

Single Silicon Switching Diode

M1MA141KT1G, M1MA142KT1G

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

- Fast t_{TR} , < 3.0 ns
- Low C_D , < 2.0 pF
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (T_A = 25°C)

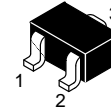
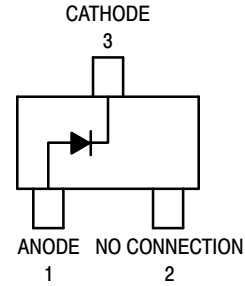
Rating	Symbol	Value	Unit
Reverse Voltage M1MA141KT1 M1MA142KT1	V _R	40 80	Vdc
Peak Reverse Voltage M1MA141KT1 M1MA142KT1	V _{RM}	40 80	Vdc
Forward Current	I _F	100	mAdc
Peak Forward Current	I _{FM}	225	mAdc
Peak Forward Surge Current	I _{FSM} (Note 2)	500	mAdc

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

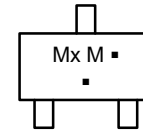
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

2. t = 1 sec



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

MARKING DIAGRAM



Mx = Device Code
x = H for 141
I 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†
M1MA141KT1G	SC-70 (Pb-Free)	3000/Tape & Reel

DISCONTINUED (Note 1)

M1MA142KT1G	SC-70 (Pb-Free)	3000/Tape & Reel
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†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.

1. **DISCONTINUED:** This device is not recommended for new design. Please contact your onsemi representative for information. The most current information on this device may be available on www.onsemi.com.

M1MA141KT1G, M1MA142KT1G

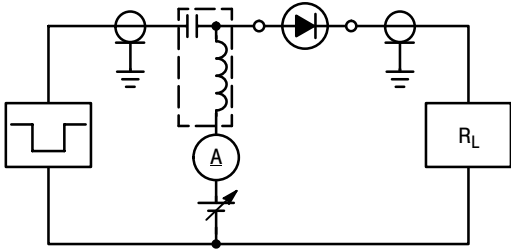
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Characteristic	Condition	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current M1MA141KT1 M1MA142KT1	$V_R = 35\text{ V}$ $V_R = 75\text{ V}$	I_R	–	0.1	μA_{dc}
Forward Voltage	$I_F = 100\text{ mA}$	V_F	–	1.2	Vdc
Reverse Breakdown Voltage M1MA141KT1 M1MA142KT1	$I_R = 100\ \mu\text{A}$	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 3)	–	3.0	ns

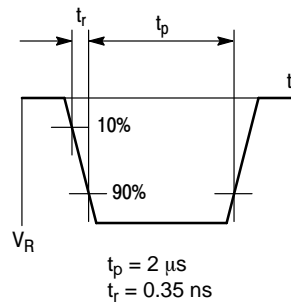
3. t_{rr} Test Circuit

M1MA141KT1G, M1MA142KT1G

RECOVERY TIME EQUIVALENT TEST CIRCUIT



INPUT PULSE



OUTPUT PULSE

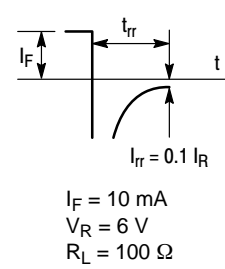


Figure 1. Recovery Time Equivalent Test Circuit

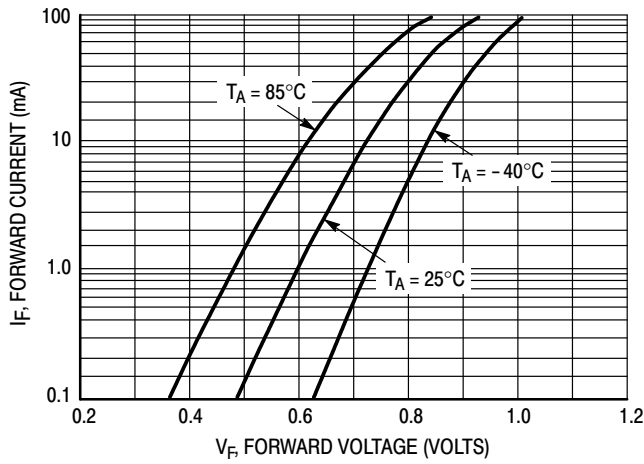


Figure 2. Forward Voltage

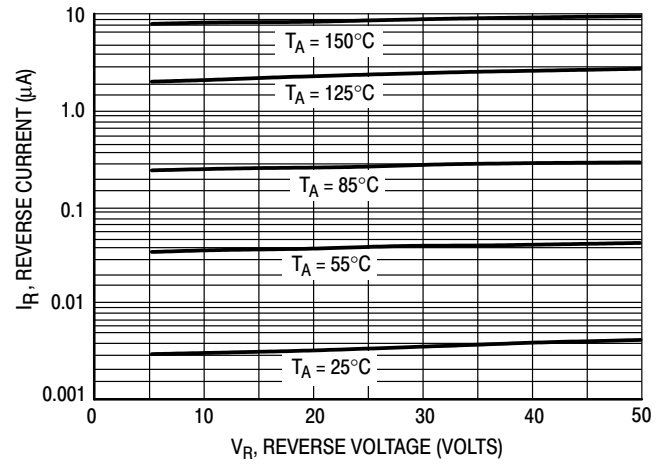


Figure 3. Reverse Current

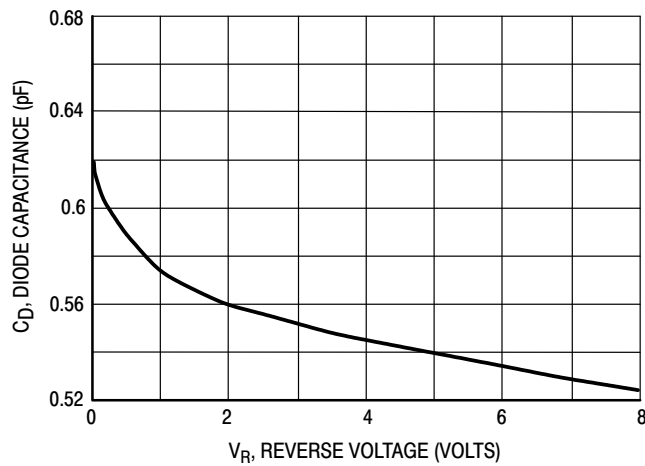
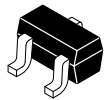


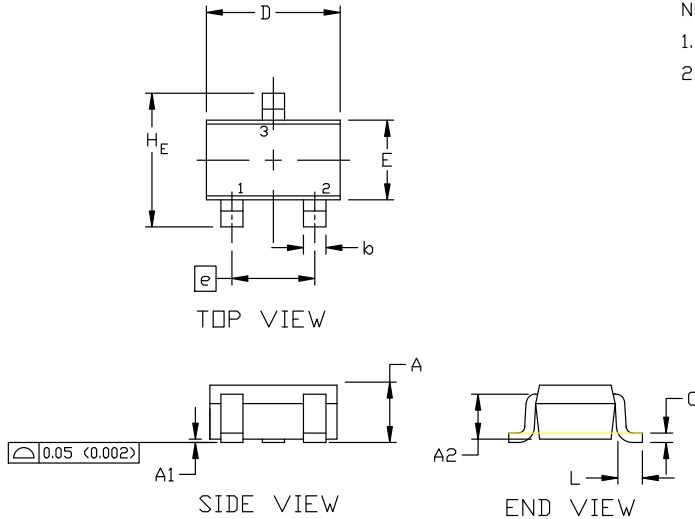
Figure 4. Diode Capacitance



SCALE 4:1

SC-70 (SOT-323)
CASE 419
ISSUE R

DATE 11 OCT 2022

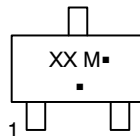


NOTES:

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

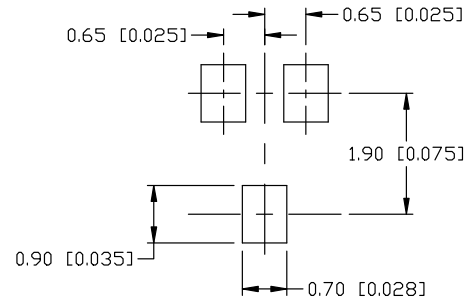
DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF			0.028 BSC		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.00	2.20	0.071	0.080	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	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
H _E	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. Some products may not follow the Generic Marking.



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

SOLDERING FOOTPRINT

- | | | | | | |
|---|---|---|--|---|---|
| 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 |

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