

NS2029M3T5G

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.

Features

- Reduces Board Space
- High h_{FE} , 210–460 (Typical)
- Low $V_{CE(sat)}$, < 0.5 V
- ESD Performance: Human Body Model; > 2000 V,
Machine Model; > 200 V
- Available in 8000 Unit Tape & Reel with 2 mm Pitch
- This is a Pb-Free Device

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

Rating	Symbol	Value	Unit
Collector–Base Voltage	$V_{(BR)CBO}$	–60	Vdc
Collector–Emitter Voltage	$V_{(BR)CEO}$	–50	Vdc
Emitter–Base Voltage	$V_{(BR)EBO}$	–6.0	Vdc
Collector Current – Continuous	I_C	–100	mA dc

THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation (Note 1)	P_D	265	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	–55 ~ +150	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

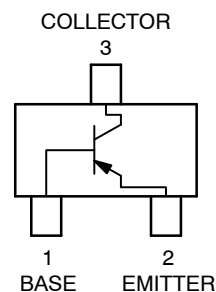
1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.



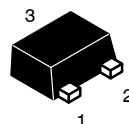
ON Semiconductor®

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PNP GENERAL PURPOSE AMPLIFIER TRANSISTORS SURFACE MOUNT



MARKING DIAGRAM



SOT-723
CASE 631AA



9F = Specific Device Code
M = Date Code*

*Date Code orientation and/or position may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
NS2029M3T5G	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.

NS2029M3T5G

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	-	-	Vdc
Collector-Emitter Breakdown Voltage ($I_C = -1.0\ \text{mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	-50	-	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = -50\ \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	-6.0	-	-	Vdc
Collector-Base Cutoff Current ($V_{CB} = -30\ \text{Vdc}$, $I_E = 0$)	I_{CBO}	-	-	-0.5	nA
Emitter-Base Cutoff Current ($V_{EB} = -7.0\ \text{Vdc}$, $I_B = 0$)	I_{EBO}	-	-	-0.1	μA
Collector-Emitter Saturation Voltage (Note 2) ($I_C = -50\ \text{mAdc}$, $I_B = -5.0\ \text{mAdc}$)	$V_{CE(sat)}$	-	-	-0.5	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	-	140	-	MHz
Output Capacitance ($V_{CB} = -12\ \text{Vdc}$, $I_E = 0\ \text{Adc}$, $f = 1.0\ \text{MHz}$)	C_{OB}	-	3.5	-	pF

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

TYPICAL ELECTRICAL CHARACTERISTICS

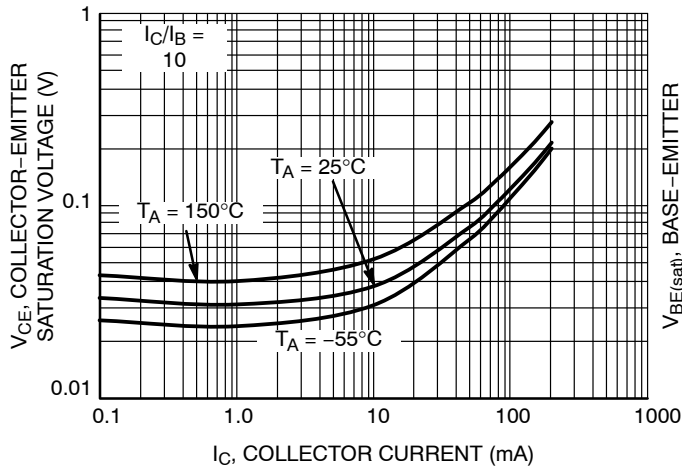


Figure 1. Collector-Emitter Saturation Voltage vs. Collector Current

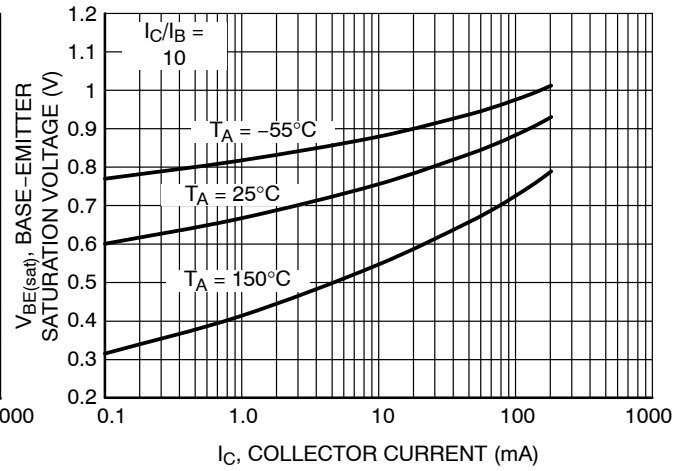


Figure 2. Base-Emitter Saturation Voltage vs. Collector Current

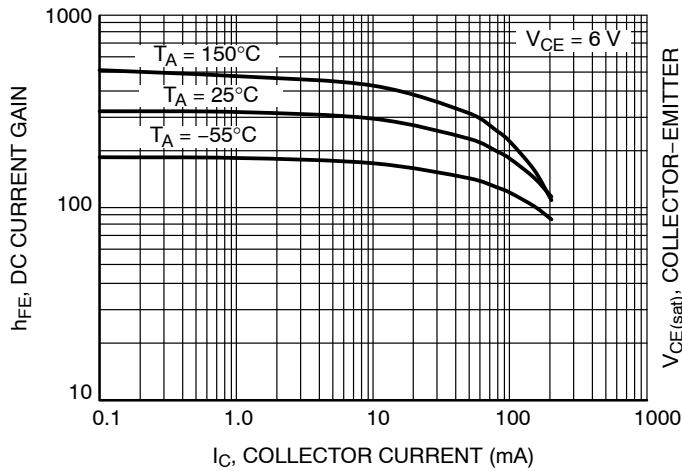


Figure 3. DC Current Gain vs. Collector Current

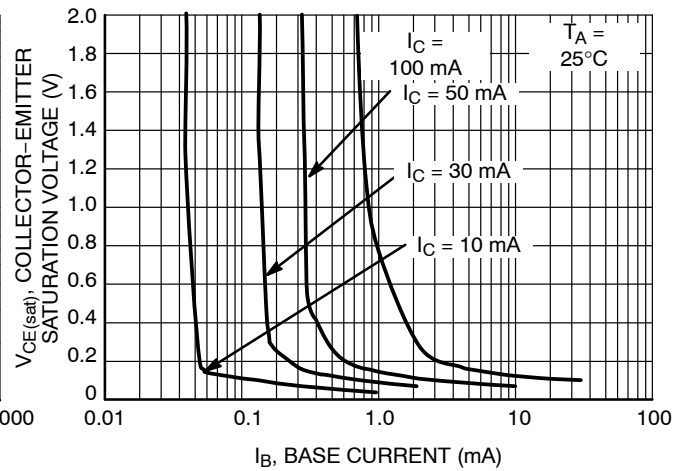


Figure 4. Saturation Region

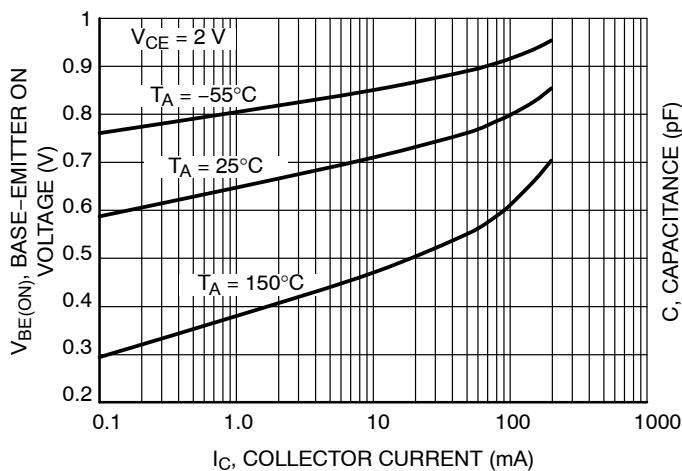


Figure 5. Base-Emitter Turn-ON Voltage vs. Collector Current

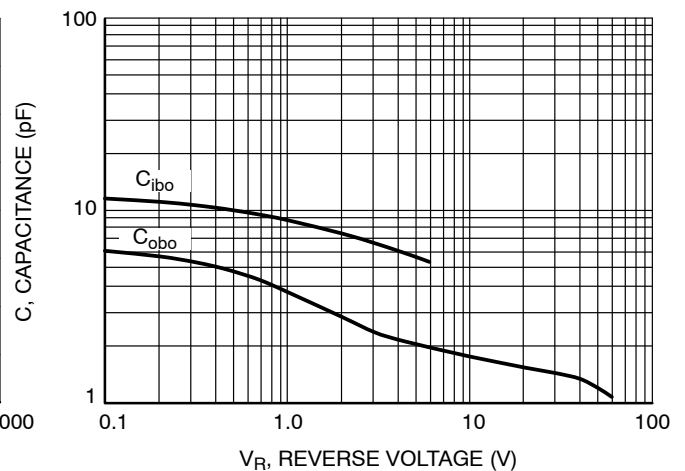


Figure 6. Capacitance

TYPICAL ELECTRICAL CHARACTERISTICS

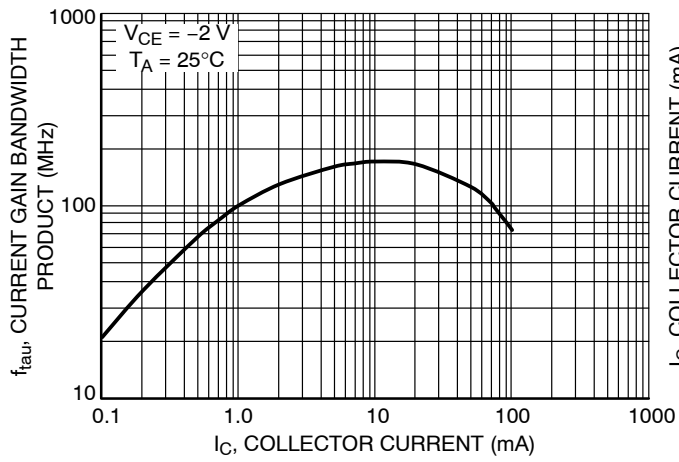


Figure 7. Current Gain Bandwidth Product vs. Collector Current

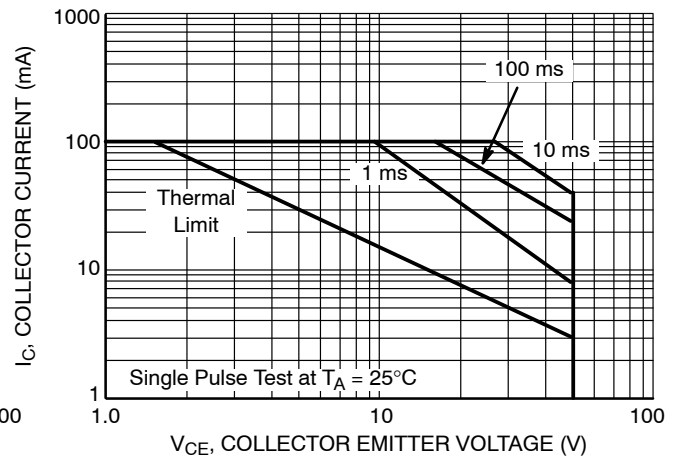
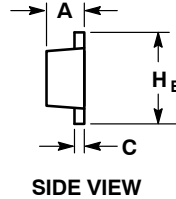
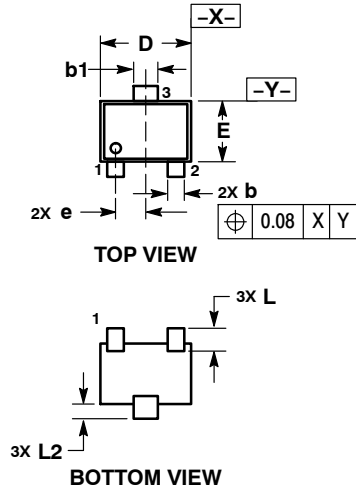


Figure 8. Safe Operating Area

NS2029M3T5G

PACKAGE DIMENSIONS

SOT-723
CASE 631AA
ISSUE D

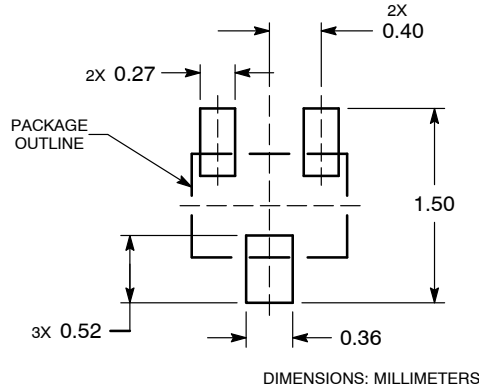


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.50	0.55
b	0.15	0.21	0.27
b1	0.25	0.31	0.37
C	0.07	0.12	0.17
D	1.15	1.20	1.25
E	0.75	0.80	0.85
e	0.40 BSC		
H E	1.15	1.20	1.25
L	0.29 REF		
L2	0.15	0.20	0.25

RECOMMENDED SOLDERING 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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