

# M1MA141WKT1G, M1MA142WKT1G, SM1MA142WKT1G,



ON Semiconductor®

<http://onsemi.com>

## 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
- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant\*

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

Rating	Symbol	Value	Unit
Reverse Voltage M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	$V_R$	40 80	Vdc
Peak Reverse Voltage M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	$V_{RM}$	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 M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	$I_{FSM}$ (Note 1)	500 750	mAdc

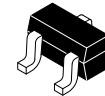
### THERMAL CHARACTERISTICS

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	$^\circ\text{C}$

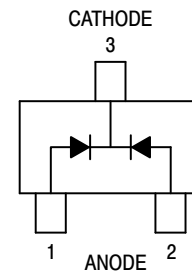
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1.  $t = 1$  SEC

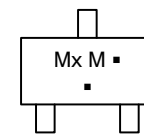
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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†
M1MA141WKT1G	SC-70 (Pb-Free)	3,000 / Tape & Reel
M1MA142WKT1G	SC-70 (Pb-Free)	3,000 / Tape & Reel
SM1MA142WKT1G	SC-70 (Pb-Free)	3,000 / 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.

# M1MA141WKT1G, M1MA142WKT1G, SM1MA142WKT1G,

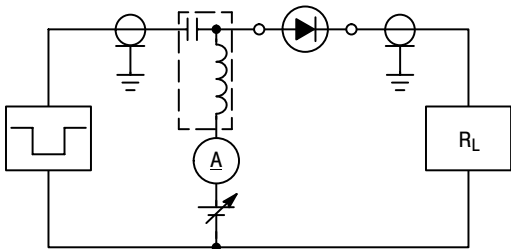
## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Characteristic	Condition	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	$V_R = 35\text{ V}$ $V_R = 75\text{ V}$	$I_R$	– –	0.1 0.1	$\mu\text{A}_{dc}$
Forward Voltage	$I_F = 100\text{ mA}$	$V_F$	–	1.2	Vdc
Reverse Breakdown Voltage M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	$I_R = 100\ \mu\text{A}$	$V_R$	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

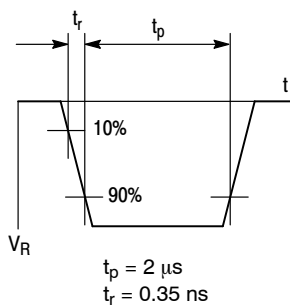
2.  $t_{rr}$  Test Circuit

M1MA141WKT1G, M1MA142WKT1G, SM1MA142WKT1G,

RECOVERY TIME EQUIVALENT TEST CIRCUIT



INPUT PULSE



OUTPUT PULSE

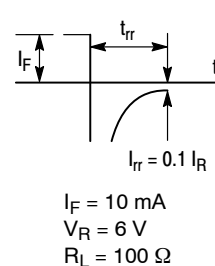


Figure 1. Recovery Time Equivalent Test Circuit

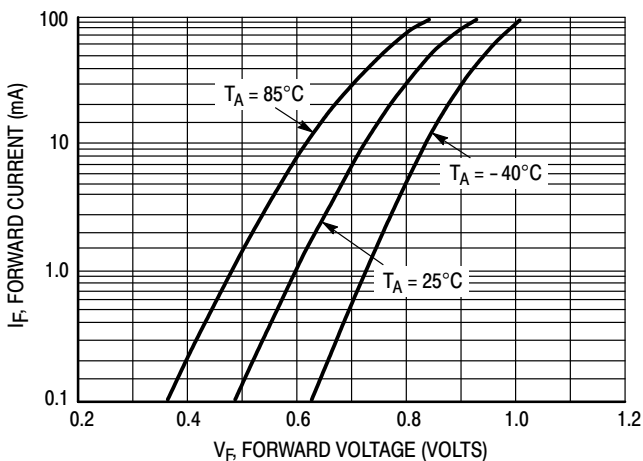


Figure 2. Forward Voltage

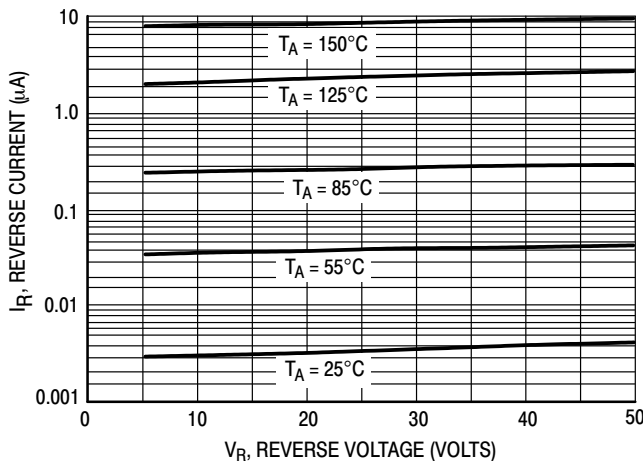


Figure 3. Reverse Current

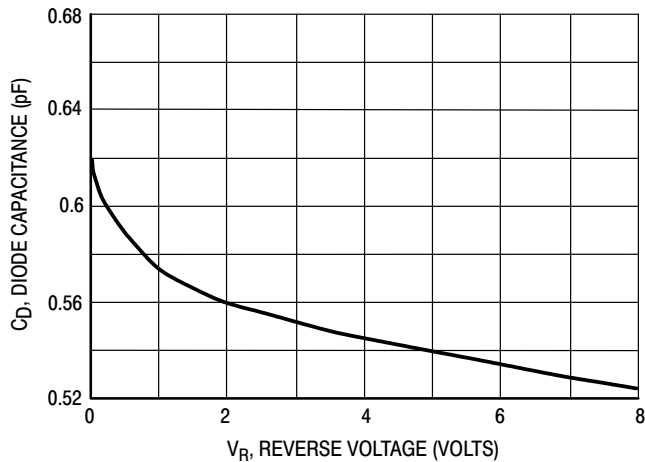
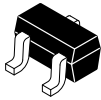


Figure 4. Diode Capacitance

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

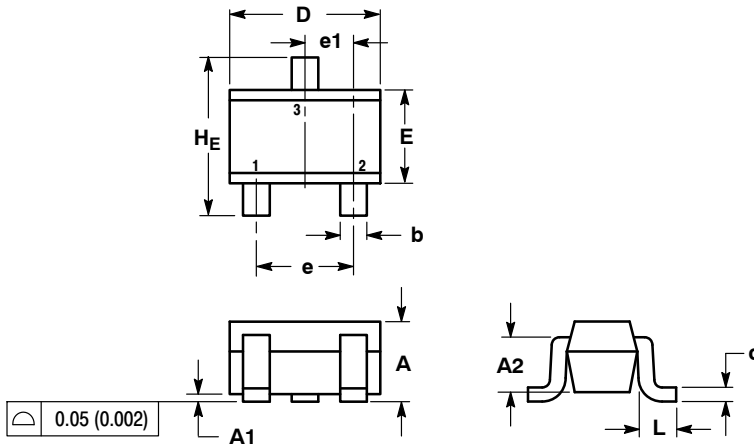
ON Semiconductor®



SCALE 4:1

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

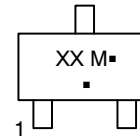
DATE 11 NOV 2008



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	0.70 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	0.20	0.38	0.56	0.008	0.015	0.022
HE	2.00	2.10	2.40	0.079	0.083	0.095

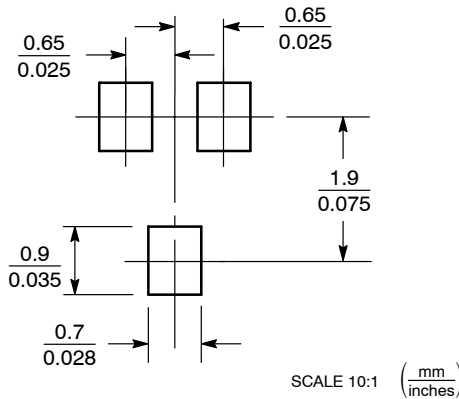
### GENERIC MARKING DIAGRAM



XX = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

\*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.

### SOLDERING FOOTPRINT\*



SCALE 10:1 (mm/inches)

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

STYLE 1:  
CANCELLED

STYLE 2:  
PIN 1. ANODE  
2. N.C.  
3. CATHODE

STYLE 3:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

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

STYLE 5:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 6:  
PIN 1. EMITTER  
2. BASE  
3. COLLECTOR

STYLE 7:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 8:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN


STYLE 9:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

STYLE 10:  
PIN 1. CATHODE  
2. ANODE  
3. ANODE-CATHODE

STYLE 11:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

<b>DOCUMENT NUMBER:</b>	<b>98ASB42819B</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>SC-70 (SOT-323)</b>	<b>PAGE 1 OF 1</b>

ON Semiconductor and ON are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Markings.pdf](http://www.onsemi.com/site/pdf/Patent-Markings.pdf). ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Email Requests to: [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

ON Semiconductor Website: [www.onsemi.com](http://www.onsemi.com)

### TECHNICAL SUPPORT

North American Technical Support:  
Voice Mail: 1 800-282-9855 Toll Free USA/Canada  
Phone: 011 421 33 790 2910

### Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for ON Semiconductor manufacturer:*

Other Similar products are found below :

[1.5SMC82AT3G](#) [74LCX574WM](#) [STK621-068C-E](#) [KAF-0402-ABA-CD-B2](#) [NBXSBA017LN1TAG](#) [KAF-3200-ABA-CP-B2](#) [STK621-728S-E](#) [AMIS30621AUA](#) [STK531U340A-E](#) [STK760-304-E](#) [FJAF6810DTU](#) [DBD250G](#) [STK621-713-E](#) [TIP115](#) [LB11847-E](#) [NBXHBA017LN1TAG](#) [LV8736V-MPB-H](#) [NCP694H12HT1G](#) [LA4631VC-XE](#) [CAT1025WI-25-G](#) [NDF04N60ZG-001](#) [LA78040B-S-E](#) [NGTB30N120IHLWG](#) [LA6584M-MPB-E](#) [NVB60N06T4G](#) [LA6245P-CL-TLM-E](#) [STK621-043D-E](#) [BTA30H-600CW3G](#) [NBXHBA017LNHTAG](#) [P6SMB100AT3G](#) [NCP1129AP100G](#) [LV8406T-TLM-E](#) [MC100EL13DWG](#) [NGTB30N60SWG](#) [FW217A-TL-2WX](#) [FGPF4533](#) [MC33201DG](#) [KA78L05AZTA](#) [KA378R33TU](#) [FST3126MX](#) [LV4904V-MPB-E](#) [STK672-400](#) [SBM30-03-TR-E](#) [NCP1398BDR2G](#) [BTA25H-600CW3G](#) [LC89057W-VF4A-E](#) [NGB8206ANTF4G](#) [NB7VQ58MMNG](#) [CPH6531-TL-E](#) [NCP4683DSQ28T1G](#)