

NPN Silicon General Purpose High Voltage Transistor

MSD42SWT1G

This NPN Silicon Planar Transistor is designed for general purpose amplifier applications. This device is housed in the SC-70/SOT-323 package which is designed for low power surface mount applications.

Features

- 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
Collector-Base Voltage	$V_{(BR)CBO}$	300	Vdc
Collector-Emitter Voltage	$V_{(BR)CEO}$	300	Vdc
Emitter-Base Voltage	$V_{(BR)EBO}$	6.0	Vdc
Collector Current – Continuous	I_C	150	mAdc

THERMAL CHARACTERISTICS

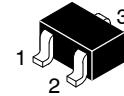
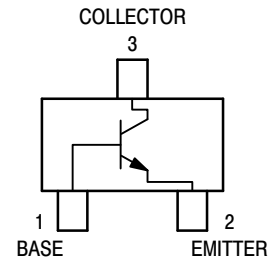
Rating	Symbol	Max	Unit
Power Dissipation (Note 1)	P_D	150	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

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.

ELECTRICAL CHARACTERISTICS

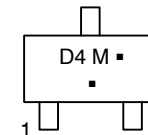
Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage ($I_C = 1.0 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	300	–	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	300	–	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	6.0	–	Vdc
Collector-Base Cutoff Current ($V_{CB} = 300 \text{ Vdc}$, $I_E = 0$)	I_{CBO}	–	0.1	μA
Emitter-Base Cutoff Current ($V_{EB} = 6.0 \text{ Vdc}$, $I_B = 0$)	I_{EBO}	–	0.1	μA
DC Current Gain (Note 2) ($V_{CE} = 10 \text{ Vdc}$, $I_C = 1.0 \text{ mAdc}$) ($V_{CE} = 10 \text{ Vdc}$, $I_C = 30 \text{ mAdc}$)	h_{FE1} h_{FE2}	25 40	200 –	–
Collector-Emitter Saturation Voltage (Note 2) ($I_C = 200 \text{ mAdc}$, $I_B = 2.0 \text{ mAdc}$)	$V_{CE(sat)}$	–	0.5	Vdc

- Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.
- Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.



SC-70 (SOT-323)
CASE 419
STYLE 3

MARKING DIAGRAM



D4 = Device Code
M = Date Code*
▪ = Pb-Free Package

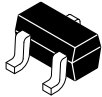
(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping [†]
MSD42SWT1G	SC-70/SOT-323 (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](http://www.onsemi.com/BRD8011/D).



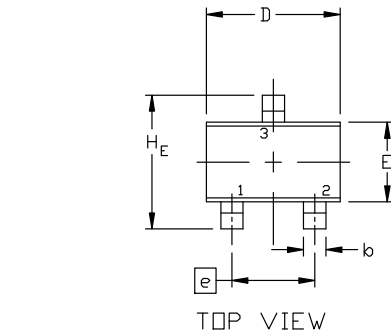
SCALE 4:1

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

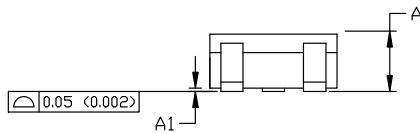
DATE 11 OCT 2022

NOTES:

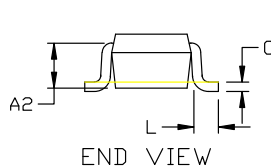
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH



TOP VIEW

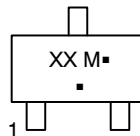


SIDE VIEW



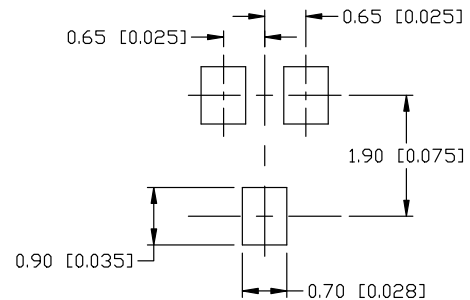
END VIEW

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 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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DESCRIPTION: SC-70 (SOT-323)

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