

2SC4617G, S2SC4617G

NPN Silicon General Purpose Amplifier Transistor

This NPN transistor is designed for general purpose amplifier applications. This device is housed in the SC-75/SOT-416 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 ($T_J = 25^\circ\text{C}$)

| Rating | Symbol | Value | Unit |
|--------------------------------|---------------|-------|------------------|
| Collector-Base Voltage | $V_{(BR)CBO}$ | 50 | Vdc |
| Collector-Emitter Voltage | $V_{(BR)CEO}$ | 50 | Vdc |
| Emitter-Base Voltage | $V_{(BR)EBO}$ | 5.0 | Vdc |
| Collector Current – Continuous | I_C | 100 | mA _{dc} |

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.

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|----------------------------|-----------|------------|------------------|
| Power Dissipation (Note 1) | P_D | 125 | mW |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 ~ +150 | $^\circ\text{C}$ |

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, SOLDERRM/D.



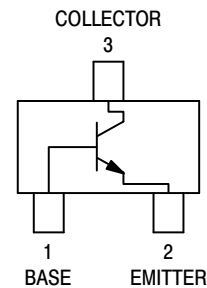
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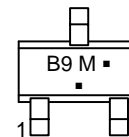
NPN GENERAL PURPOSE AMPLIFIER TRANSISTORS SURFACE MOUNT



SC-75
CASE 463-01
STYLE 1



MARKING DIAGRAM



B9 = 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† |
|------------|--------------------|-------------------|
| 2SC4617G | SC-75 (Pb-Free) | 3,000/Tape & Reel |
| S2SC4617G | SC-75 (Pb-Free) | 3,000/Tape & Reel |
| 2SC4617T1G | 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 ($I_C = 50 \mu\text{Adc}$, $I_E = 0$) | $V_{(BR)CBO}$ | 50 | - | - | Vdc |
| Collector-Emitter Breakdown Voltage ($I_C = 1.0 \text{ mAdc}$, $I_B = 0$) | $V_{(BR)CEO}$ | 50 | - | - | Vdc |
| Emitter-Base Breakdown Voltage ($I_E = 50 \mu\text{Adc}$, $I_C = 0$) | $V_{(BR)EBO}$ | 5.0 | - | - | Vdc |
| Collector-Base Cutoff Current ($V_{CB} = 30 \text{ Vdc}$, $I_E = 0$) | I_{CBO} | - | - | 0.5 | μA |
| Emitter-Base Cutoff Current ($V_{EB} = 4.0 \text{ Vdc}$, $I_B = 0$) | I_{EBO} | - | - | 0.5 | μA |
| Collector-Emitter Saturation Voltage (Note 2) ($I_C = 60 \text{ mAdc}$, $I_B = 5.0 \text{ mAdc}$) | $V_{CE(sat)}$ | - | - | 0.4 | 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 | - | 180 | - | MHz |
| Output Capacitance ($V_{CB} = 12 \text{ Vdc}$, $I_C = 0 \text{ Adc}$, $f = 1 \text{ MHz}$) | C_{OB} | - | 2.0 | - | pF |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

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TYPICAL ELECTRICAL CHARACTERISTICS

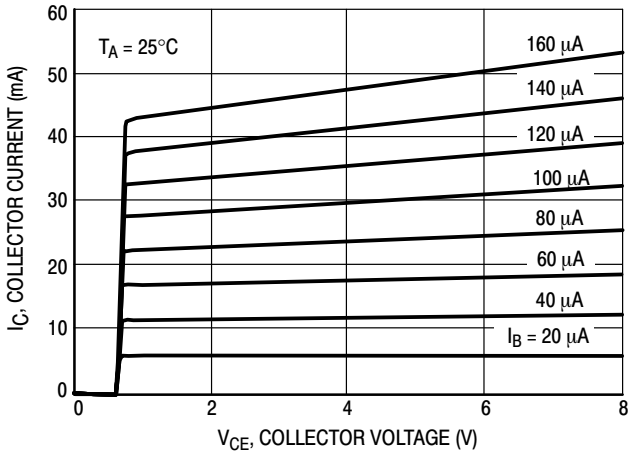


Figure 1. $I_C - V_{CE}$

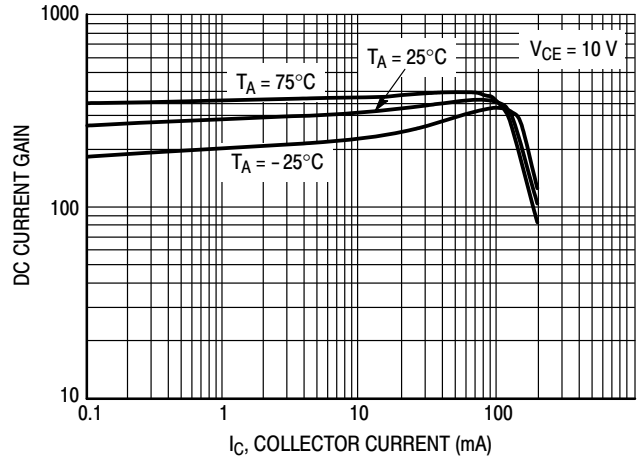


Figure 2. DC Current Gain

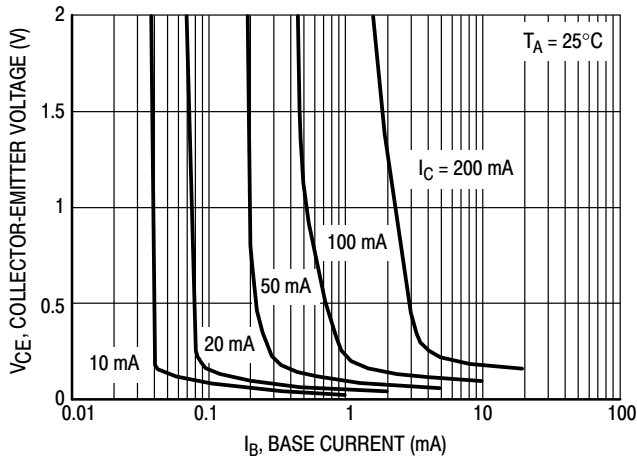


Figure 3. Collector Saturation Region

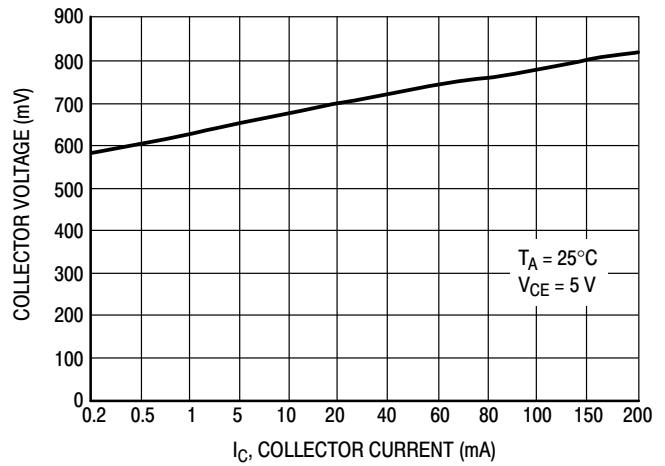


Figure 4. On Voltage

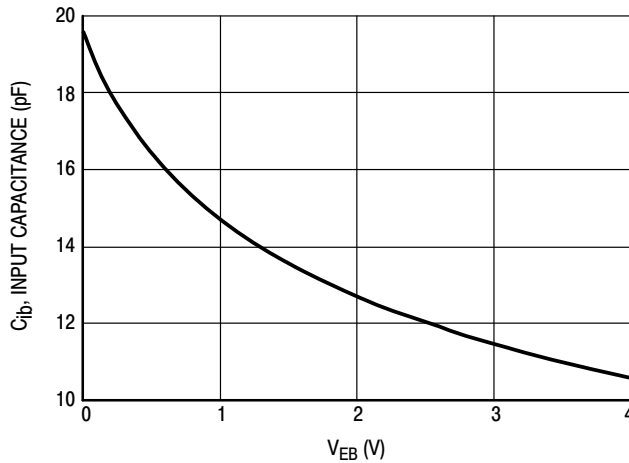


Figure 5. Capacitance

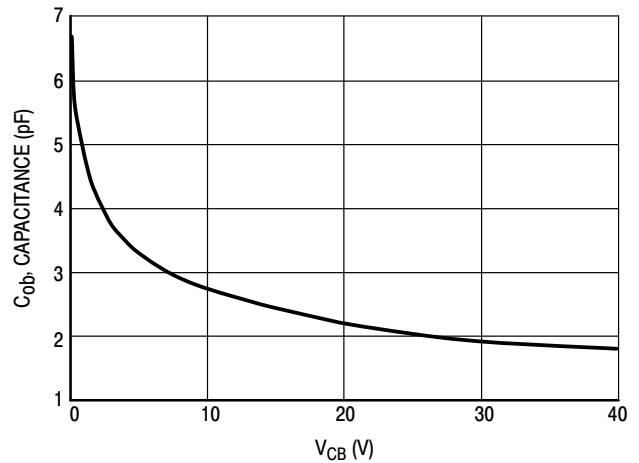


Figure 6. Capacitance

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

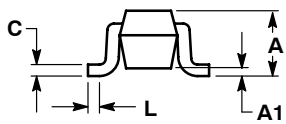
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SC-75/SOT-416
CASE 463-01
ISSUE G

DATE 07 AUG 2015

SCALE 4:1



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

STYLE 2:
PIN 1. ANODE
2. N/C
3. CATHODE

STYLE 3:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 4:
PIN 1. CATHODE
2. CATHODE
3. ANODE

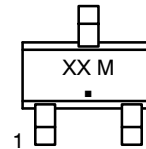
STYLE 5:
PIN 1. GATE
2. SOURCE
3. DRAIN

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 |
| HE | 1.50 | 1.60 | 1.70 | 0.060 | 0.063 | 0.067 |

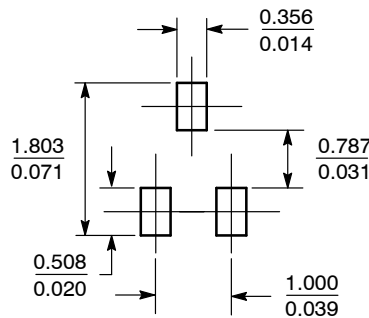
GENERIC MARKING DIAGRAM*



- 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.

SOLDERING FOOTPRINT*



SCALE 10:1 (mm/inches)

*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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| DESCRIPTION: | SC-75/SOT-416 | PAGE 1 OF 1 |

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