M1MA141KT1, M1MA142KT1

Preferred Device

Single Silicon Switching Diode

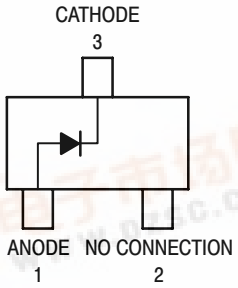
This Silicon Epitaxial Planar Diode is designed for use in ultra high speed switching applications. This device is housed in the SC−70 package which is designed for low power surface mount applications.

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

ON Semiconductor®

http://onsemi.com



MAXIMUM RATINGS (T_A = 25°C)

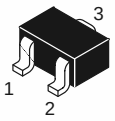
Rating		Symbol	Value	Unit
Reverse Voltage	M1MA141KT1	V_R	40	Vdc
	M1MA142KT1		80	
Peak Reverse Voltage	M1MA141KT1	V_{RM}	40	Vdc
	M1MA142KT1		80	
Forward Current		I_F	100	mAdc
Peak Forward Current		I_{FM}	225	mAdc
Peak Forward Surge Current		I_{FSM} (Note 1)	500	mAdc

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

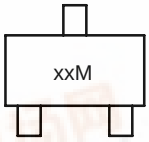
Rating	Symbol	Max	Unit
Power Dissipation	P_D	150	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	−55 ~ +150	°C

1. t = 1 sec



SC−70 (SOT−323)
CASE 419
STYLE 2

MARKING DIAGRAM



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

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.

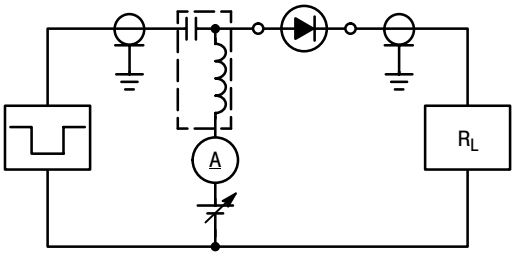
Preferred devices are recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

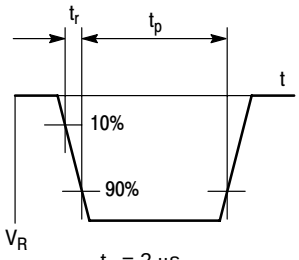
Characteristic		Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current	M1MA141KT1	I_R	V_R = 35 V	−	0.1	μAdc
	M1MA142KT1		V_R = 75 V	−	0.1	
Forward Voltage		V_F	I_F = 100 mA	−	1.2	Vdc
Reverse Breakdown Voltage	M1MA141KT1	V_R	I_R = 100 μA	40	−	Vdc
	M1MA142KT1			80	−	
Diode Capacitance		C_D	V_R =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

2. t_{rr} Test Circuit

RECOVERY TIME EQUIVALENT TEST CIRCUIT

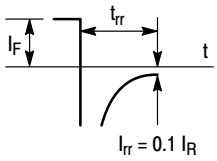


INPUT PULSE



t_p = 2 μs
t_r = 0.35 ns

OUTPUT PULSE



I_F = 10 mA
V_R = 6 V
R_L = 100 Ω

Figure 1. Recovery Time Equivalent Test Circuit

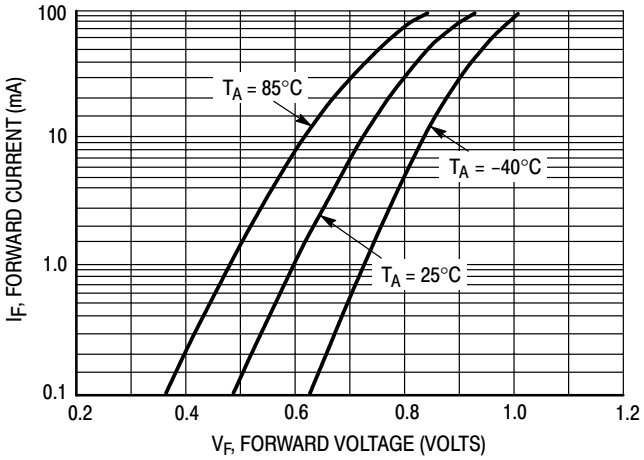


Figure 2. Forward Voltage

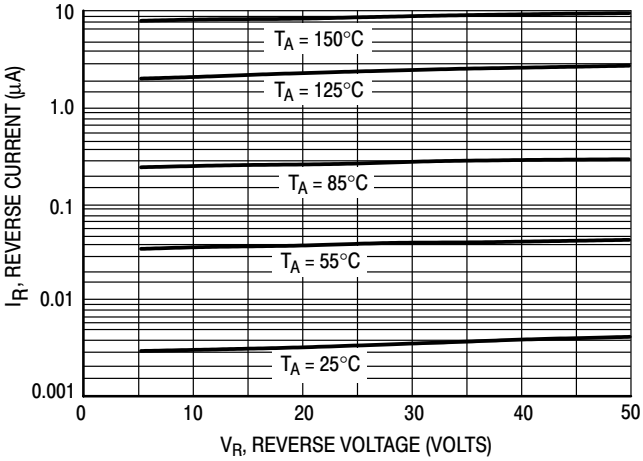


Figure 3. Reverse Current

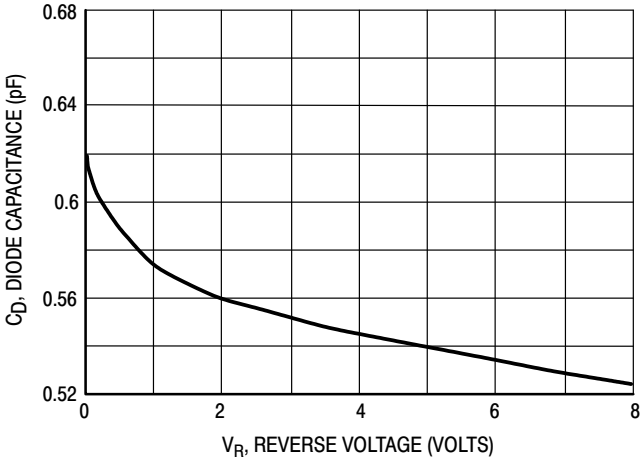
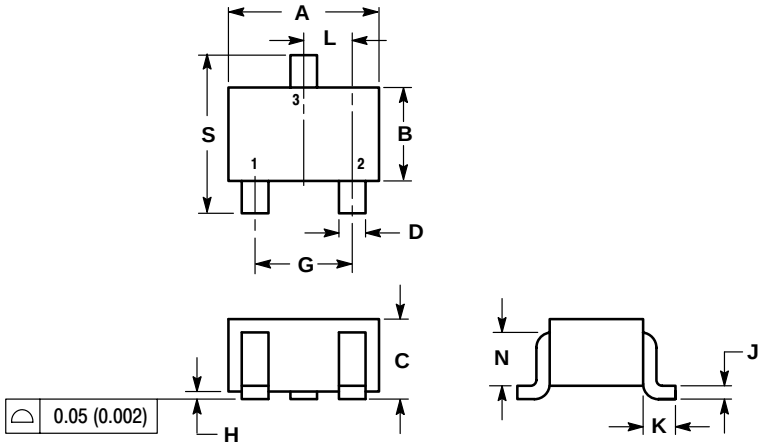


Figure 4. Diode Capacitance

M1MA141KT1, M1MA142KT1

PACKAGE DIMENSIONS

SC−70 (SOT−323)
CASE 419−04
ISSUE L

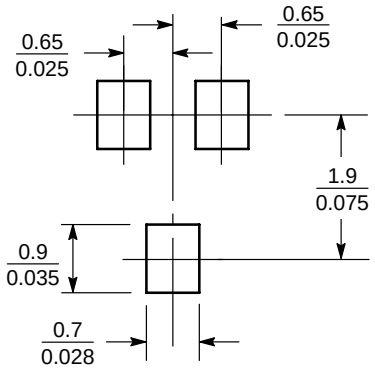


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	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:
PIN 1. ANODE
2. N.C.
3. CATHODE

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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
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