M1MA141KT1G, M1MA142KT1G

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

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

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

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		IF	100	mAdc
Peak Forward Current		I _{FM}	225	mAdc
Peak Forward Surge Cur	rent	I _{FSM} (Note 1)	500	mAdc

THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation	P _D	150	mW
Junction Temperature	TJ	150	°C
Storage Temperature	T _{stg}	- 55 ∼ + 150	°C

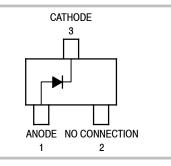
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. t = 1 sec



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

MARKING DIAGRAM



Mx = Device Code $x = H ext{ for } 141$ 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
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 Specifications Brochure, BRD8011/D.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic		Condition	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current	M1MA141KT1 M1MA142KT1	V _R = 35 V V _R = 75 V	I _R	-	0.1	μAdc
Forward Voltage		I _F = 100 mA	V _F	-	1.2	Vdc
Reverse Breakdown Voltage	M1MA141KT1 M1MA142KT1	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)	1	3.0	ns

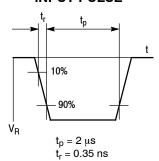
^{2.} t_{rr} Test Circuit

M1MA141KT1G, M1MA142KT1G

RECOVERY TIME EQUIVALENT TEST CIRCUIT

A RL

INPUT PULSE



OUTPUT PULSE

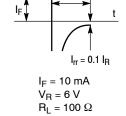
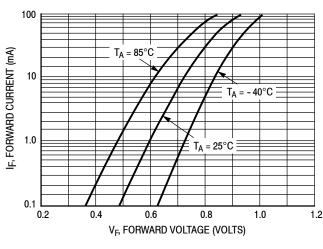
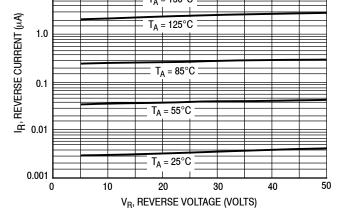


Figure 1. Recovery Time Equivalent Test Circuit

10





 $T_A = 150^{\circ}C$

Figure 2. Forward Voltage

Figure 3. Reverse Current

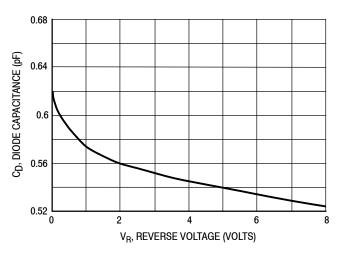
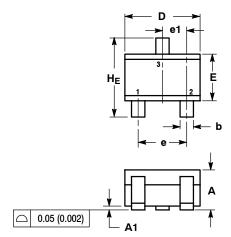


Figure 4. Diode Capacitance

M1MA141KT1G, M1MA142KT1G

PACKAGE DIMENSIONS

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



ISSUE N

- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M. 1982.

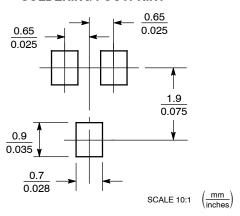
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2		0.70 REF	.70 REF 0.028 REF			
b	0.30	0.35	0.40	0.012	0.014	0.016
С	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
е	1.20	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

STYLE 2:

PIN 1. ANODE

N.C.
 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, SOLDERRM/D.

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