NJT4030P, NJV4030P

Bipolar Power Transistors

PNP Silicon

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

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

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

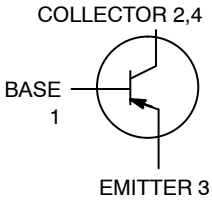
Characteristic	Symbol	Max	Unit
Total Power Dissipation Total P_D @ T_A = 25°C (Note 1) Total P_D @ T_A = 25°C (Note 2)	P_D	 2.0 0.80	W
Thermal Resistance, Junction−to−Case Junction−to−Ambient (Note 1) Junction−to−Ambient (Note 2)	 $R_{\theta JA}$ $R_{\theta JA}$	 64 155	°C/W
Maximum Lead Temperature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

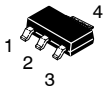
ON Semiconductor®

www.onsemi.com

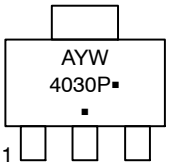
PNP TRANSISTOR
3.0 AMPERES
40 VOLTS, 2.0 WATTS



MARKING DIAGRAM



SOT−223
CASE 318E
STYLE 1



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)	1000 / Tape & Reel
NJV4030PT1G		
NJT4030PT3G	SOT−223 (Pb−Free)	4000 / Tape & Reel
NJV4030PT3G		

†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.

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

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

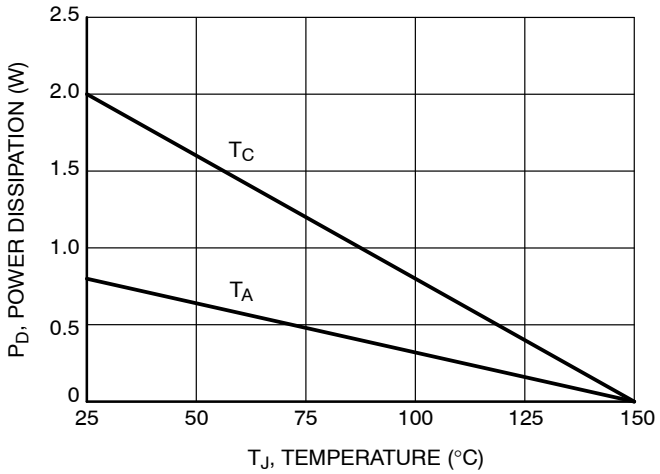


Figure 1. Power Derating

TYPICAL CHARACTERISTICS

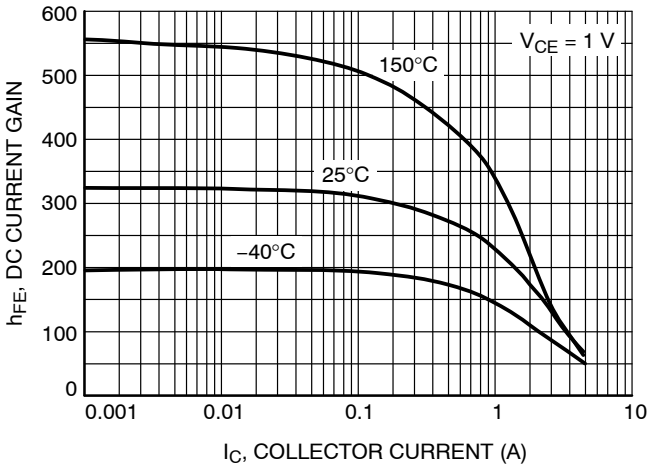


Figure 2. DC Current Gain

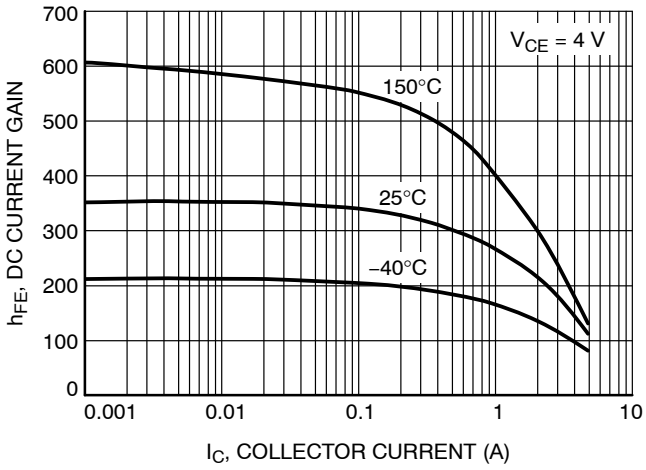


Figure 3. DC Current Gain

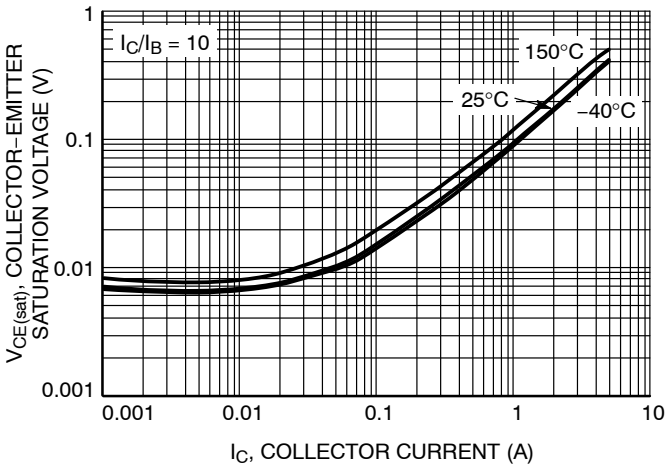


Figure 4. Collector−Emitter Saturation Voltage

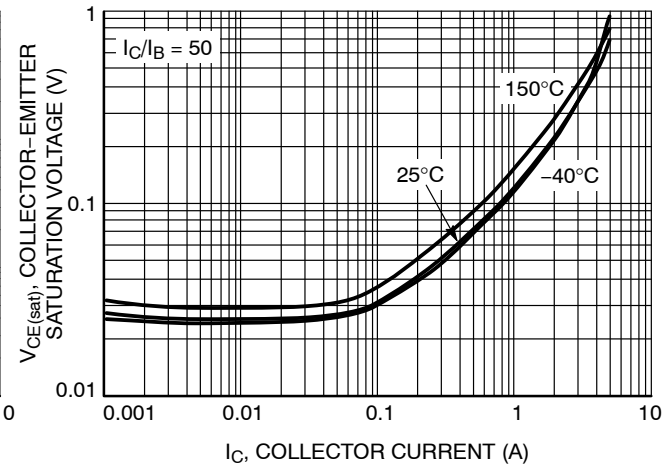


Figure 5. Collector−Emitter Saturation Voltage

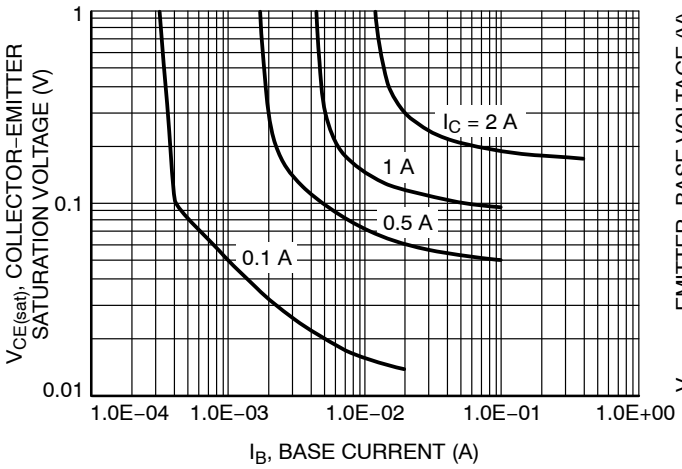


Figure 6. Collector Saturation Region

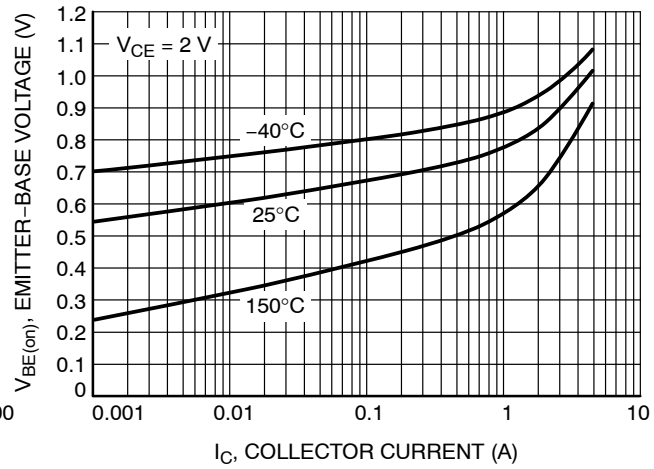


Figure 7. $V_{BE(on)}$ Voltage

TYPICAL CHARACTERISTICS

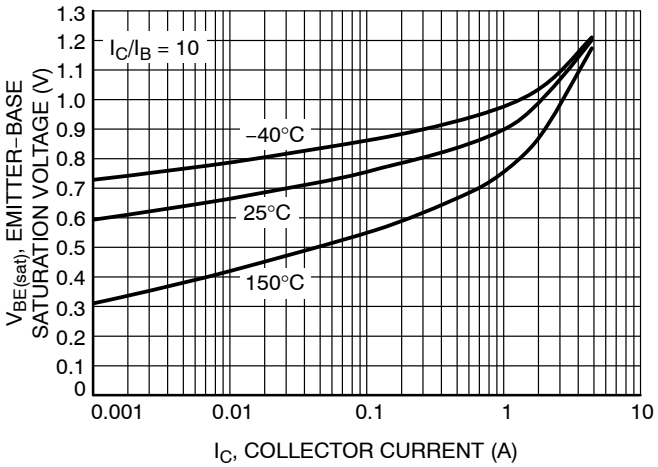


Figure 8. Base−Emitter Saturation Voltage

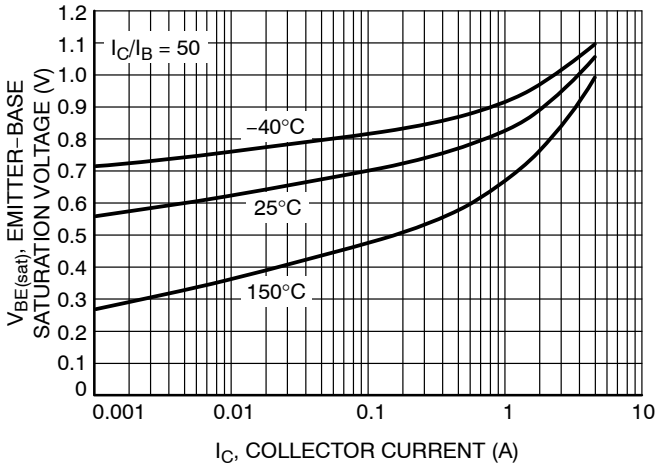


Figure 9. Base−Emitter Saturation Voltage

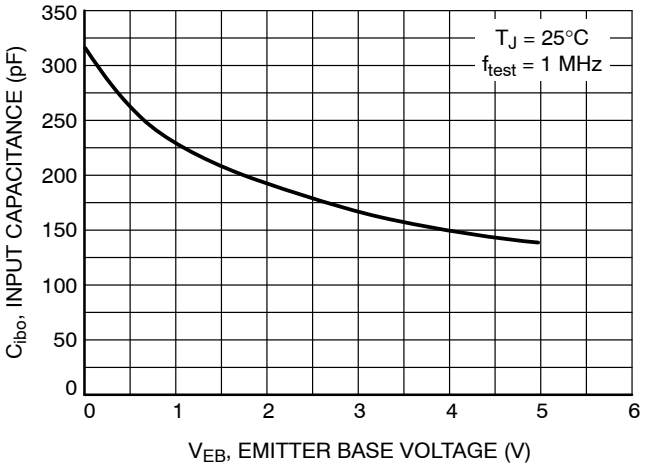


Figure 10. Input Capacitance

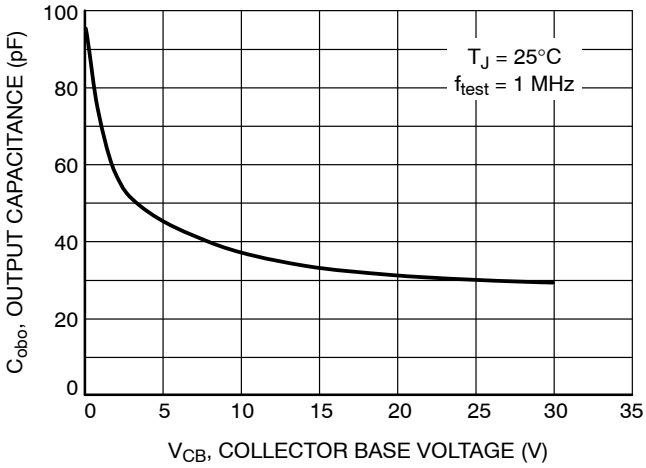


Figure 11. Output Capacitance

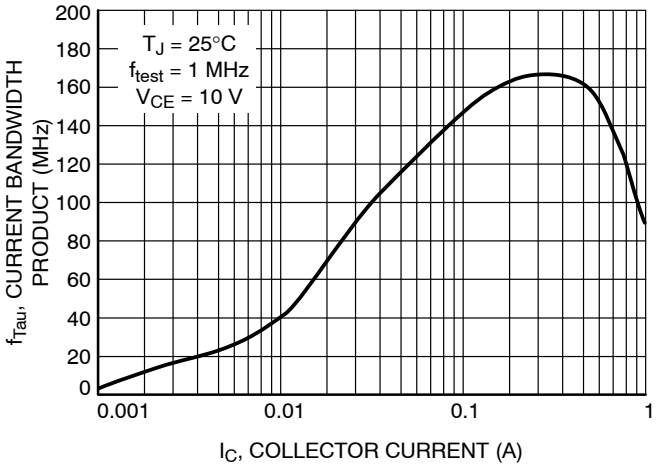


Figure 12. Current−Gain Bandwidth Product

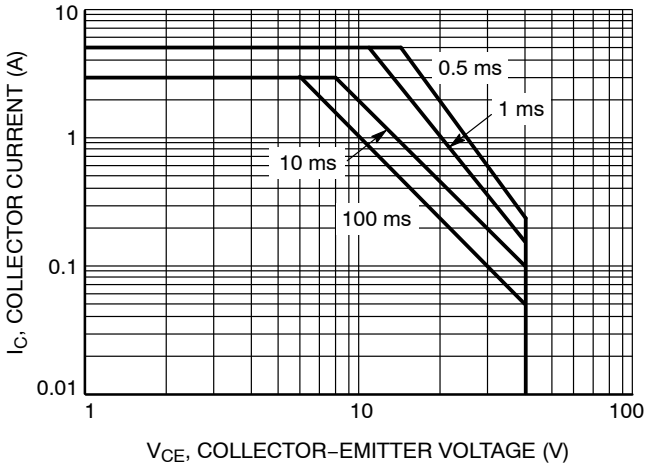
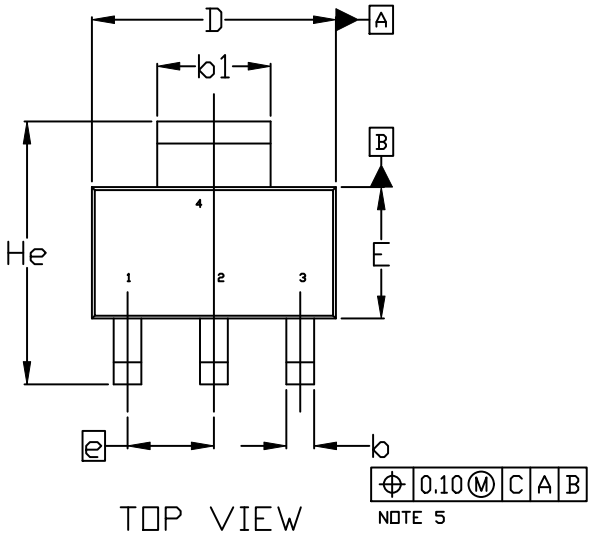
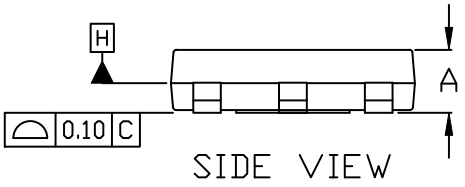


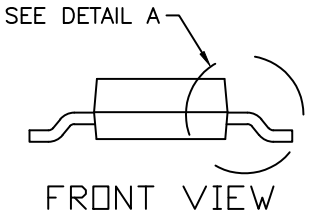
Figure 13. Safe Operating Area

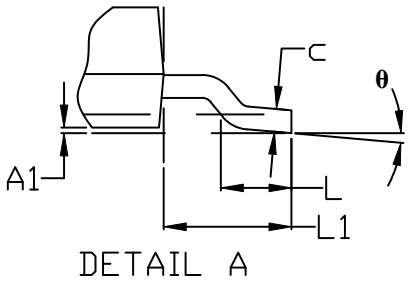
PACKAGE DIMENSIONS

SOT−223 (TO−261)
CASE 318E−04
ISSUE R





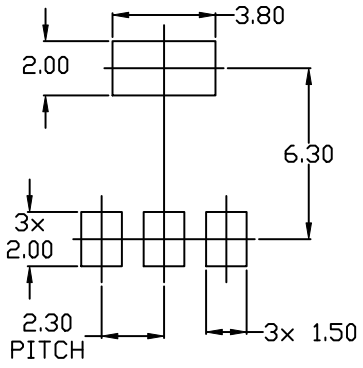




STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSIONS D & E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.200MM PER SIDE.
4. DATUMS A AND B ARE DETERMINED AT DATUM H.
5. A1 IS DEFINED AS THE VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.
6. POSITIONAL TOLERANCE APPLIES TO DIMENSIONS b AND b1.

	MILLIMETERS		
DIM	MIN.	NOM.	MAX.
A	1.50	1.63	1.75
A1	0.02	0.06	0.10
b	0.60	0.75	0.89
b1	2.90	3.06	3.20
c	0.24	0.29	0.35
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	2.30 BSC		
L	0.20	---	---
L1	1.50	1.75	2.00
He	6.70	7.00	7.30
θ	0°	---	10°



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