Bipolar Power Transistors

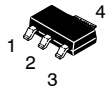
PNP Silicon

NJT4030P, NJV4030P

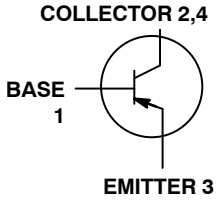
Features

- Epoxy Meets UL 94, V–0 @ 0.125 in
- NJV 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

PNP TRANSISTOR
3.0 AMPERES
40 VOLTS, 2.0 WATTS



SOT-223
CASE 318E
STYLE 1



MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)

Symbol	Rating	Value	Unit
V_{CEO}	Collector-Emitter Voltage	40	Vdc
V_{CB}	Collector-Base Voltage	40	Vdc
V_{EB}	Emitter-Base Voltage	6.0	Vdc
I_B	Base Current - Continuous	1.0	Adc
I_C	Collector Current - Continuous	3.0	Adc
I_{CM}	Collector Current - Peak	5.0	Adc
HBM	ESD - Human Body Model	3B	V
MM	ESD - Machine Model	C	V

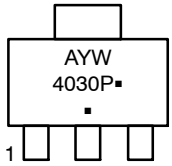
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
P_D	Total Power Dissipation Total P_D @ T_A = 25 °C (Note 1) Total P_D @ T_A = 25 °C (Note 2)	 2.0 0.80	W
 $R_{\theta JC}$ $R_{\theta JA}$ $R_{\theta JA}$	Thermal Resistance Junction-to-Case Junction-to-Ambient (Note 1) Junction-to-Ambient (Note 2)	 11 64 155	°C/W
T_L	Maximum Lead Temperature for Soldering Purposes, 1/8” from case for 5 seconds	260	°C
T_J, T_{stg}	Operating and Storage Junction Temperature Range	−55 to +150	°C

1. Mounted on 1” sq. (645 sq. mm) Collector pad on FR−4 bd material.
2. Mounted on 0.012” sq. (7.6 sq. mm) Collector pad on FR−4 bd material.

MARKING DIAGRAM



A	= Assembly Location
Y	Year
W	= Work Week
4030P	= Specific Device Code
▪	= Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
NJT4030PT1G	SOT-223 (Pb-Free)	1,000 / Tape & Reel
NJV4030PT1G		
NJT4030PT3G	SOT-223 (Pb-Free)	4,000 / Tape & Reel
NJV4030PT3G		

† 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.

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ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)

Symbol	Characteristic	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage (I_C = 10 mAdc, I_B = 0 Adc)	40	–	–	Vdc
V_{EBO}	Emitter-Base Voltage (I_E = 50 μAdc, I_C = 0 Adc)	6.0	–	–	Vdc
I_{CBO}	Collector Cutoff Current (V_{CB} = 40 Vdc)	–	–	100	nAdc
I_{EBO}	Emitter Cutoff Current (V_{BE} = 6.0 Vdc)	–	–	100	nAdc
ON CHARACTERISTICS (Note 3)					
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C = 0.5 Adc, I_B = 5.0 mAdc) (I_C = 1.0 Adc, I_B = 10 mAdc) (I_C = 3.0 Adc, I_B = 0.3 Adc)	 – – –	 – – –	 0.150 0.200 0.500	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C = 1.0 Adc, I_B = 0.1 Adc)	–	–	1.0	Vdc
$V_{BE(on)}$	Base-Emitter On Voltage (I_C = 1.0 Adc, V_{CE} = 2.0 Vdc)	–	–	1.0	Vdc
h_{FE}	DC Current Gain (I_C = 0.5 Adc, V_{CE} = 1.0 Vdc) (I_C = 1.0 Adc, V_{CE} = 1.0 Vdc) (I_C = 3.0 Adc, V_{CE} = 1.0 Vdc)	 220 200 100	 – – –	 – 400 –	–
DYNAMIC CHARACTERISTICS					
C_{ob}	Output Capacitance (V_{CB} = 10 Vdc, f = 1.0 MHz)	–	40	–	pF
C_{ib}	Input Capacitance (V_{EB} = 5.0 Vdc, f = 1.0 MHz)	–	130	–	pF
f_T	Current-Gain - Bandwidth Product (Note 4) (I_C = 500 mA, V_{CE} = 10 V, F_{test} = 1.0 MHz)	–	160	–	MHz

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.

3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
4. $f_T = |h_{FE}| \bullet f_{test}$

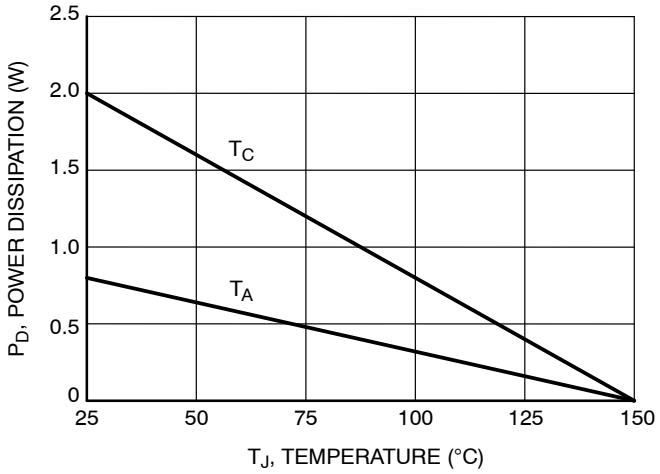


Figure 1. Power Derating

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TYPICAL CHARACTERISTICS

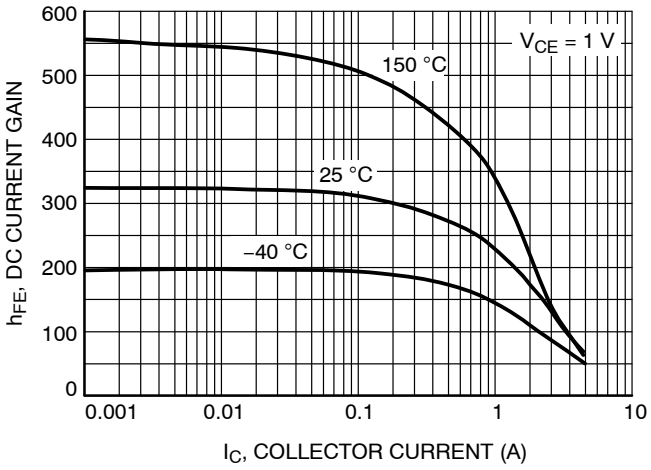


Figure 2. DC Current Gain

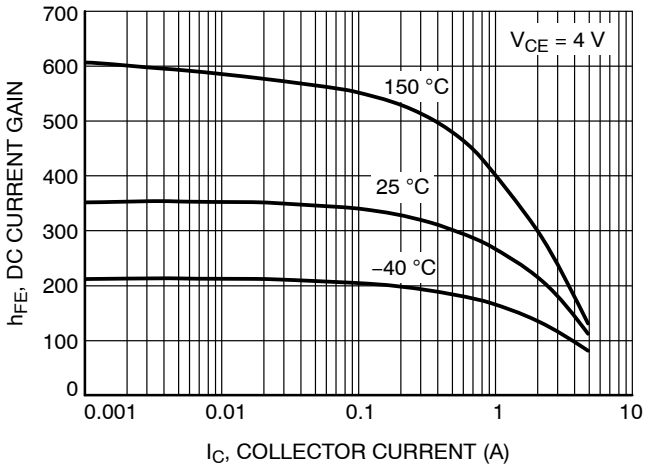


Figure 3. DC Current Gain

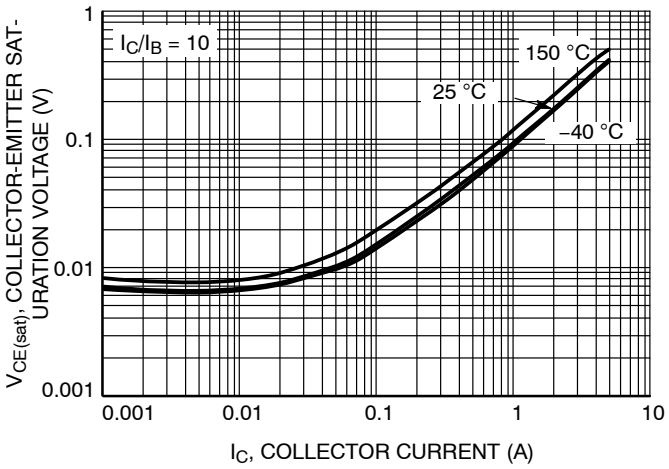


Figure 4. Collector-Emitter Saturation Voltage

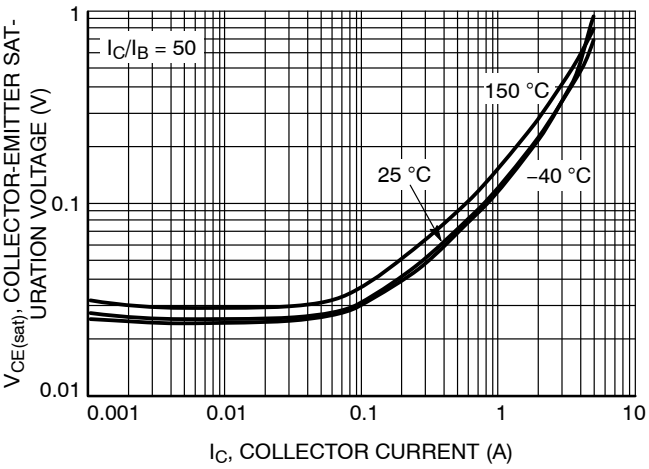


Figure 5. Collector-Emitter Saturation Voltage

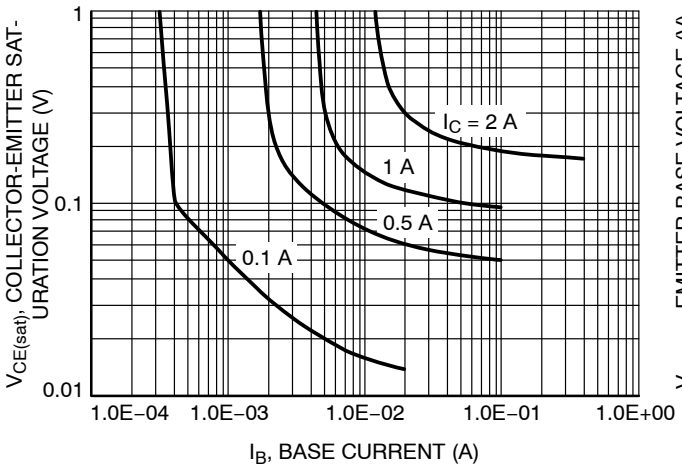


Figure 6. Collector Saturation Region

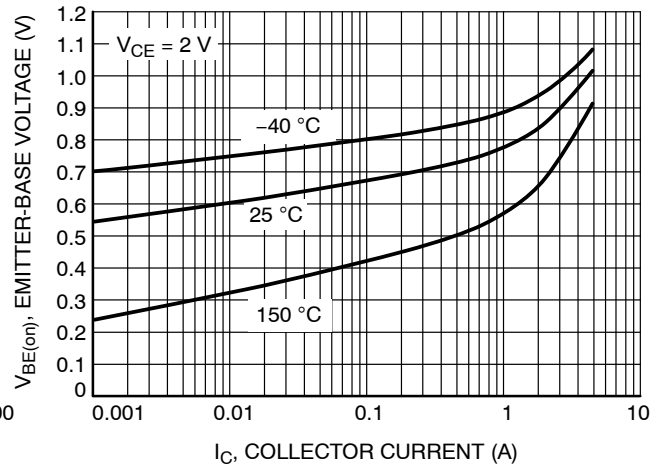


Figure 7. $V_{BE(on)}$ Voltage

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TYPICAL CHARACTERISTICS (continued)

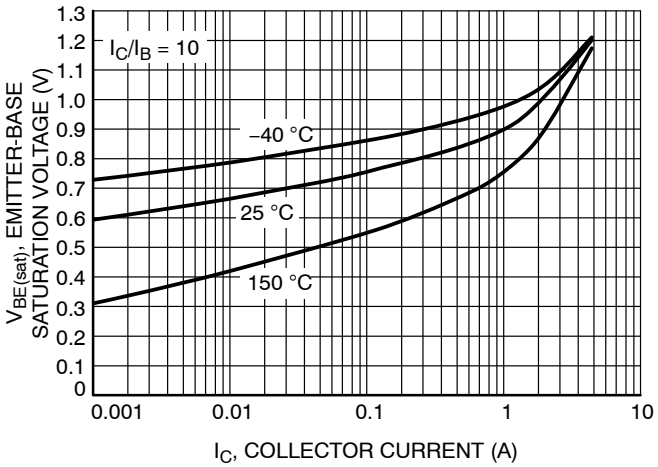


Figure 8. Base-Emitter Saturation Voltage

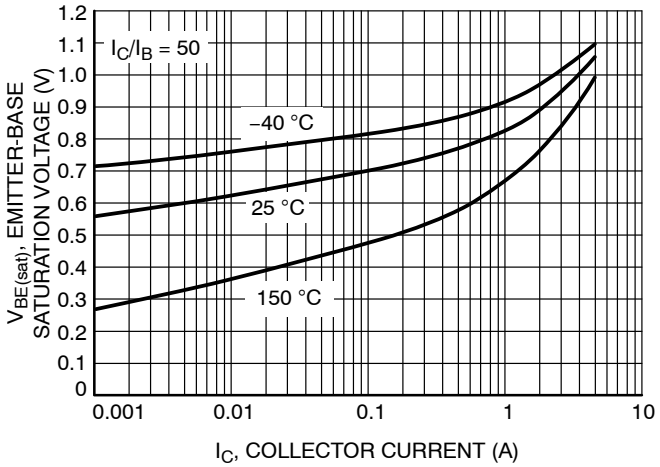


Figure 9. Base-Emitter Saturation Voltage

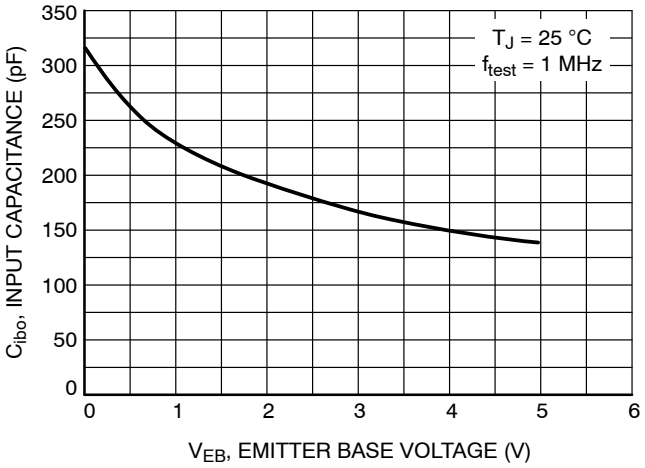


Figure 10. Input Capacitance

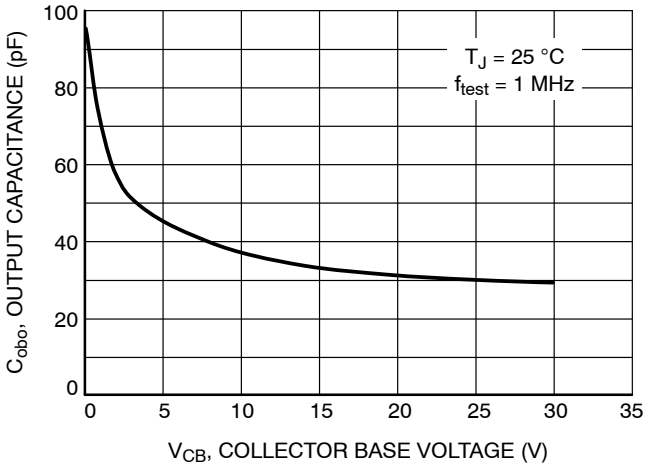


Figure 11. Output Capacitance

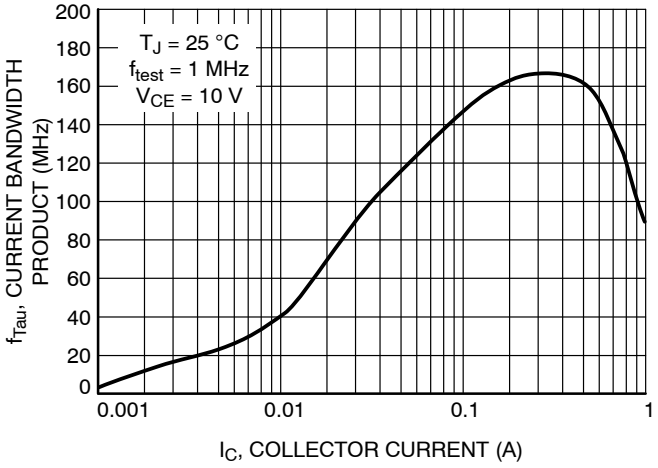


Figure 12. Current-Gain Bandwidth Product

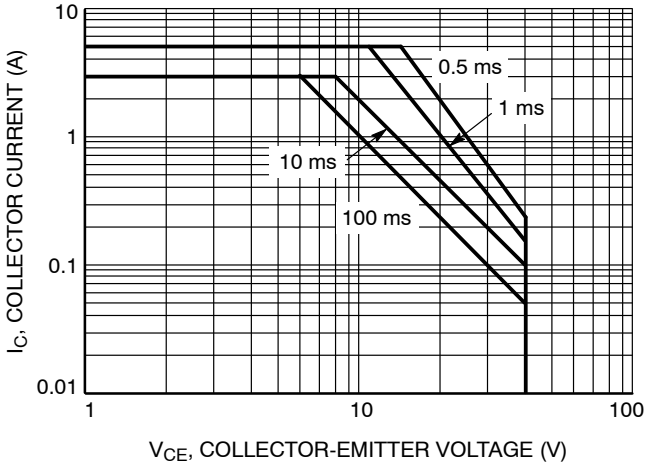


Figure 13. Safe Operating Area

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REVISION HISTORY

Revision	Description of Changes	Date
8	Rebranded the Data Sheet to **onsemi** format.	6/26/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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