

MSD42SWT1G

NPN Silicon General Purpose High Voltage Transistor

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°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 | °C |
| Storage Temperature Range | 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.

ELECTRICAL CHARACTERISTICS

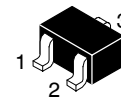
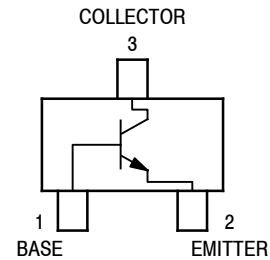
| Characteristic | Symbol | Min | Max | Unit |
|---|--------------------------------------|----------|----------|------|
| Collector-Emitter Breakdown Voltage (I _C = 1.0 mAdc, I _B = 0) | V _{(BR)CEO} | 300 | - | Vdc |
| Collector-Base Breakdown Voltage (I _C = 100 μAdc, I _E = 0) | V _{(BR)CBO} | 300 | - | Vdc |
| Emitter-Base Breakdown Voltage (I _E = 100 μAdc, I _C = 0) | V _{(BR)EBO} | 6.0 | - | Vdc |
| Collector-Base Cutoff Current (V _{CB} = 300 Vdc, I _E = 0) | I _{CBO} | - | 0.1 | μA |
| Emitter-Base Cutoff Current (V _{EB} = 6.0 Vdc, I _B = 0) | I _{EBO} | - | 0.1 | μA |
| DC Current Gain (Note 2) (V _{CE} = 10 Vdc, I _C = 1.0 mAdc) (V _{CE} = 10 Vdc, I _C = 30 mAdc) | h _{FE1} h _{FE2} | 25 40 | 200 - | - |
| Collector-Emitter Saturation Voltage (Note 2) (I _C = 200 mAdc, I _B = 2.0 mAdc) | V _{CE(sat)} | - | 0.5 | Vdc |

1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.
2. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.



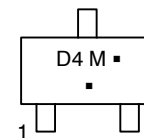
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SC-70 (SOT-323)
CASE 419
STYLE 3

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.

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 4:1

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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, SOLDERM/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) | PAGE 1 OF 1 |

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