



**THE DATASHEET OF  
2SA1774T1G**



# 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.

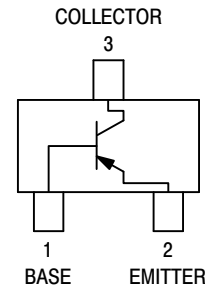


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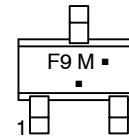
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SC-75  
CASE 463  
STYLE 1



### 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.

## 2SA1774G, S2SA1774G

### 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	$\mu\text{A}$
Emitter-Base Cutoff Current ( $V_{EB} = -5.0 \text{ Vdc}$ , $I_B = 0$ )	$I_{EBO}$	-	-	-0.5	$\mu\text{A}$
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

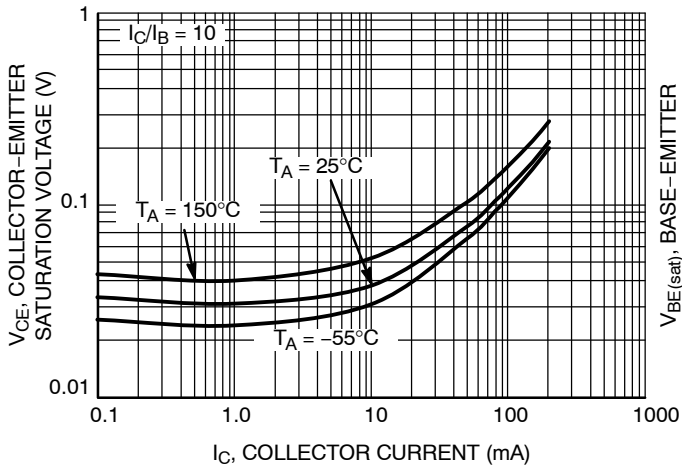


Figure 1. Collector-Emitter Saturation Voltage vs. Collector Current

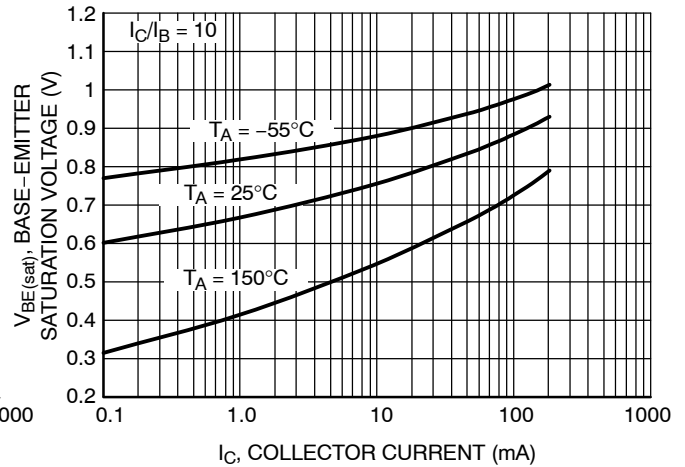


Figure 2. Base-Emitter Saturation Voltage vs. Collector Current

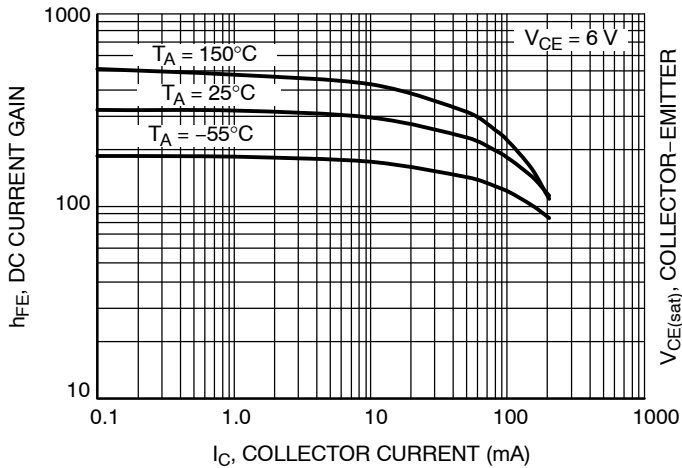


Figure 3. DC Current Gain vs. Collector Current

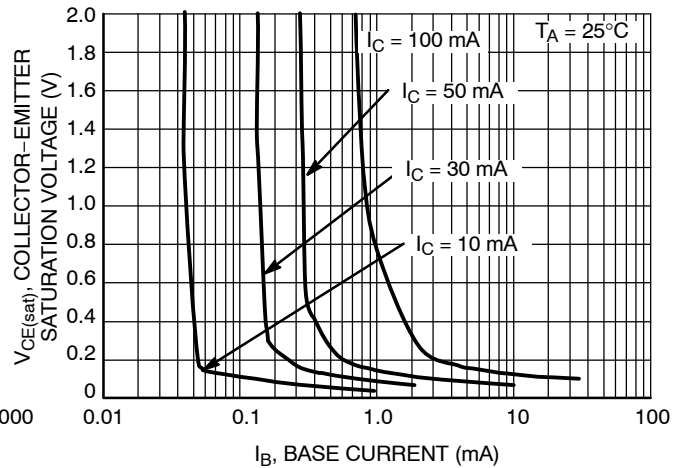


Figure 4. Saturation Region

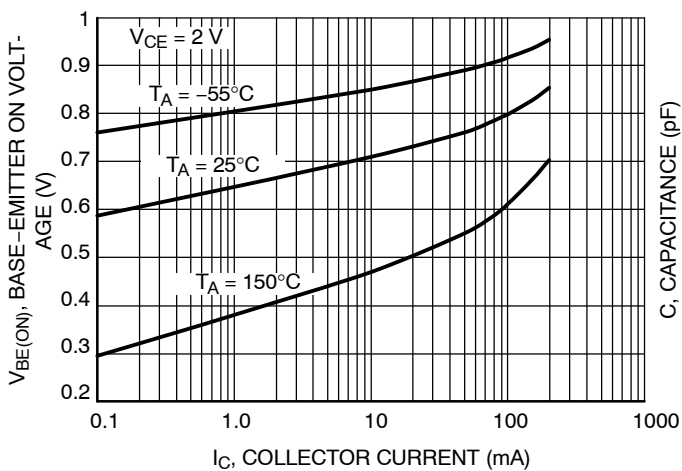


Figure 5. Base-Emitter Turn-ON Voltage vs. Collector Current

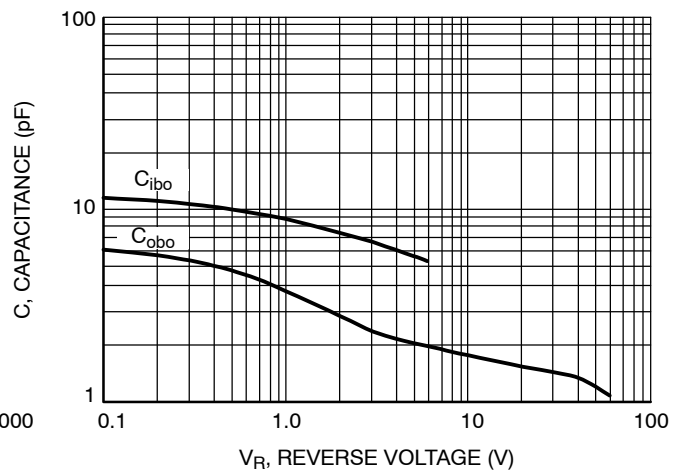


Figure 6. Capacitance

# 2SA1774G, S2SA1774G

## TYPICAL ELECTRICAL CHARACTERISTICS

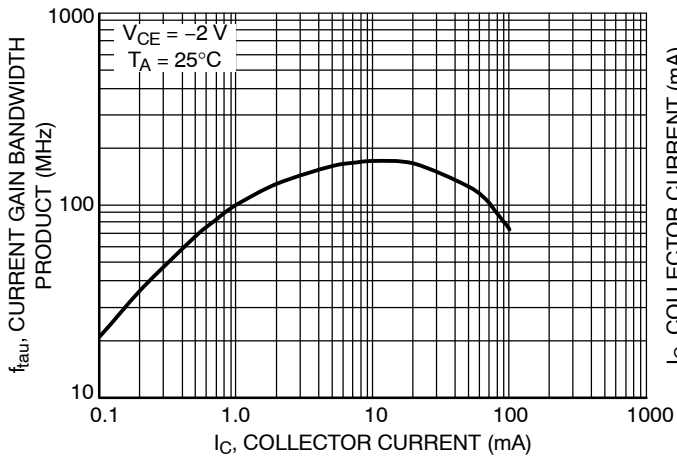


Figure 7. Current Gain Bandwidth Product vs. Collector Current

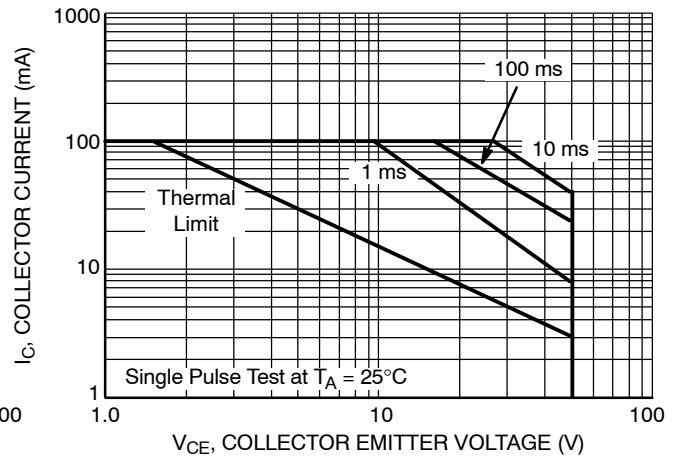
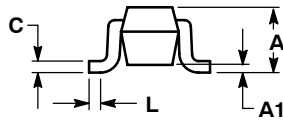
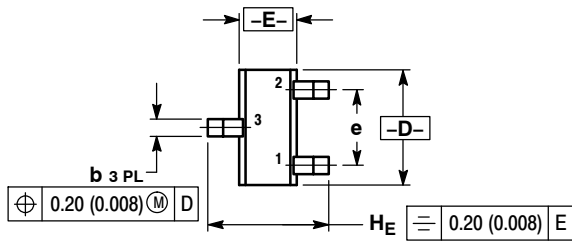


Figure 8. Safe Operating Area

# 2SA1774G, S2SA1774G

## PACKAGE DIMENSIONS

SC-75/SOT-416  
CASE 463  
ISSUE G

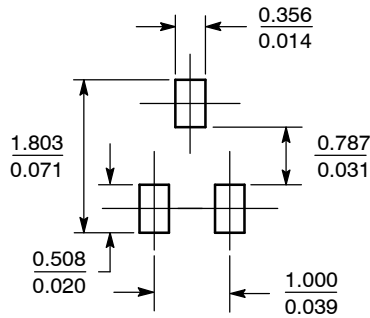


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: MILLIMETER.

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 <sub>E</sub>	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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