

# M1MA141KT1, M1MA142KT1

Preferred Device

## Single Silicon Switching Diode

This Silicon Epitaxial Planar 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  $t_{rr}$ , < 3.0 ns
- Low  $C_D$ , < 2.0 pF
- Available in 8 mm Tape and Reel

Use M1MA141/2KT1 to order the 7 inch/3000 unit reel

Use M1MA141/2KT3 to order the 13 inch/10,000 unit reel

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

Rating		Symbol	Value	Unit
Reverse Voltage	M1MA141KT1	$V_R$	40	Vdc
	M1MA142KT1		80	
Peak Reverse Voltage	M1MA141KT1	$V_{RM}$	40	Vdc
	M1MA142KT1		80	
Forward Current		$I_F$	100	mAdc
Peak Forward Current		$I_{FM}$	225	mAdc
Peak Forward Surge Current		$I_{FSM}$ (Note 1)	500	mAdc

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

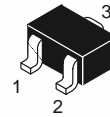
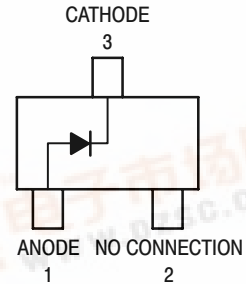
Rating	Symbol	Max	Unit
Power Dissipation	$P_D$	150	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

1.  $t = 1$  sec



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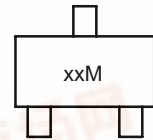
<http://onsemi.com>



SC-70 (SOT-323)  
CASE 419  
STYLE 2

xx = MH for 141  
= MI for 142  
M = Date Code

### MARKING DIAGRAM



### ORDERING INFORMATION

Device	Package	Shipping†
M1MA141KT1	SC-70	3000/Tape & Reel
M1MA142KT1	SC-70	3000/Tape & Reel
M1MA142KT1G	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 Specification Brochure, BRD8011/D.

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



## M1MA141KT1, M1MA142KT1

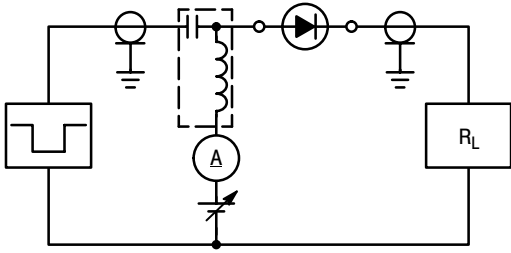
### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Characteristic		Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current	M1MA141KT1	$I_R$	$V_R = 35\text{ V}$	–	0.1	$\mu\text{A}_{dc}$
	M1MA142KT1		$V_R = 75\text{ V}$	–	0.1	
Forward Voltage		$V_F$	$I_F = 100\text{ mA}$	–	1.2	Vdc
Reverse Breakdown Voltage	M1MA141KT1	$V_R$	$I_R = 100\ \mu\text{A}$	40	–	Vdc
	M1MA142KT1			80	–	
Diode Capacitance		$C_D$	$V_R = 0, f = 1.0\text{ MHz}$	–	2.0	pF
Reverse Recovery Time (Figure 1)		$t_{rr}$ (Note 2)	$I_F = 10\text{ mA}, V_R = 6.0\text{ V},$ $R_L = 100\ \Omega, I_{rr} = 0.1 I_R$	–	3.0	ns

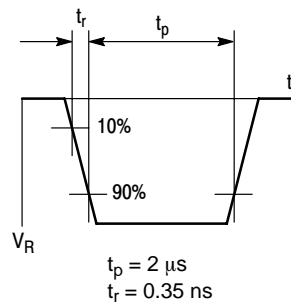
2.  $t_{rr}$  Test Circuit

# M1MA141KT1, M1MA142KT1

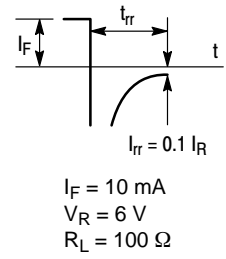
**RECOVERY TIME EQUIVALENT TEST CIRCUIT**



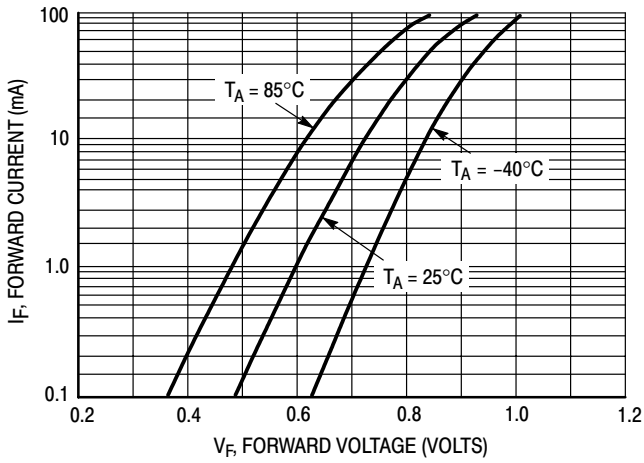
**INPUT PULSE**



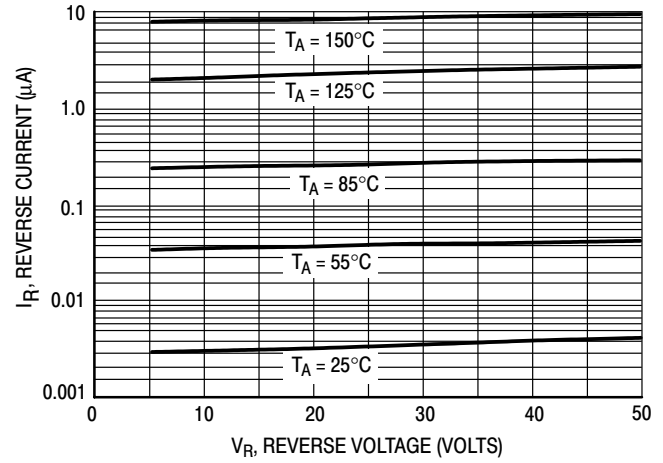
**OUTPUT PULSE**



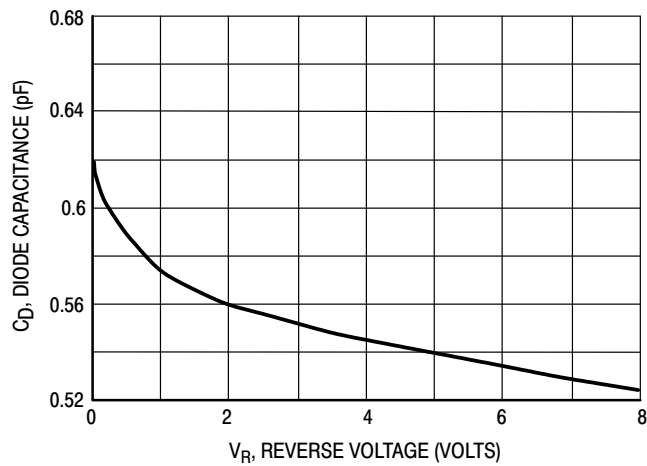
**Figure 1. Recovery Time Equivalent Test Circuit**



**Figure 2. Forward Voltage**



**Figure 3. Reverse Current**



**Figure 4. Diode Capacitance**

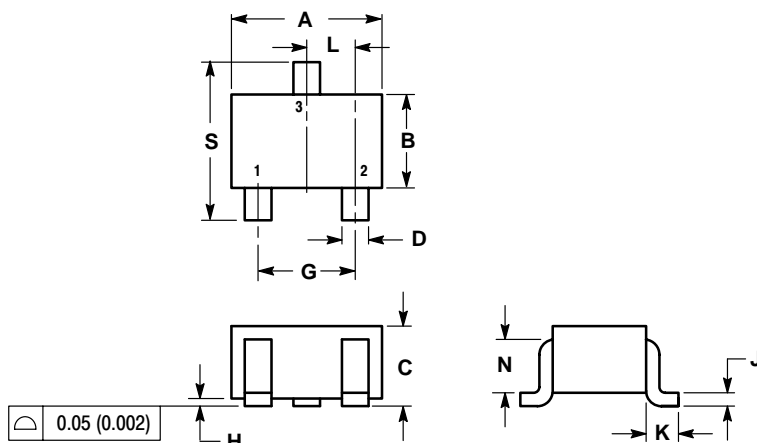
# M1MA141KT1, M1MA142KT1

## PACKAGE DIMENSIONS

### SC-70 (SOT-323)

CASE 419-04

ISSUE L



#### NOTES:

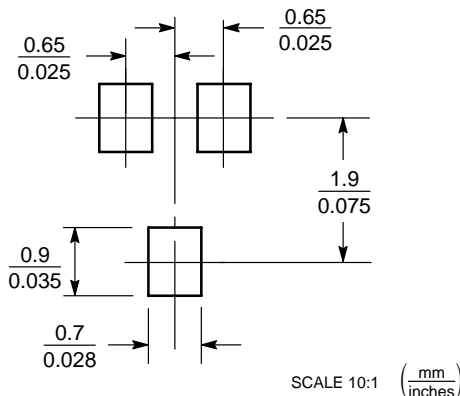
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

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 2:

1. ANODE
2. N.C.
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, SOLDERM/D.

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