



**THE DATASHEET OF
2SA1774G**



2SA1774G, S2SA1774G

PNP Silicon General Purpose Amplifier Transistor

This PNP transistor is designed for general purpose amplifier applications. This device is housed in the SC-75/SOT-416/SC-90 package which is designed for low power surface mount applications, where board space is at a premium.

Features

- Reduces Board Space
- High h_{FE} , 210–460 (typical)
- Low $V_{CE(sat)}$, < 0.5 V
- Available in 8 mm, 7-inch/3000 Unit Tape and Reel
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- 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 – Emitter Voltage | $V_{(BR)CBO}$ | –60 | Vdc |
| Collector – Base Voltage | $V_{(BR)CEO}$ | –50 | Vdc |
| Emitter – Base Voltage | $V_{(BR)EBO}$ | –6.0 | Vdc |
| Collector Current – Continuous | I_C | –100 | mAdc |

THERMAL CHARACTERISTICS

| Characteristic | 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 ~ +150 | $^\circ\text{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

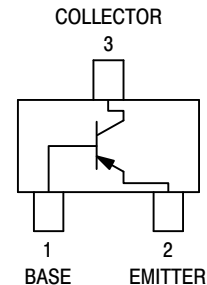


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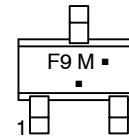
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SC-75
CASE 463
STYLE 1



MARKING DIAGRAM



F9 = 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† |
|------------|--------------------|-------------------|
| 2SA1774G | SC-75 (Pb-Free) | 3,000/Tape & Reel |
| S2SA1774G | SC-75 (Pb-Free) | 3,000/Tape & Reel |
| 2SA1774T1G | SC-75 (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.

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---------------|------|-----|------|---------------|
| Collector-Base Breakdown Voltage ($I_C = -50 \mu\text{Adc}$, $I_E = 0$) | $V_{(BR)CBO}$ | -60 | - | - | V |
| Collector-Emitter Breakdown Voltage ($I_C = -1.0 \text{ mAdc}$, $I_B = 0$) | $V_{(BR)CEO}$ | -50 | - | - | V |
| Emitter-Base Breakdown Voltage ($I_E = -50 \mu\text{Adc}$, $I_C = 0$) | $V_{(BR)EBO}$ | -6.0 | - | - | V |
| Collector-Base Cutoff Current ($V_{CB} = -30 \text{ Vdc}$, $I_E = 0$) | I_{CBO} | - | - | -0.5 | μA |
| Emitter-Base Cutoff Current ($V_{EB} = -5.0 \text{ Vdc}$, $I_B = 0$) | I_{EBO} | - | - | -0.5 | μA |
| Collector-Emitter Saturation Voltage (Note 2) ($I_C = -50 \text{ mAdc}$, $I_B = -5.0 \text{ mAdc}$) | $V_{CE(sat)}$ | - | - | -0.5 | V |
| DC Current Gain (Note 2) ($V_{CE} = -6.0 \text{ Vdc}$, $I_C = -1.0 \text{ mAdc}$) | h_{FE} | 120 | - | 560 | - |
| Transition Frequency ($V_{CE} = -12 \text{ Vdc}$, $I_C = -2.0 \text{ mAdc}$, $f = 30 \text{ MHz}$) | f_T | - | 140 | - | MHz |
| Output Capacitance ($V_{CB} = -12 \text{ Vdc}$, $I_E = 0 \text{ Adc}$, $f = 1 \text{ MHz}$) | C_{OB} | - | 3.5 | - | pF |

2. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, D.C. $\leq 2\%$.

TYPICAL ELECTRICAL CHARACTERISTICS

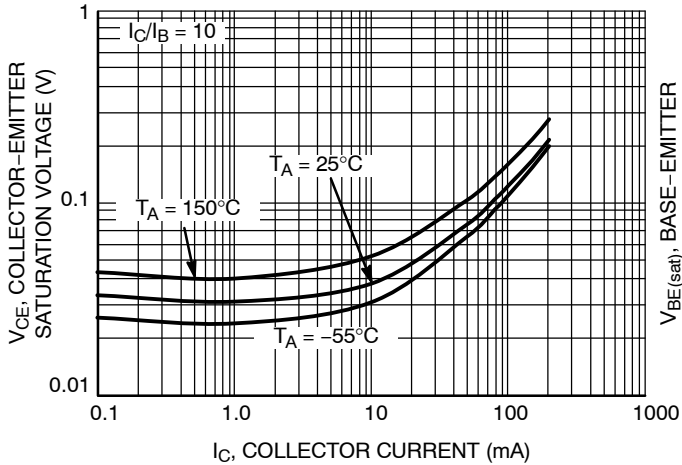


Figure 1. Collector-Emitter Saturation Voltage vs. Collector Current

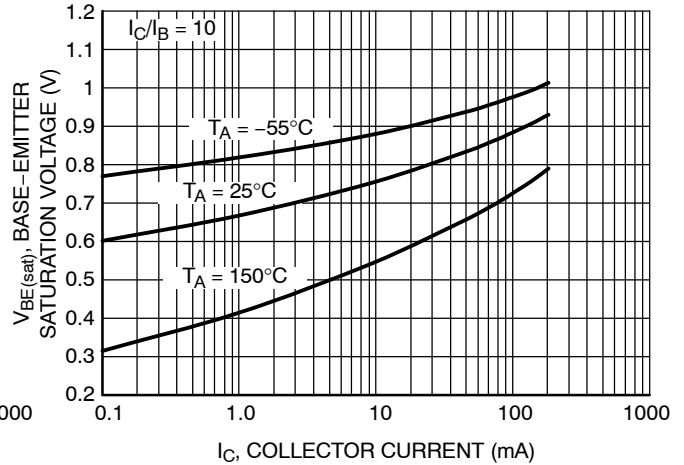


Figure 2. Base-Emitter Saturation Voltage vs. Collector Current

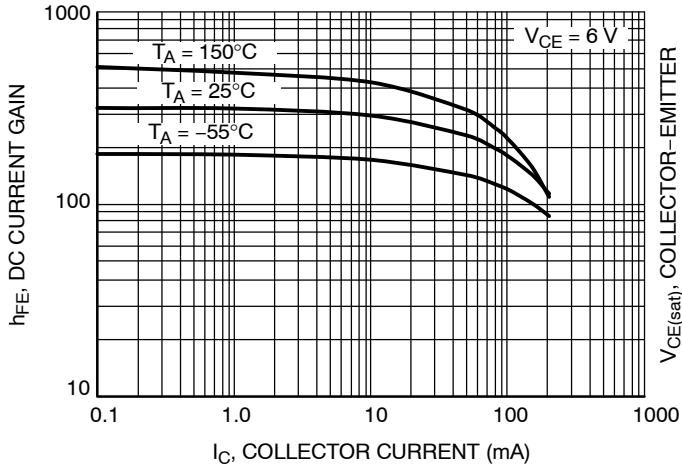


Figure 3. DC Current Gain vs. Collector Current

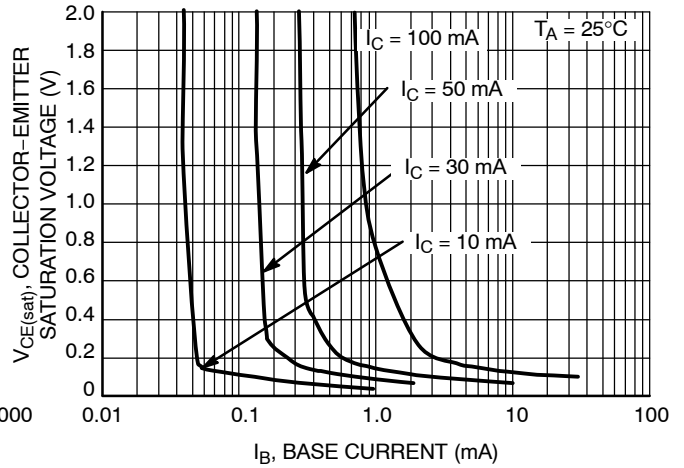


Figure 4. Saturation Region

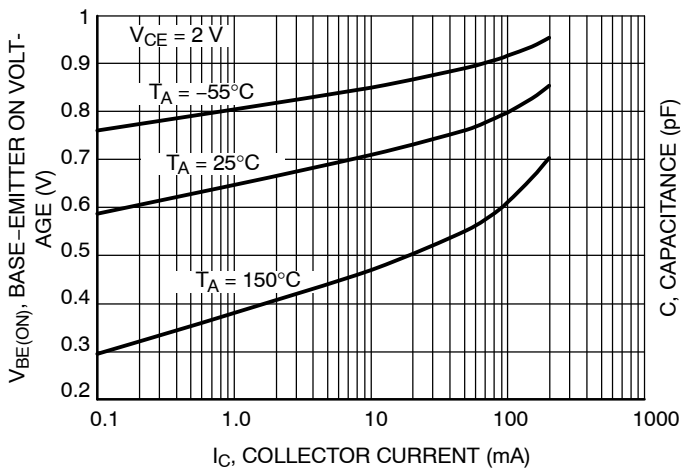


Figure 5. Base-Emitter Turn-ON Voltage vs. Collector Current

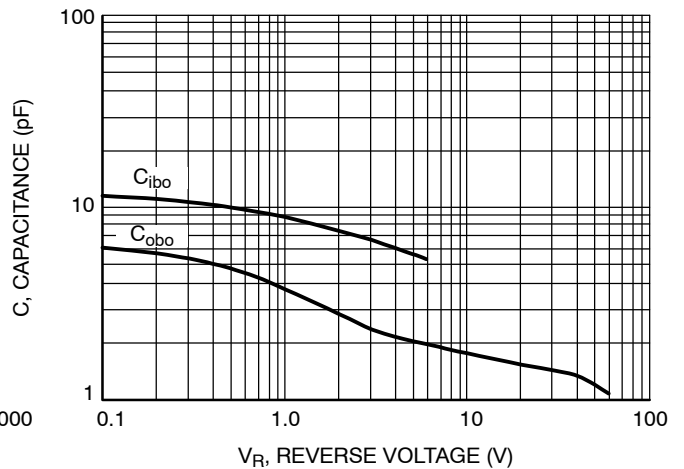


Figure 6. Capacitance

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TYPICAL ELECTRICAL CHARACTERISTICS

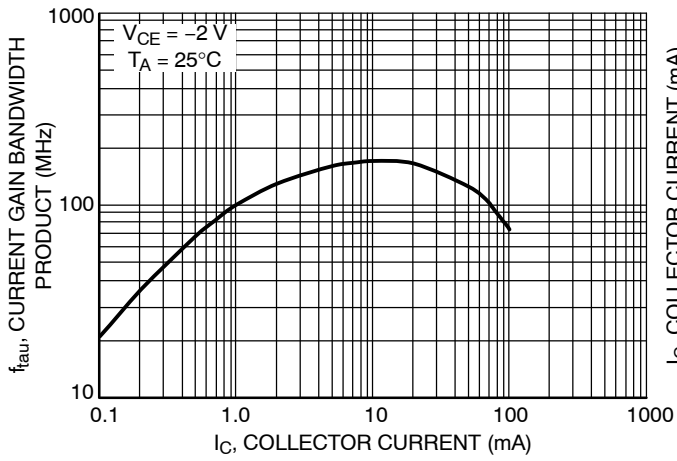


Figure 7. Current Gain Bandwidth Product vs. Collector Current

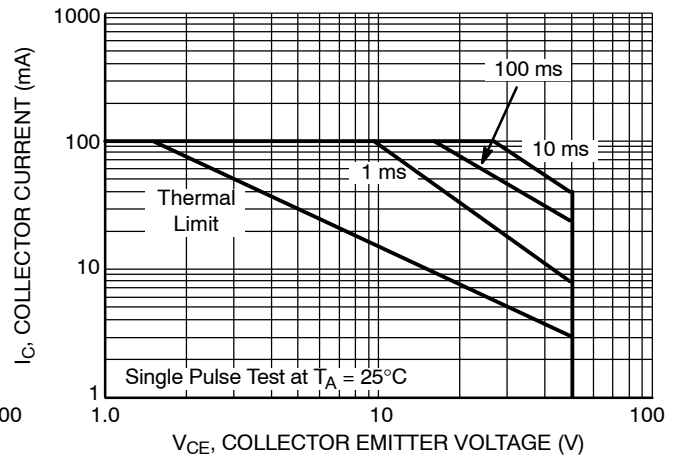
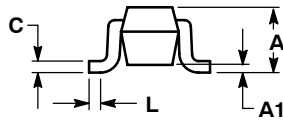
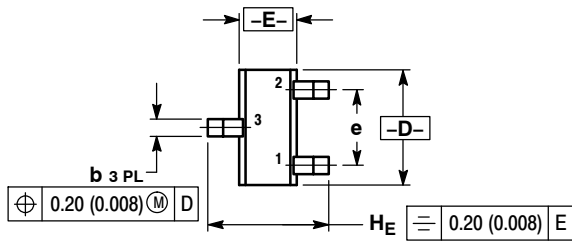


Figure 8. Safe Operating Area

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PACKAGE DIMENSIONS

SC-75/SOT-416
CASE 463
ISSUE G

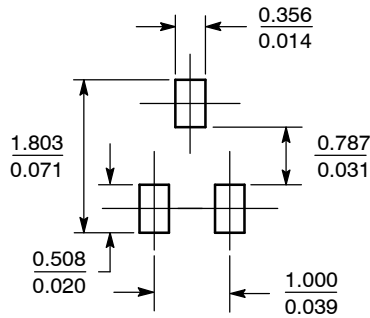


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

| DIM | MILLIMETERS | | | INCHES | | |
|----------------|-------------|------|------|----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.70 | 0.80 | 0.90 | 0.027 | 0.031 | 0.035 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| b | 0.15 | 0.20 | 0.30 | 0.006 | 0.008 | 0.012 |
| C | 0.10 | 0.15 | 0.25 | 0.004 | 0.006 | 0.010 |
| D | 1.55 | 1.60 | 1.65 | 0.061 | 0.063 | 0.065 |
| E | 0.70 | 0.80 | 0.90 | 0.027 | 0.031 | 0.035 |
| e | 1.00 BSC | | | 0.04 BSC | | |
| L | 0.10 | 0.15 | 0.20 | 0.004 | 0.006 | 0.008 |
| H _E | 1.50 | 1.60 | 1.70 | 0.060 | 0.063 | 0.067 |

- STYLE 1:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}} \right)$

*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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