M1MA141WKT1G, M1MA142WKT1G, SM1MA142WKT1G,

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°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	°C
Storage Temperature	T_{stg}	−55 to +150	°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.

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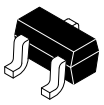
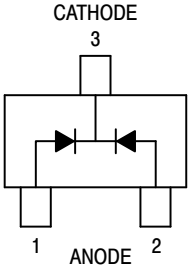
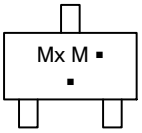
http://onsemi.com



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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic	Condition	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	V_R = 35 V V_R = 75 V	I_R	 – –	 0.1 0.1	μAdc
Forward Voltage	I_F = 100 mA	V_F	–	1.2	Vdc
Reverse Breakdown Voltage M1MA141WKT1G M1MA142WKT1G, SM1MA142WKT1G	I_R = 100 μA	V_R	 40 80	 – –	Vdc
Diode Capacitance	V_R = 0, f = 1.0 MHz	C_D	–	2.0	pF
Reverse Recovery Time (Figure 1)	I_F = 10 mA, V_R = 6.0 V, R_L = 100 Ω, I_{rr} = 0.1 I_R	t_{rr} (Note 2)	–	3.0	ns

2. t_{rr} Test Circuit

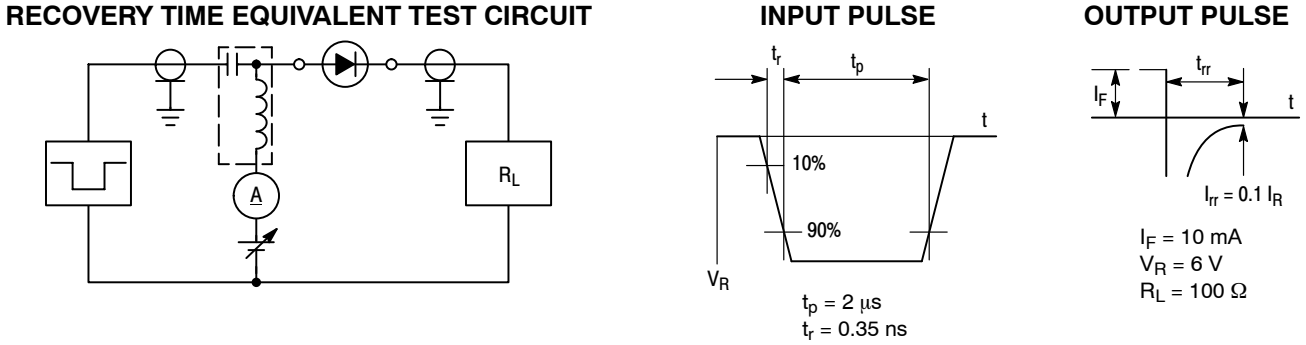


Figure 1. Recovery Time Equivalent Test Circuit

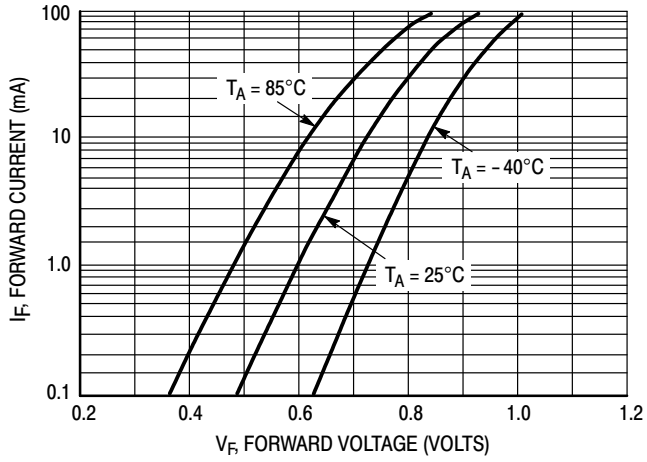


Figure 2. Forward Voltage

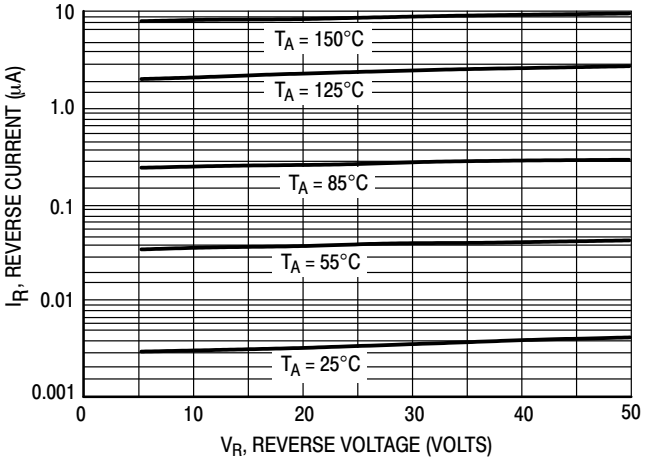


Figure 3. Reverse Current

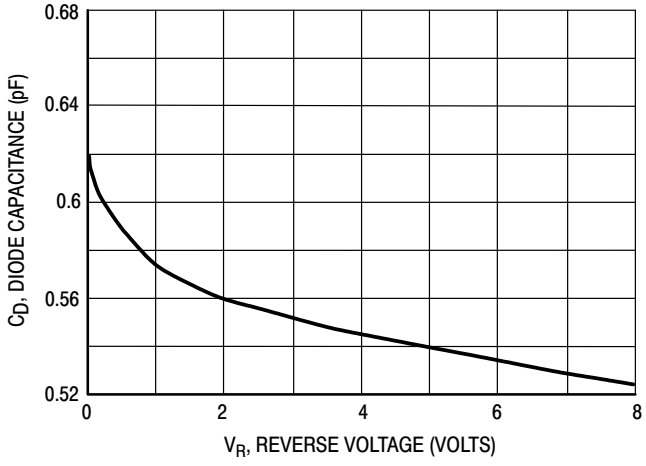
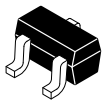


Figure 4. Diode Capacitance

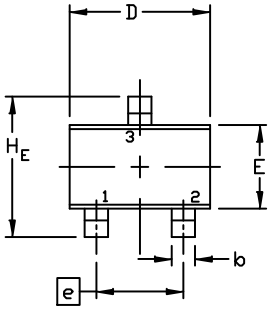
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS



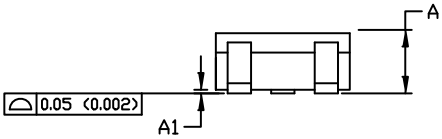
SCALE 4:1

SC−70 (SOT−323)
CASE 419
ISSUE P

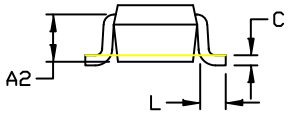
DATE 07 OCT 2021



TOP VIEW



SIDE VIEW

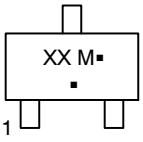


END VIEW

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

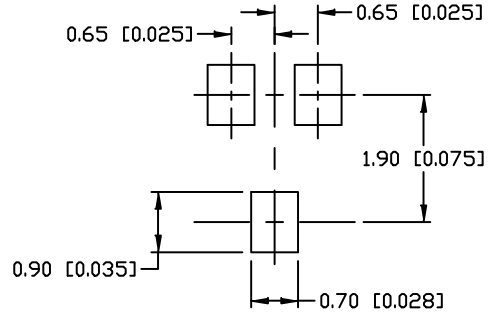
	MILLIMETERS			INCHES		
DIM	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF			0.028 BSC		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	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
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 ON 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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