# PNP Silicon General Purpose Amplifier Transistor

This PNP transistor is designed for general purpose amplifier applications. This device is housed in the SOT–723 package which is designed for low power surface mount applications, where board space is at a premium.

- Reduces Board Space
- High h<sub>FE</sub>, 210–460 (Typical)
- Low V<sub>CE(sat)</sub>, < 0.5 V
- ESD Performance: Human Body Model; > 2000 V, Machine Model; > 200 V
- Available in 4 mm, 8000 Unit Tape & Reel
- This is a Pb–Free Device

#### **MAXIMUM RATINGS** ( $T_A = 25^{\circ}C$ )

Rating	Symbol	Value	Unit
Collector-Base Voltage	V <sub>(BR)CBO</sub>	-60	Vdc
Collector-Emitter Voltage	V <sub>(BR)CEO</sub>	-50	Vdc
Emitter-Base Voltage	V <sub>(BR)EBO</sub>	-6.0	Vdc
Collector Current – Continuous	۱ <sub>C</sub>	-100	mAdc

#### THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit	
Power Dissipation (Note 1)	PD	265	mW	
Junction Temperature	TJ	150	°C	
Storage Temperature Range	T <sub>stg</sub>	-55 ~ +150	°C	

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.

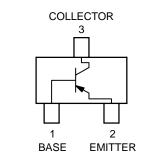
1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.



## **ON Semiconductor®**

http://onsemi.com

## PNP GENERAL PURPOSE AMPLIFIER TRANSISTORS SURFACE MOUNT







M = Date Code

#### **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
2SA2029M3T5G	SOT-723 (Pb-Free)	8000/Tape & Reel

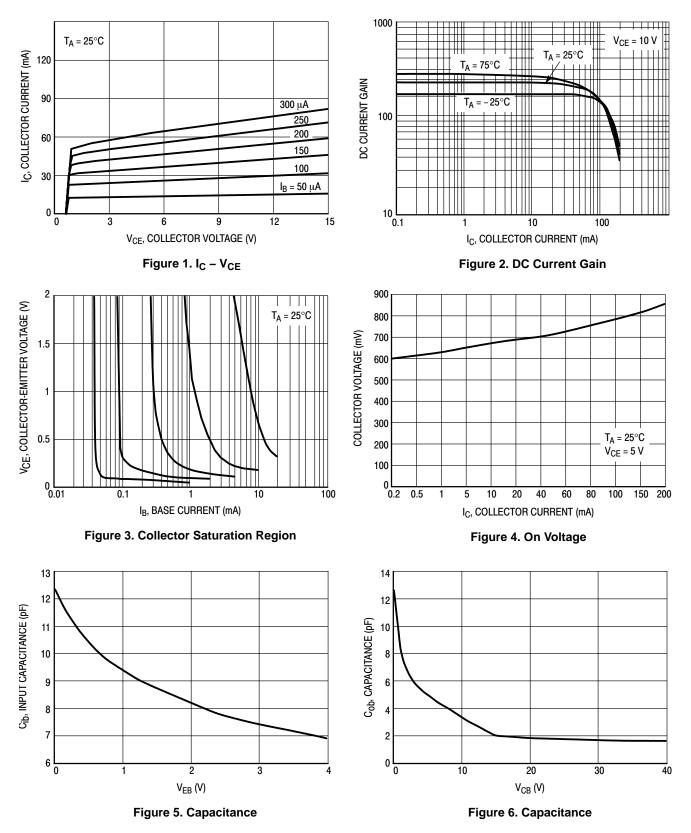
+For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

## **ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = $25^{\circ}$ C)

Characteristic	Symbol	Min	Тур	Max	Unit
Collector–Base Breakdown Voltage (I <sub>C</sub> = –50 $\mu$ Adc, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	-60	-	-	Vdc
Collector–Emitter Breakdown Voltage ( $I_{C} = -1.0 \text{ mAdc}, I_{B} = 0$ )	V <sub>(BR)CEO</sub>	-50	-	-	Vdc
Emitter–Base Breakdown Voltage (I <sub>E</sub> = $-50 \ \mu$ Adc, I <sub>E</sub> = 0)	V <sub>(BR)EBO</sub>	-6.0	-	-	Vdc
Collector–Base Cutoff Current ( $V_{CB} = -30$ Vdc, $I_E = 0$ )	I <sub>CBO</sub>	-	-	-0.5	nA
Emitter–Base Cutoff Current ( $V_{EB} = -7.0 \text{ Vdc}, I_B = 0$ )	I <sub>EBO</sub>	-	-	-0.1	μΑ
Collector–Emitter Saturation Voltage (Note 2) $(I_C = -50 \text{ mAdc}, I_B = -5.0 \text{ mAdc})$	V <sub>CE(sat)</sub>	_	_	-0.5	Vdc
DC Current Gain (Note 2) ( $V_{CE} = -6.0 \text{ Vdc}, I_C = -1.0 \text{ mAdc}$ )	h <sub>FE</sub>	120	_	560	-
Transition Frequency $(V_{CE} = -12 \text{ Vdc}, I_C = -2.0 \text{ mAdc}, f = 30 \text{ MHz})$	f <sub>T</sub>	-	140	-	MHz
Output Capacitance ( $V_{CB} = -12$ Vdc, $I_E = 0$ Adc, $f = 1.0$ MHz)	C <sub>OB</sub>	_	3.5	-	pF

2. Pulse Test: Pulse Width  $\leq$  300 µs, Duty Cycle  $\leq$  2%.

## **TYPICAL ELECTRICAL CHARACTERISTICS**



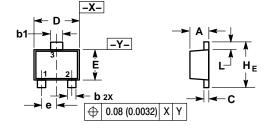
#### PACKAGE DIMENSIONS

SOT-723 CASE 631AA-01 **ISSUE B** 

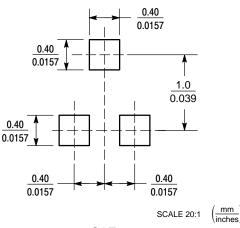
NOTES

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: MILLIMETERS. MAXIMUM LEAD THICKNESS INCLUDES LEAD 3. FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	0.45	0.50	0.55	0.018	0.020	0.022
b	0.15	0.21	0.27	0.0059	0.0083	0.0106
b1	0.25	0.31	0.37	0.010	0.012	0.015
С	0.07	0.12	0.17	0.0028	0.0047	0.0067
D	1.15	1.20	1.25	0.045	0.047	0.049
E	0.75	0.80	0.85	0.03	0.032	0.034
е	0.40 BSC			0.016 BSC		
ΗE	1.15	1.20	1.25	0.045	0.047	0.049
L	0.15	0.20	0.25	0.0059	0.0079	0.0098



**SOLDERING FOOTPRINT\*** 



SOT-723

\*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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