

# 2SC4617

## 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

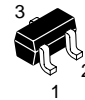
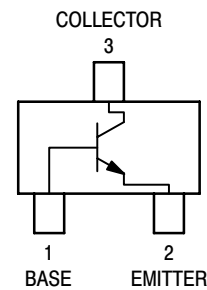
- Pb-Free Package is Available\*
- Reduces Board Space
- High  $h_{FE}$ , 210–460 (typical)
- Low  $V_{CE(sat)}$ , < 0.5 V
- Available in 8 mm, 7 inch/3000 Unit Tape and Reel



ON Semiconductor®

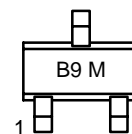
<http://onsemi.com>

### NPN GENERAL PURPOSE AMPLIFIER TRANSISTORS SURFACE MOUNT



SC-75  
CASE 463  
STYLE 1

### MARKING DIAGRAM



B9 = Specific Device Code  
M = Date Code

### 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.

## 2SC4617

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

Rating	Symbol	Value	Unit
Collector-Base Voltage	V <sub>(BR)CBO</sub>	50	Vdc
Collector-Emitter Voltage	V <sub>(BR)CEO</sub>	50	Vdc
Emitter-Base Voltage	V <sub>(BR)EBO</sub>	5.0	Vdc
Collector Current – Continuous	I <sub>C</sub>	100	mA <sub>dc</sub>

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Power Dissipation (Note 1)	P <sub>D</sub>	125	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ +150	°C

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

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I <sub>C</sub> = 50 μA <sub>dc</sub> , I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	50	–	–	Vdc
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 1.0 mA <sub>dc</sub> , I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	50	–	–	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 50 μA <sub>dc</sub> , I <sub>E</sub> = 0)	V <sub>(BR)EBO</sub>	5.0	–	–	Vdc
Collector-Base Cutoff Current (V <sub>CB</sub> = 30 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	–	–	0.5	μA
Emitter-Base Cutoff Current (V <sub>EB</sub> = 4.0 Vdc, I <sub>B</sub> = 0)	I <sub>EBO</sub>	–	–	0.5	μA
Collector-Emitter Saturation Voltage (Note 2) (I <sub>C</sub> = 60 mA <sub>dc</sub> , I <sub>B</sub> = 5.0 mA <sub>dc</sub> )	V <sub>CE(sat)</sub>	–	–	0.4	Vdc
DC Current Gain (Note 2) (V <sub>CE</sub> = 6.0 Vdc, I <sub>C</sub> = 1.0 mA <sub>dc</sub> )	h <sub>FE</sub>	120	–	560	–
Transition Frequency (V <sub>CE</sub> = 12 Vdc, I <sub>C</sub> = 2.0 mA <sub>dc</sub> , f = 30 MHz)	f <sub>T</sub>	–	180	–	MHz
Output Capacitance (V <sub>CB</sub> = 12 Vdc, I <sub>C</sub> = 0 A <sub>dc</sub> , f = 1 MHz)	C <sub>OB</sub>	–	2.0	–	pF

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

### ORDERING INFORMATION

Device	Package	Shipping†
2SC4617	SC-75	3,000 / Tape & Reel
2SC4617G	SC-75 (Pb-Free)	3,000 / Tape & Reel
2SC4617T1	SC-75	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.

TYPICAL ELECTRICAL CHARACTERISTICS

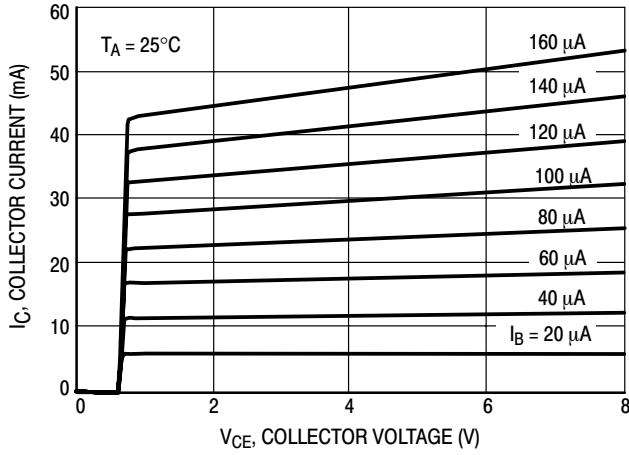


Figure 1.  $I_C - V_{CE}$

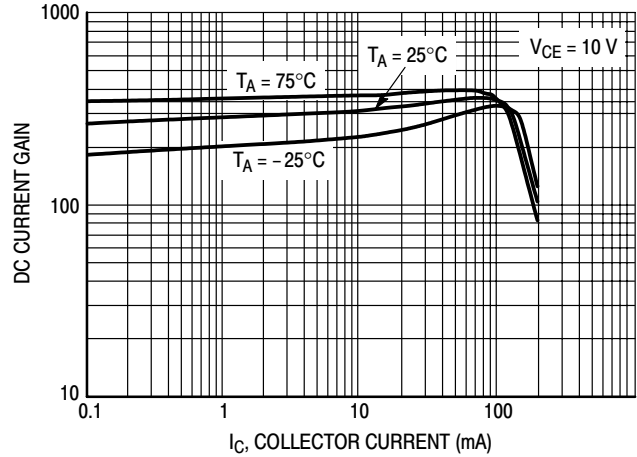


Figure 2. DC Current Gain

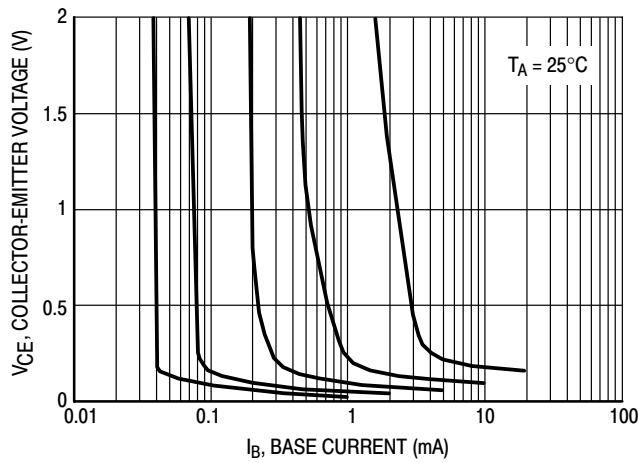


Figure 3. Collector Saturation Region

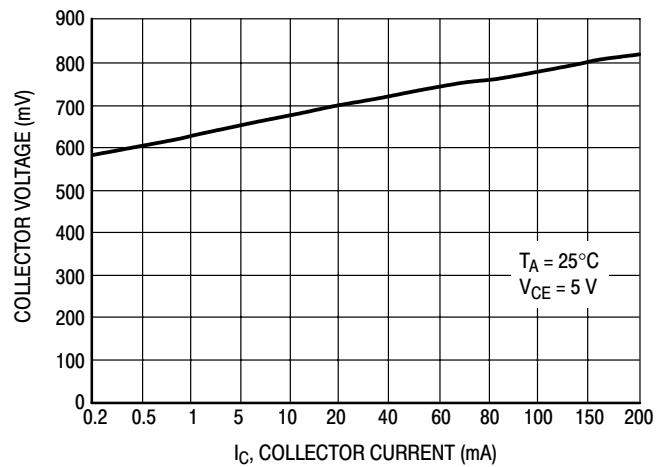


Figure 4. On Voltage

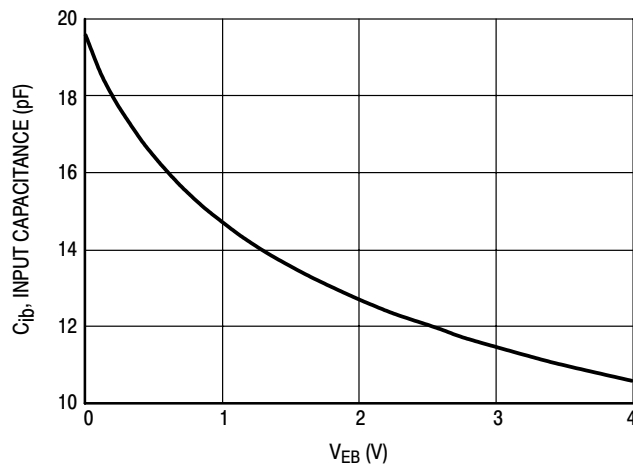


Figure 5. Capacitance

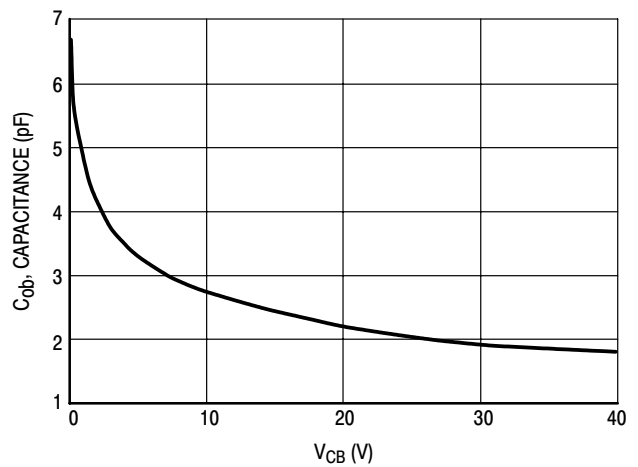
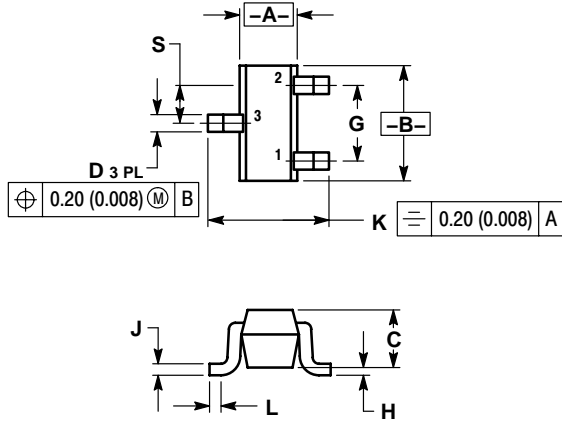


Figure 6. Capacitance

# 2SC4617

## PACKAGE DIMENSIONS

### SC-75 (SOT-416) CASE 463-01 ISSUE C



NOTES:

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

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
B	1.40	1.80	0.055	0.071
C	0.60	0.90	0.024	0.035
D	0.15	0.30	0.006	0.012
G	1.00 BSC		0.039 BSC	
H	---	0.10	---	0.004
J	0.10	0.25	0.004	0.010
K	1.45	1.75	0.057	0.069
L	0.10	0.20	0.004	0.008
S	0.50 BSC		0.020 BSC	

STYLE 1:

1. BASE
2. EMITTER
3. COLLECTOR

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

#### PUBLICATION ORDERING INFORMATION

**LITERATURE FULFILLMENT:**

Literature Distribution Center for ON Semiconductor  
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA  
**Phone:** 480-829-7710 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 480-829-7709 or 800-344-3867 Toll Free USA/Canada  
**Email:** orderlit@onsemi.com

**N. American Technical Support:** 800-282-9855 Toll Free USA/Canada

**Japan:** ON Semiconductor, Japan Customer Focus Center  
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051  
**Phone:** 81-3-5773-3850

**ON Semiconductor Website:** <http://onsemi.com>

**Order Literature:** <http://www.onsemi.com/litorder>

For additional information, please contact your local Sales Representative.