

# 2N2907A

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector–Emitter Breakdown Voltage ( $I_C = -10\text{ mAdc}$ )	$V_{(BR)CEO}$	-60	–	Vdc
Collector–Emitter Cutoff Current ( $V_{CE} = -50\text{ Vdc}$ )	$I_{CES}$	–	-50	nAdc
Collector–Base Cutoff Current ( $V_{CB} = -50\text{ Vdc}$ , $I_E = 0$ ) ( $V_{CB} = -60\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	– –	-10 -10	nAdc $\mu\text{Adc}$
Emitter–Base Cutoff Current ( $V_{EB} = -4.0\text{ Vdc}$ ) ( $V_{EB} = -5.0\text{ Vdc}$ )	$I_{EBO}$	– –	-50 -10	nAdc $\mu\text{Adc}$

## ON CHARACTERISTICS (Note 1)

DC Current Gain ( $I_C = -0.1\text{ mAdc}$ , $V_{CE} = -10\text{ Vdc}$ ) ( $I_C = -1.0\text{ mAdc}$ , $V_{CE} = -10\text{ Vdc}$ ) ( $I_C = -10\text{ mAdc}$ , $V_{CE} = -10\text{ Vdc}$ ) ( $I_C = -150\text{ mAdc}$ , $V_{CE} = -10\text{ Vdc}$ ) ( $I_C = -500\text{ mAdc}$ , $V_{CE} = -10\text{ Vdc}$ )	$h_{FE}$	75 100 100 100 50	– 450 – 300 –	–
Collector–Emitter Saturation Voltage ( $I_C = -150\text{ mAdc}$ , $I_B = -15\text{ mAdc}$ ) ( $I_C = -500\text{ mAdc}$ , $I_B = -50\text{ mAdc}$ )	$V_{CE(sat)}$	– –	-0.4 -1.6	Vdc
Base–Emitter Saturation Voltage ( $I_C = -150\text{ mAdc}$ , $I_B = -15\text{ mAdc}$ ) ( $I_C = -500\text{ mAdc}$ , $I_B = -50\text{ mAdc}$ )	$V_{BE(sat)}$	-0.6 –	-1.3 -2.6	Vdc

## SMALL–SIGNAL CHARACTERISTICS

Magnitude of Small–Signal Current Gain ( $I_C = -20\text{ mAdc}$ , $V_{CE} = -20\text{ Vdc}$ , $f = 100\text{ MHz}$ )	$ h_{fe} $	2.0	–	–
Small–Signal Current Gain ( $I_C = -1.0\text{ mAdc}$ , $V_{CE} = -10\text{ Vdc}$ , $f = 1\text{ kHz}$ )	$h_{fe}$	100	–	–
Output Capacitance ( $V_{CB} = -10\text{ Vdc}$ , $I_E = 0$ , $100\text{ kHz} \leq f \leq 1.0\text{ MHz}$ )	$C_{obo}$	–	8.0	pF
Input Capacitance ( $V_{EB} = -2.0\text{ Vdc}$ , $I_C = 0$ , $100\text{ kHz} \leq f \leq 1.0\text{ MHz}$ )	$C_{ibo}$	–	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  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

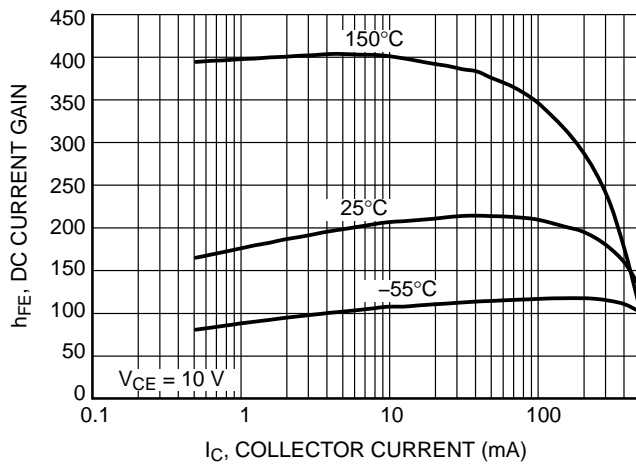


Figure 1. DC Current Gain

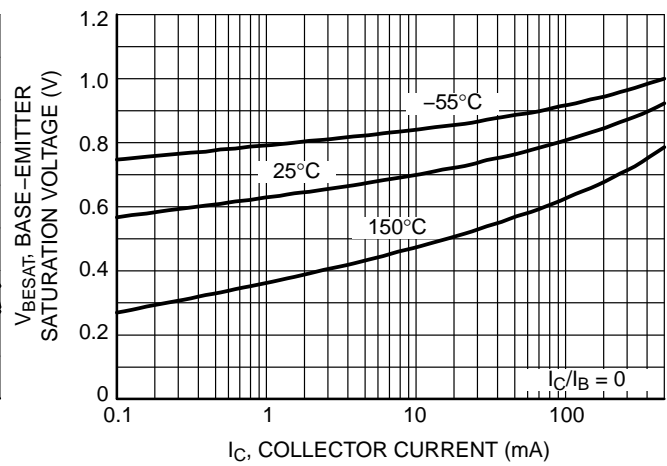


Figure 2. Base-Emitter Saturation Voltage

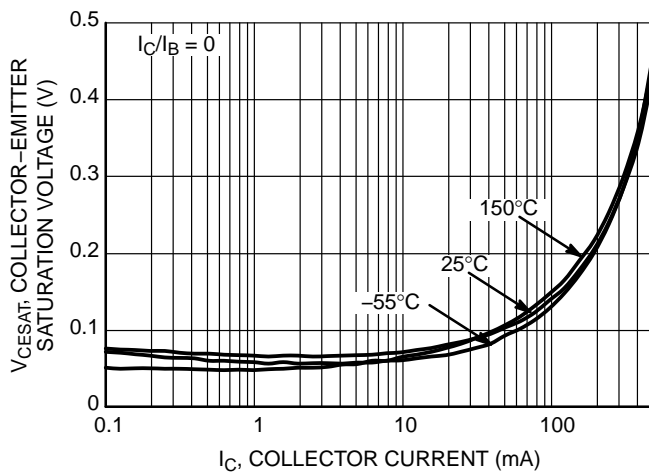


Figure 3. Collector-Emitter Saturation Voltage

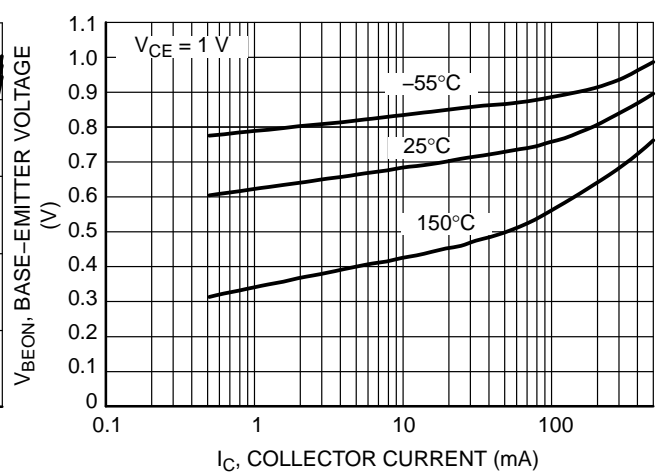


Figure 4. Base-Emitter Voltage

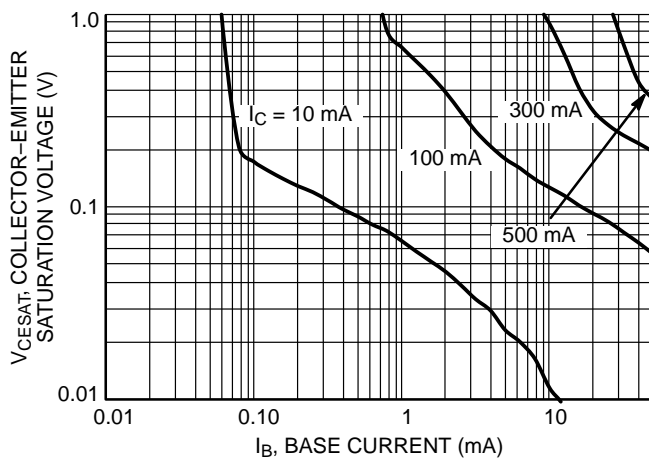


Figure 5. Collector Saturation Region

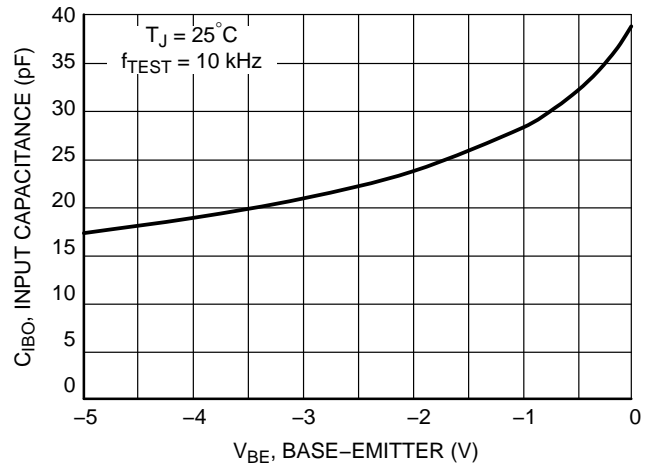


Figure 6. Input Capacitance

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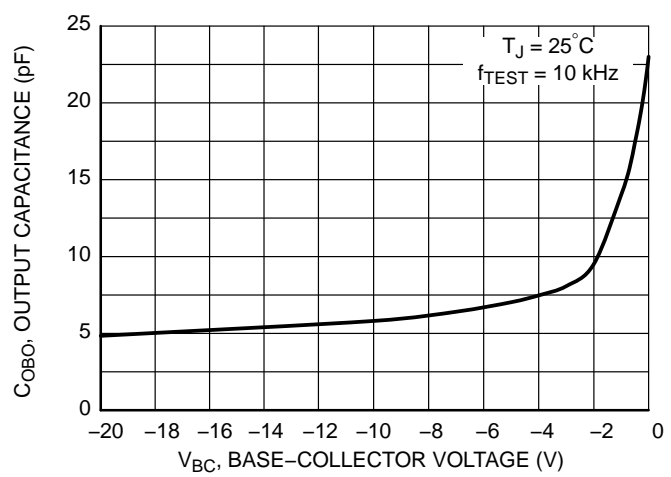


Figure 7. Output Capacitance

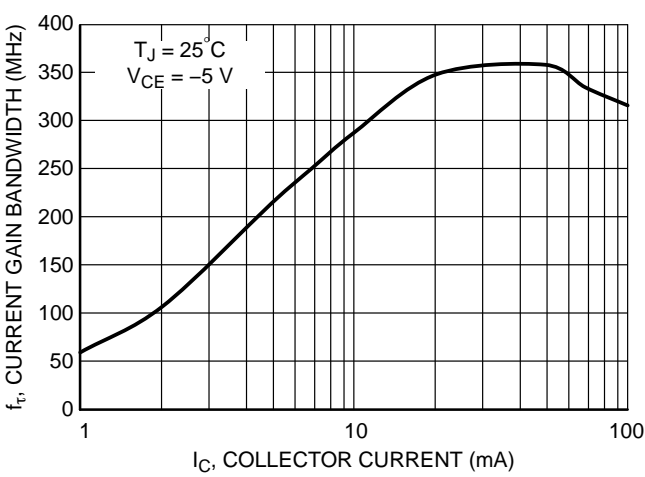


Figure 8. Current Gain Bandwidth Product

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

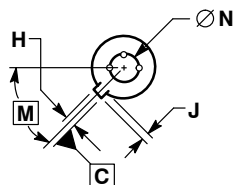
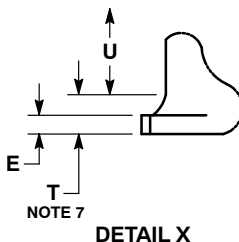
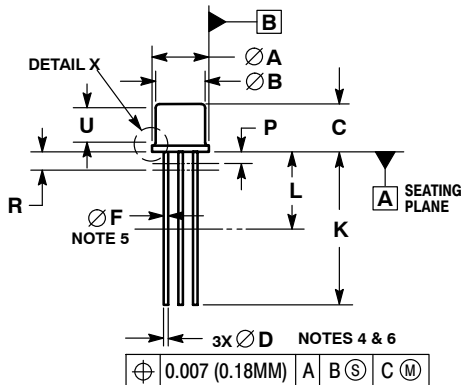
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SCALE 1:1

## TO-18 CASE 206AA ISSUE A

DATE 21 AUG 2012



### 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 GAUGE 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.

DIM	MILLIMETERS		INCHES	
	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 4:  
PIN 1. SOURCE  
2. DRAIN  
3. GATE & CASE

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

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

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

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

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

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

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

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

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

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

DOCUMENT NUMBER: 98AON45207E

DESCRIPTION: TO-18 3-LEAD

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