

# 2SC4081RT1

## General Purpose Amplifier Transistor

### NPN Surface Mount

#### Features

- Moisture Sensitivity Level: 1
- Pb-Free Package is Available

#### MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

| Rating                         | Symbol               | Value | Unit |
|--------------------------------|----------------------|-------|------|
| Collector-Base Voltage         | V <sub>(BR)CBO</sub> | 60    | Vdc  |
| Collector-Emitter Voltage      | V <sub>(BR)CEO</sub> | 50    | Vdc  |
| Emitter-Base Voltage           | V <sub>(BR)EBO</sub> | 7.0   | Vdc  |
| Collector Current - Continuous | I <sub>C</sub>       | 100   | mAdc |
| Collector Current - Peak       | I <sub>C(P)</sub>    | 200   | mAdc |

#### THERMAL CHARACTERISTICS

| Characteristic       | Symbol           | Max         | Unit |
|----------------------|------------------|-------------|------|
| Power Dissipation    | P <sub>D</sub>   | 200         | mW   |
| Junction Temperature | T <sub>J</sub>   | 150         | °C   |
| Storage Temperature  | T <sub>stg</sub> | -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 (T<sub>A</sub> = 25°C unless otherwise noted)

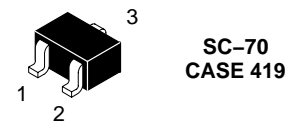
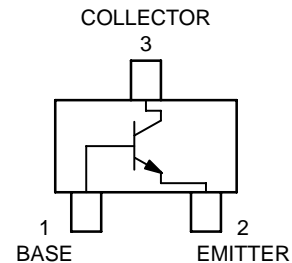
| Characteristic   | Symbol               | Min | Max | Unit |
|--|----------------------|-----|-----|------|
| Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 2.0 mAdc, I <sub>B</sub> = 0)        | V <sub>(BR)CEO</sub> | 50  | -   | Vdc  |
| Collector-Base Breakdown Voltage (I <sub>C</sub> = 10 μAdc, I <sub>E</sub> = 0)            | V <sub>(BR)CBO</sub> | 60  | -   | Vdc  |
| Emitter-Base Breakdown Voltage (I <sub>E</sub> = 10 μAdc, I <sub>C</sub> = 0)              | V <sub>(BR)EBO</sub> | 7.0 | -   | Vdc  |
| Collector-Base Cutoff Current (V <sub>CB</sub> = 60 Vdc, I <sub>E</sub> = 0)               | I <sub>CBO</sub>     | -   | 0.1 | μAdc |
| Collector-Emitter Cutoff Current (V <sub>CE</sub> = 10 Vdc, I <sub>B</sub> = 0)            | I <sub>CEO</sub>     | -   | 0.1 | μAdc |
| (V <sub>CE</sub> = 30 Vdc, I <sub>B</sub> = 0)   |                      | -   | 2.0 | μAdc |
| (V <sub>CE</sub> = 30 Vdc, I <sub>B</sub> = 0, T <sub>A</sub> = 80°C)                      |                      | -   | 1.0 | mAdc |
| DC Current Gain (Note 1) (V <sub>CE</sub> = 6.0 Vdc, I <sub>C</sub> = 2.0 mAdc)            | h <sub>FE</sub>      | 180 | 390 | -    |
| Collector-Emitter Saturation Voltage (I <sub>C</sub> = 100 mAdc, I <sub>B</sub> = 10 mAdc) | V <sub>CE(sat)</sub> | -   | 0.5 | Vdc  |

1. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

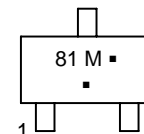


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#### MARKING DIAGRAM



81 = 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†        |
|-------------|-----------------|------------------|
| 2SC4081RT1  | SC-70           | 3000/Tape & Reel |
| 2SC4081RT1G | SC-70 (Pb-Free) | 3000/Tape & Reel |

\*The "T1" suffix refers to a 7 inch 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

## 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

| 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 <sub>E</sub> | 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:<br>CANCELLED                                 | STYLE 2:<br>PIN 1. ANODE<br>2. N.C.<br>3. CATHODE     | STYLE 3:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE       | STYLE 5:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE          |   |
| STYLE 6:<br>PIN 1. EMITTER<br>2. BASE<br>3. COLLECTOR | STYLE 7:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 8:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN      | STYLE 9:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE-ANODE | STYLE 10:<br>PIN 1. CATHODE<br>2. ANODE<br>3. ANODE-CATHODE | STYLE 11:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. CATHODE |

|                         |                        |   |
|-------------------------|------------------------|---|
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| <b>DESCRIPTION:</b>     | <b>SC-70 (SOT-323)</b> | <b>PAGE 1 OF 1</b>  |

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