

# PNP Silicon General Purpose Amplifier Transistor

## 2SA1774G, S2SA1774G

This PNP 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 ( $T_A = 25^\circ\text{C}$ )

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

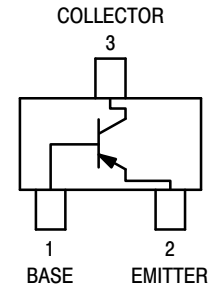
Characteristic	Symbol	Max	Unit
Power Dissipation (Note 1)	$P_D$	150	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	–55 ~ +150	$^\circ\text{C}$

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.

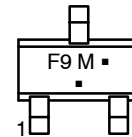
1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.



SC-75/SOT-416  
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 <sup>†</sup>
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

<sup>†</sup>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

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.  $\leq 2\%$ .

TYPICAL ELECTRICAL CHARACTERISTICS

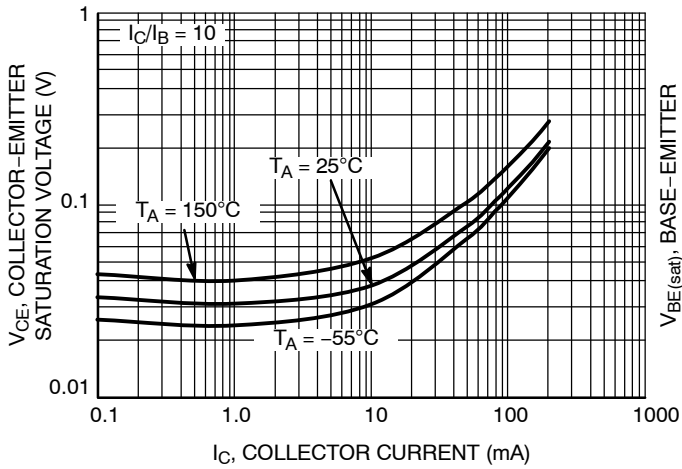


Figure 1. Collector-Emitter Saturation Voltage vs. Collector Current

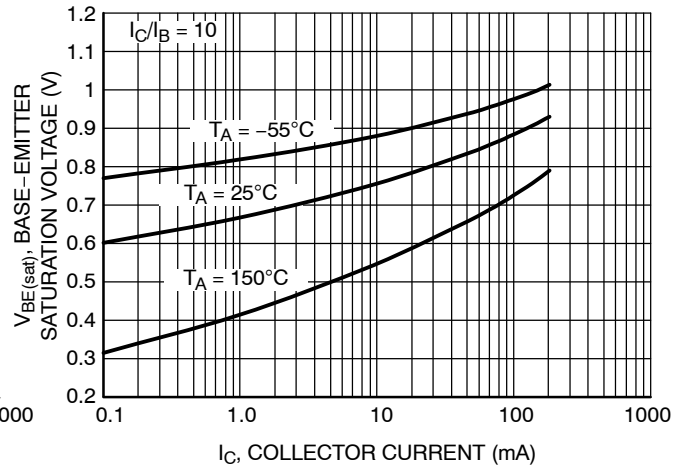


Figure 2. Base-Emitter Saturation Voltage vs. Collector Current

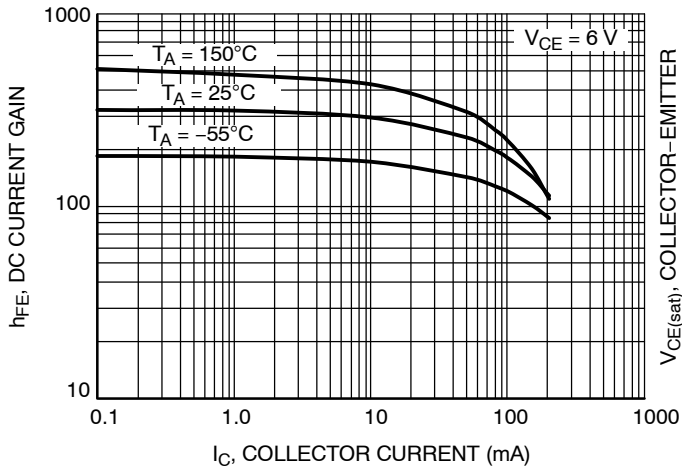


Figure 3. DC Current Gain vs. Collector Current

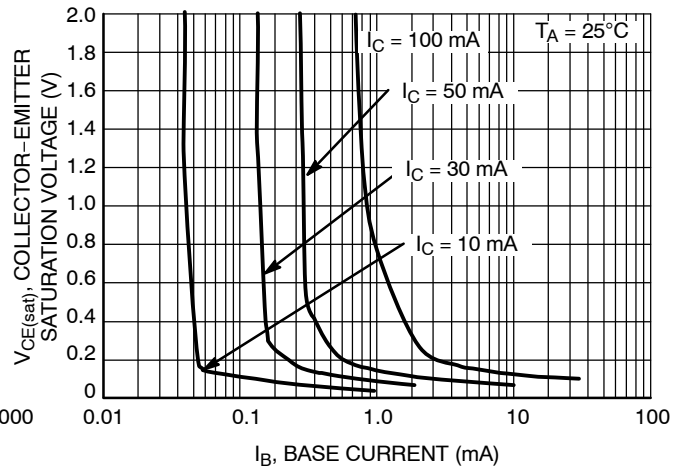


Figure 4. Saturation Region

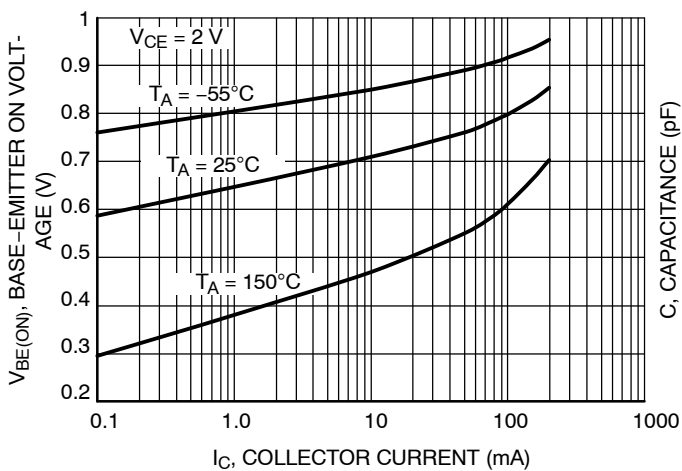


Figure 5. Base-Emitter Turn-ON Voltage vs. Collector Current

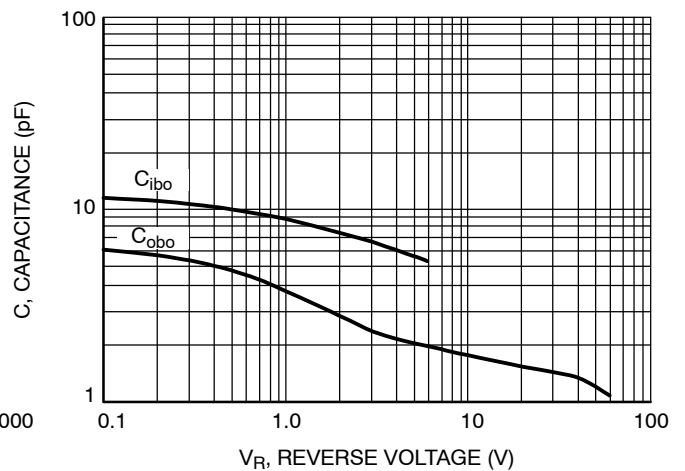


Figure 6. Capacitance

# 2SA1774G, S2SA1774G

## TYPICAL ELECTRICAL CHARACTERISTICS (Continued)

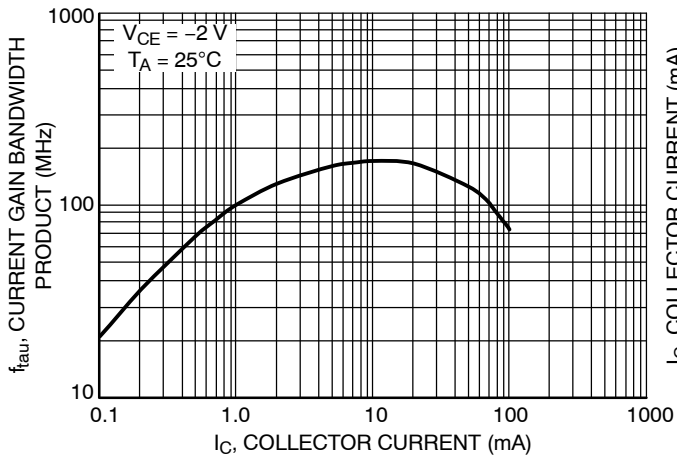


Figure 7. Current Gain Bandwidth Product vs. Collector Current

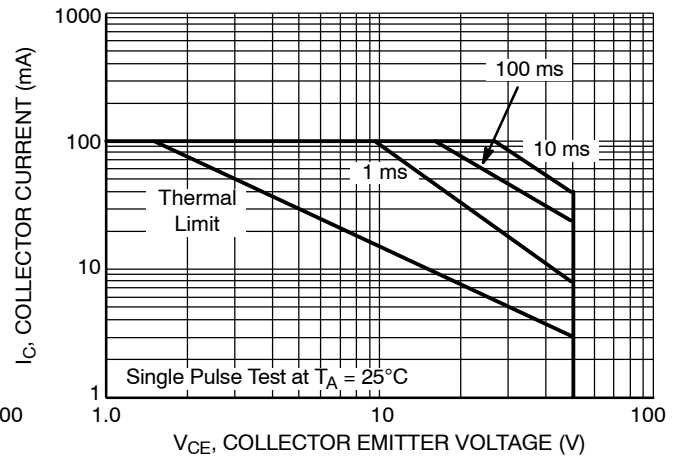


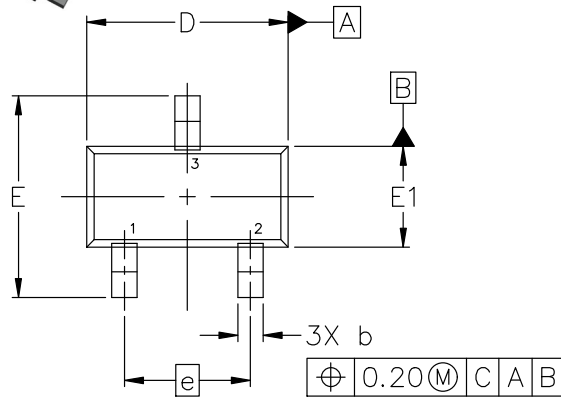
Figure 8. Safe Operating Area

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

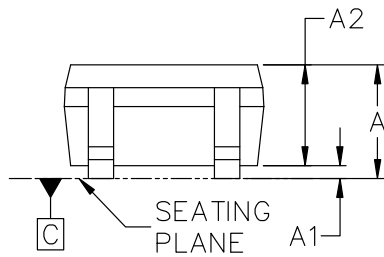


**SC75-3 1.60x0.80x0.80, 1.00P**  
CASE 463  
ISSUE H

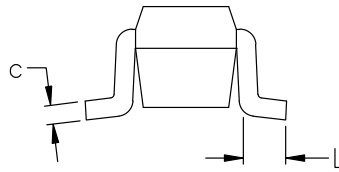
DATE 01 FEB 2024



TOP VIEW

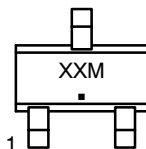


SIDE VIEW



END VIEW

**GENERIC MARKING DIAGRAM\***



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

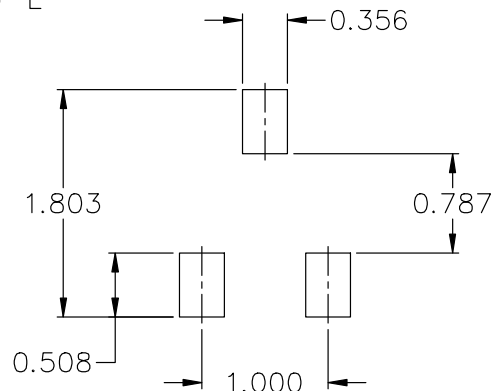
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

- |   |  |  |
|---|--|--|
| STYLE 1:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 2:<br>PIN 1. ANODE<br>2. N/C<br>3. CATHODE | STYLE 3:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE |
| STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE  | STYLE 5:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN |  |

NOTES:

- DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
- ALL DIMENSION ARE IN MILLIMETERS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.70	0.80	0.90
A1	0.00	0.05	0.10
A2	0.80 REF.		
b	0.15	0.20	0.30
c	0.10	0.15	0.25
D	1.55	1.60	1.65
E	1.50	1.60	1.70
E1	0.70	0.80	0.90
e	1.00 BSC		
L	0.10	0.15	0.20



RECOMMENDED MOUNTING 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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<b>DESCRIPTION:</b>	<b>SC75-3 1.60x0.80x0.80, 1.00P</b>	<b>PAGE 1 OF 1</b>

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