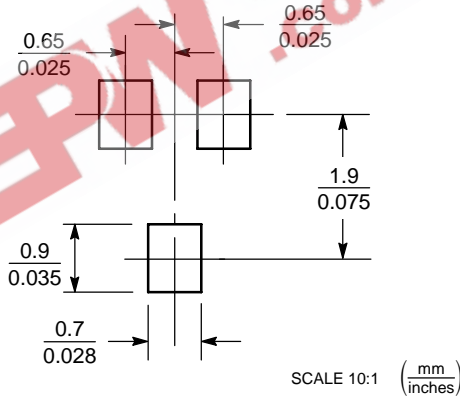


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	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		
HE	2.00	2.10	2.40	0.079	0.083	0.095

- STYLE 5:  
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.

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