2N2907A

Small Signal Switching Transistor

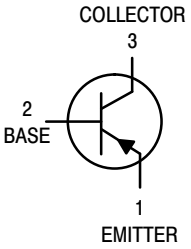
PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- MIL−PRF−19500/291 Qualified
- Available as JAN, JANTX, and JANTXV



TO−18
CASE 206AA
STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	−60	Vdc
Collector−Base Voltage	V_{CBO}	−60	Vdc
Emitter−Base Voltage	V_{EBO}	−5.0	Vdc
Collector Current − Continuous	I_C	−600	mAdc
Total Device Dissipation @ T_A = 25°C	P_T	500	mW
Total Device Dissipation @ T_C = 25°C	P_T	1.0	W
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	325	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	150	°C/W

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.

ORDERING INFORMATION

Device	Package	Shipping
JAN2N2907A	TO−18	Bulk
JANTX2N2907A		
JANTXV2N2907A		

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Breakdown Voltage (I_C = −10 mAdc)	$V_{(BR)CEO}$	−60	–	Vdc
Collector−Emitter Cutoff Current (V_{CE} = −50 Vdc)	I_{CES}	–	−50	nAdc
Collector−Base Cutoff Current (V_{CB} = −50 Vdc, I_E = 0) (V_{CB} = −60 Vdc, I_E = 0)	I_{CBO}	– –	−10 −10	nAdc μAdc
Emitter−Base Cutoff Current (V_{EB} = −4.0 Vdc) (V_{EB} = −5.0 Vdc)	I_{EBO}	– –	−50 −10	nAdc μAdc
ON CHARACTERISTICS (Note 1)				
DC Current Gain (I_C = −0.1 mAdc, V_{CE} = −10 Vdc) (I_C = −1.0 mAdc, V_{CE} = −10 Vdc) (I_C = −10 mAdc, V_{CE} = −10 Vdc) (I_C = −150 mAdc, V_{CE} = −10 Vdc) (I_C = −500 mAdc, V_{CE} = −10 Vdc)	h_{FE}	75 100 100 100 50	– 450 – 300 –	–
Collector−Emitter Saturation Voltage (I_C = −150 mAdc, I_B = −15 mAdc) (I_C = −500 mAdc, I_B = −50 mAdc)	$V_{CE(sat)}$	– –	−0.4 −1.6	Vdc
Base−Emitter Saturation Voltage (I_C = −150 mAdc, I_B = −15 mAdc) (I_C = −500 mAdc, I_B = −50 mAdc)	$V_{BE(sat)}$	−0.6 –	−1.3 −2.6	Vdc
SMALL−SIGNAL CHARACTERISTICS				
Magnitude of Small−Signal Current Gain (I_C = −20 mAdc, V_{CE} = −20 Vdc, f = 100 MHz)	$\|h_{fe}\|$	2.0	–	–
Small−Signal Current Gain (I_C = −1.0 mAdc, V_{CE} = −10 Vdc, f = 1 kHz)	h_{fe}	100	–	–
Output Capacitance (V_{CB} = −10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz)	C_{obo}	–	8.0	pF
Input Capacitance (V_{EB} = −2.0 Vdc, I_C = 0, 100 kHz ≤ f ≤ 1.0 MHz)	C_{ibo}	–	30	pF
SWITCHING CHARACTERISTICS				
Turn−On Time (Reference Figure in MIL−PRF−19500/291)	t_{on}	–	45	ns
Turn−Off Time (Reference Figure in MIL−PRF−19500/291)	t_{off}	–	300	ns

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.

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

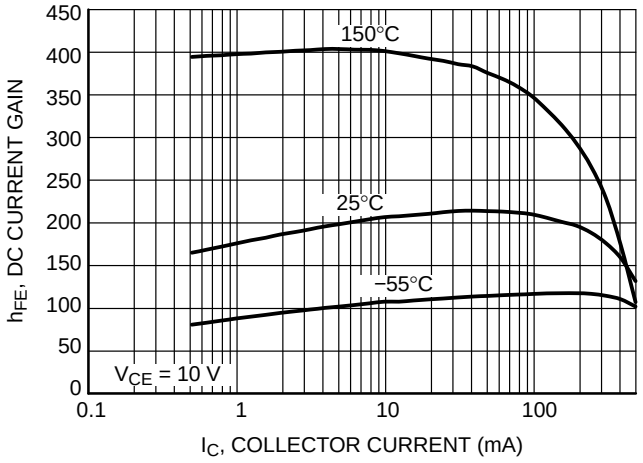


Figure 1. DC Current Gain

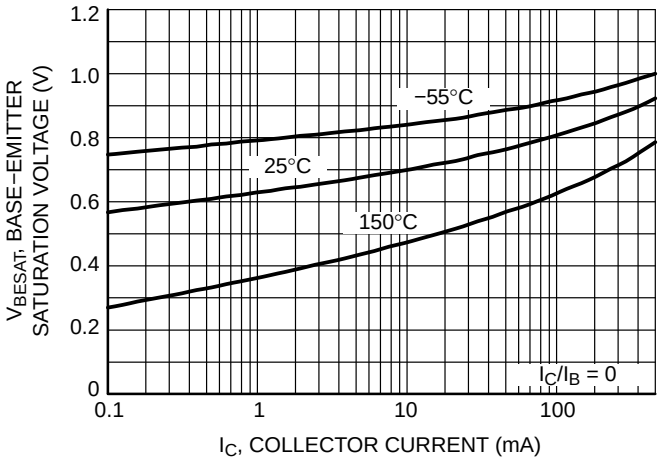


Figure 2. Base−Emitter Saturation Voltage

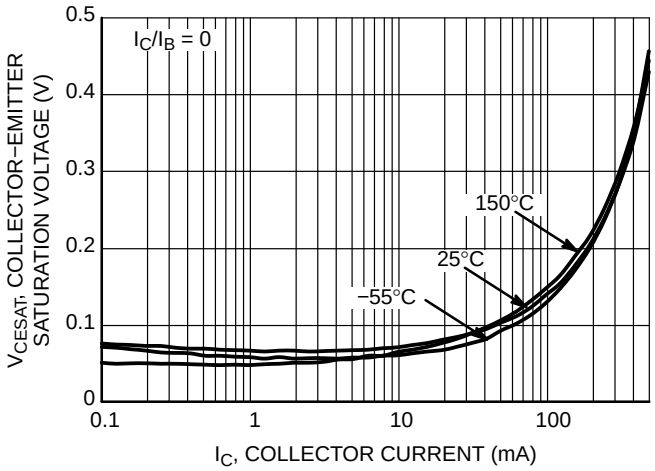


Figure 3. Collector−Emitter Saturation Voltage

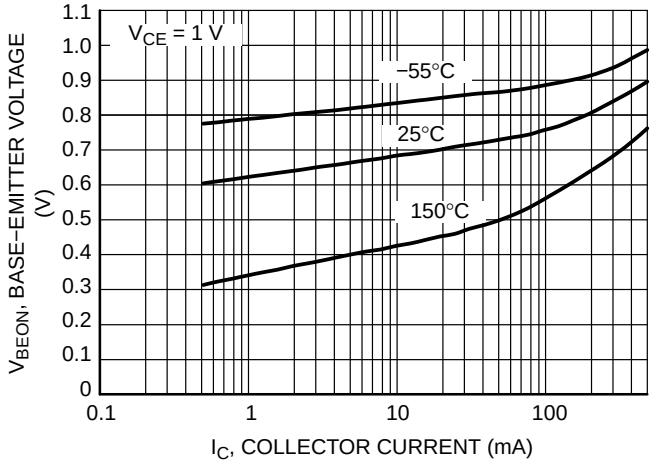


Figure 4. Base−Emitter Voltage

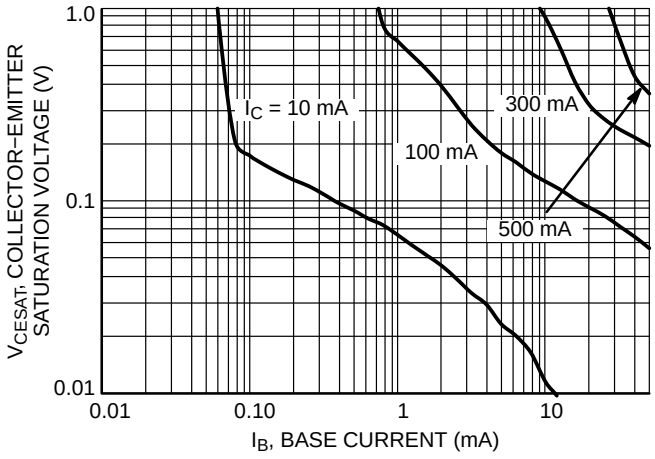


Figure 5. Collector Saturation Region

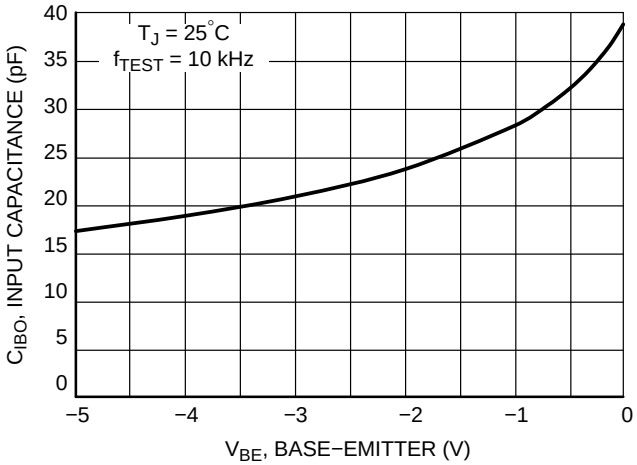


Figure 6. Input Capacitance

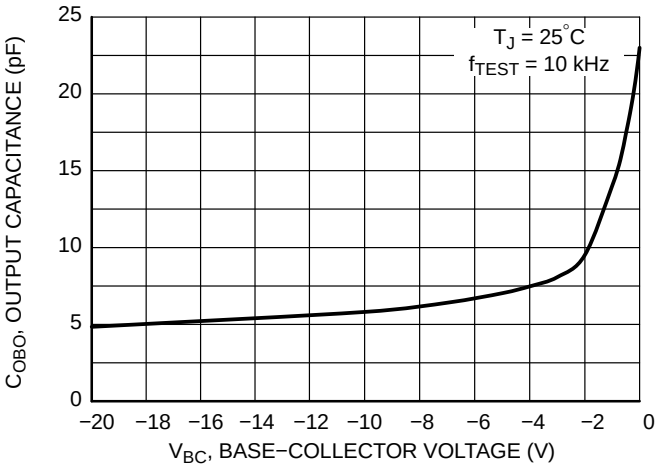


Figure 7. Output Capacitance

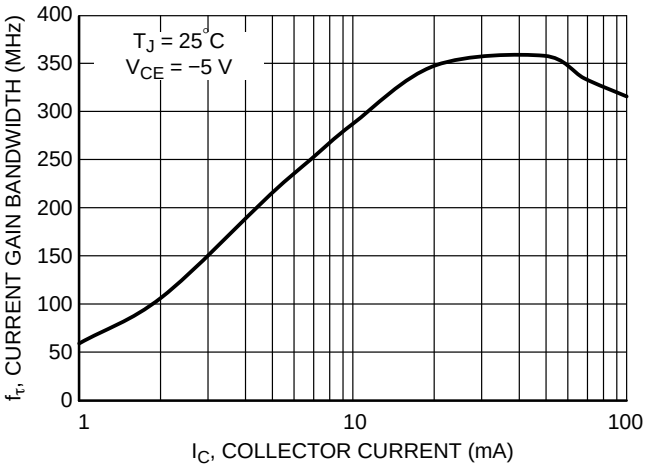
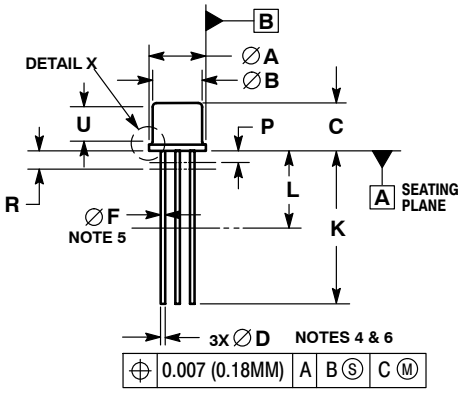


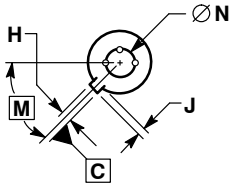
Figure 8. Current Gain Bandwidth Product

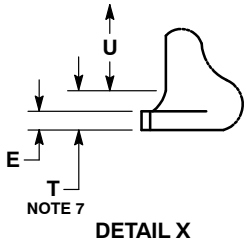
SCALE 1:1

TO−18
CASE 206AA
ISSUE A

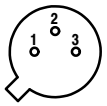
DATE 21 AUG 2012







DETAIL X



LEAD IDENTIFICATION DETAIL

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION J MEASURED FROM DIAMETER A TO EDGE.
4. LEAD TRUE POSITION TO BE DETERMINED AT THE GUAGE PLANE DEFINED BY DIMENSION R.
5. DIMENSION F APPLIES BETWEEN DIMENSION P AND L.
6. DIMENSION D APPLIES BETWEEN DIMENSION L AND K.
7. BODY CONTOUR OPTIONAL WITHIN ZONE DEFINED BY DIMENSIONS A, B, AND T.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	0.41	0.53	0.016	0.021
E	---	0.76	---	0.030
F	0.41	0.48	0.016	0.019
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70	19.05	0.500	0.750
L	6.35	---	0.250	---
M	45 °BSC		45 °BSC	
N	2.54 BSC		0.100 BSC	
P	---	1.27	---	0.050
R	1.37 BSC		0.054 BSC	
T	---	0.76	---	0.030
U	2.54	---	0.100	---

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

STYLE 2:
PIN 1. SOURCE, SUBSTRATE & CASE
2. GATE
3. DRAIN

STYLE 3:
PIN 1. SOURCE
2. DRAIN
3. GATE

STYLE 4:
PIN 1. SOURCE
2. DRAIN
3. GATE & CASE

STYLE 5:
PIN 1. EMITTER
2. BASE 1
3. BASE 2

STYLE 6:
PIN 1. CATHODE
2. GATE
3. ANODE

STYLE 7:
PIN 1. ANODE
2. BASE
3. CATHODE

STYLE 8:
PIN 1. GATE
2. ANODE 1
3. ANODE 2

STYLE 9:
PIN 1. ANODE 2
2. ANODE 1
3. GATE (CONNECTED TO CASE)

STYLE 10:
PIN 1. BASE
2. EMITTER
3. BASE

STYLE 11:
PIN 1. DRAIN
2. GATE
3. SOURCE, SUBSTRATE

STYLE 12:
PIN 1. SOURCE
2. GATE
3. DRAIN (CASE)

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