

2SA1774

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
- Pb-Free Packages are Available*

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 | mA _{dc} |

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 | $^\circ\text{C}$ |

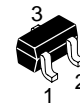
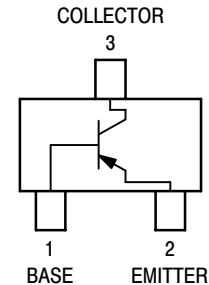
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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



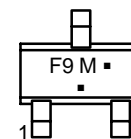
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<http://onsemi.com>



SC-75
CASE 463-01
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

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

*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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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 | - | - | Vdc |
| Collector–Emitter Breakdown Voltage ($I_C = -1.0 \text{ mAdc}$, $I_B = 0$) | $V_{(BR)CEO}$ | -50 | - | - | Vdc |
| Emitter–Base Breakdown Voltage ($I_E = -50 \mu\text{Adc}$, $I_C = 0$) | $V_{(BR)EBO}$ | -6.0 | - | - | Vdc |
| Collector–Base Cutoff Current ($V_{CB} = -30 \text{ Vdc}$, $I_E = 0$) | I_{CBO} | - | - | -0.5 | nA |
| 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 | Vdc |
| 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. $\leq 2\%$.

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|------------|--------------------|-----------------------|
| 2SA1774 | SC-75 | 3000 / Tape & Reel |
| 2SA1774G | SC-75 (Pb-Free) | 3000 / Tape & Reel |
| 2SA1774T1 | SC-75 | 3000 / Tape & Reel |
| 2SA1774T1G | SC-75 (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.

TYPICAL ELECTRICAL CHARACTERISTICS

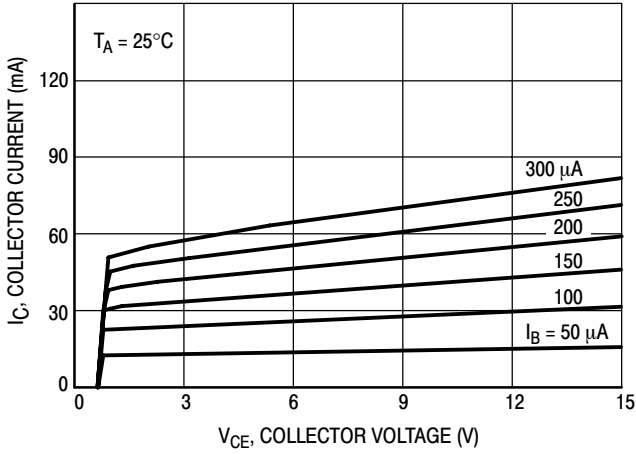


Figure 1. $I_C - V_{CE}$

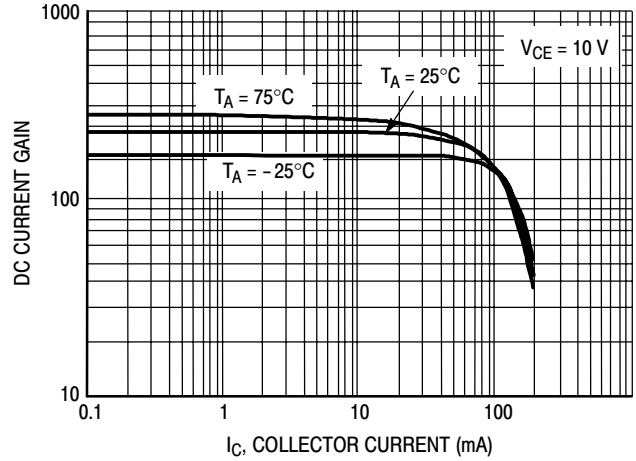


Figure 2. DC Current Gain

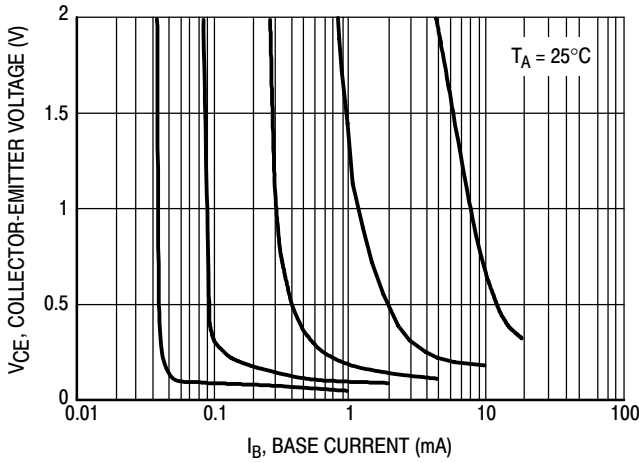


Figure 3. Collector Saturation Region

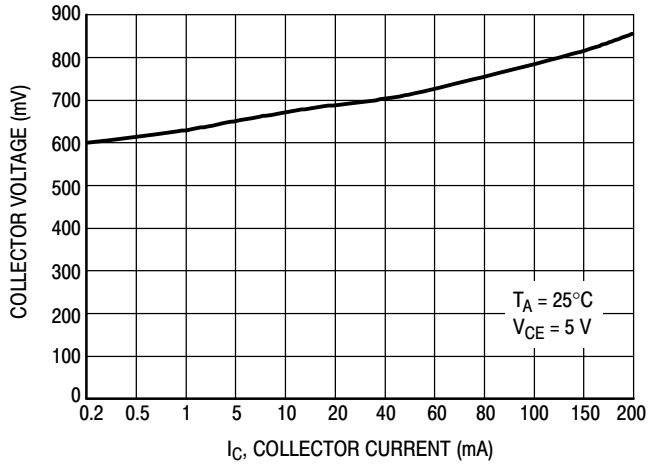


Figure 4. On Voltage

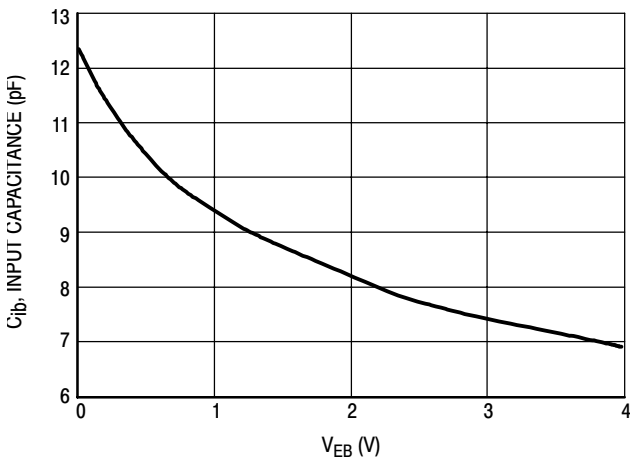


Figure 5. Capacitance

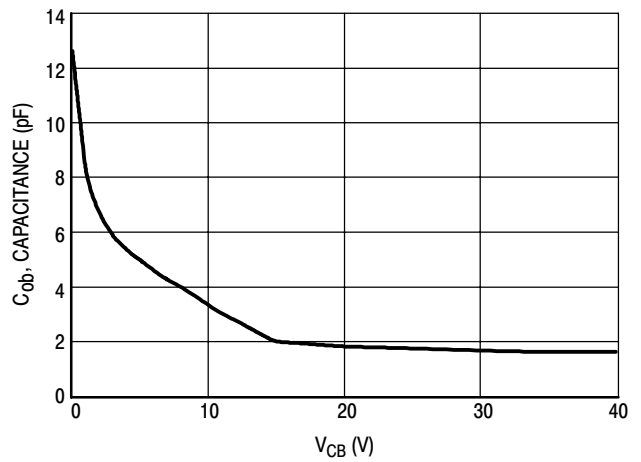


Figure 6. Capacitance

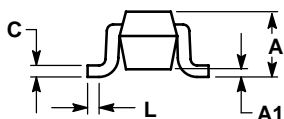
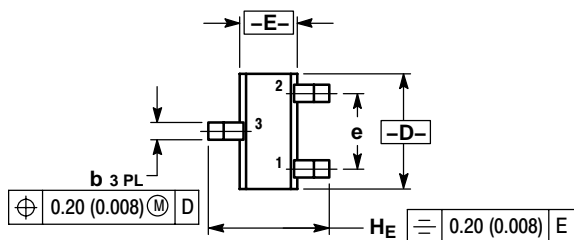
2SA1774

PACKAGE DIMENSIONS

SC-75/SOT-416

CASE 463-01

ISSUE F



NOTES:

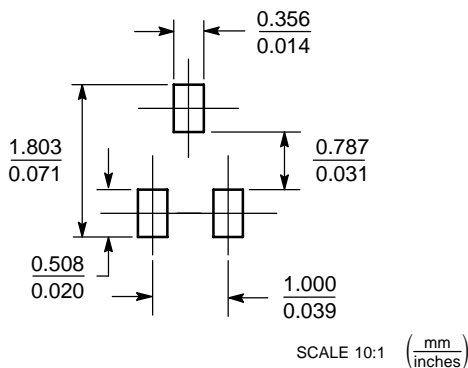
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

| 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 | 0.059 | 0.063 | 0.067 |
| 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 | 0.061 | 0.063 | 0.065 |

STYLE 1:

1. BASE
2. EMITTER
3. COLLECTOR

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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