

2N2905A

Switching Transistor

PNP Silicon Epitaxial

Features

- MIL-PRF-19500/290 Qualified
- Available as JAN, JANTX, and JANTXV
- Hermetically Sealed Commercial Product with Option for Military Temperature Range Screening

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 @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_T	800 5.13	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_T	3.0 20	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

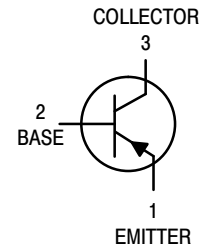
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	195	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	50	$^\circ\text{C}/\text{W}$

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.



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TO-39
CASE 205AB
STYLE 1

ORDERING INFORMATION

Device	Package	Shipping
JAN2N2905A	TO-39	Bulk
JANTX2N2905A		
JANTXV2N2905A		

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

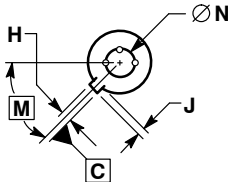
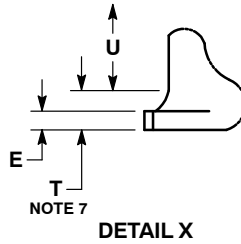
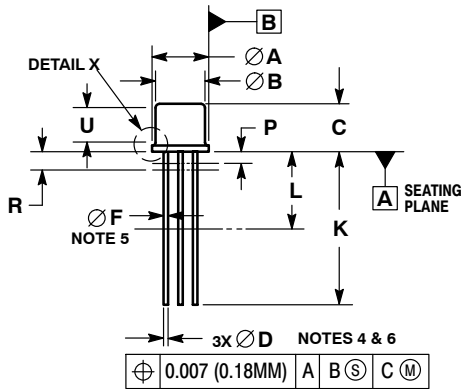
Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector - Emitter Breakdown Voltage (Note 1) ($I_C = -10 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	-60	-	Vdc	
Collector-Base Cutoff Current ($V_{CE} = -60 \text{ Vdc}$)	I_{CES}	-	-1.0	μA dc	
Collector to Base Cutoff Current ($V_{CB} = -50 \text{ Vdc}$) ($V_{CB} = -50 \text{ Vdc}$, $T_A = 150^\circ\text{C}$) ($V_{CB} = -60 \text{ Vdc}$)	I_{CBO}	-	-0.01 -10 -10	μA dc	
Emitter to Base Cutoff Current ($V_{EB} = 5.0 \text{ Vdc}$) ($V_{EB} = 3.5 \text{ Vdc}$)	I_{EBO}	-	-10 -0.050	μA dc	
ON CHARACTERISTICS					
DC Current Gain ($I_C = -0.1 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -1.0 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -10 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -150 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$) (Note 1) ($I_C = -500 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$) (Note 1) ($I_C = -1.0 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$, $T_A = -55^\circ\text{C}$)	h_{FE}	75 100 100 100 50 50	- 450 - 300 - -	-	
Collector - Emitter Saturation Voltage (Note 1) ($I_C = -150 \text{ mAdc}$, $I_B = -15 \text{ mAdc}$) ($I_C = -500 \text{ mAdc}$, $I_B = -50 \text{ mAdc}$)	$V_{CE(sat)}$	- -	-0.4 -1.6	Vdc	
Base - Emitter Saturation Voltage (Note 1) ($I_C = -150 \text{ mAdc}$, $I_B = -15 \text{ mAdc}$) ($I_C = -500 \text{ mAdc}$, $I_B = -50 \text{ mAdc}$)	$V_{BE(sat)}$	- -	-1.3 -2.6	Vdc	
SMALL-SIGNAL CHARACTERISTICS					
Small Signal Short-Circuit Forward Current Transfer Ratio ($I_C = -50 \text{ mAdc}$, $V_{CE} = -20 \text{ Vdc}$, $f = 100 \text{ MHz}$)	$ h_{fe} $	2.0	-	-	
Small Signal Short-Circuit Forward Current Transfer Ratio ($I_C = -1.0 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$, $f = 1 \text{ kHz}$)	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	See MIL-PRF-19500/290	t_{on}	-	45	ns
Turn-Off Time	See MIL-PRF-19500/290	t_{off}	-	300	ns

1. Pulse Test: See section 4 of MIL-STD-750.

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PACKAGE DIMENSIONS

TO-39 3-Lead CASE 205AB-01 ISSUE O



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.
8. DIMENSION B SHALL NOT VARY MORE THAN 0.010 IN ZONE P.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.41	0.48	0.016	0.019
E	0.23	3.18	0.009	0.125
F	0.41	0.48	0.016	0.019
H	0.71	0.86	0.028	0.034
J	0.73	1.02	0.029	0.040
K	12.70	14.73	0.500	0.580
L	6.35	---	0.250	---
M	---	45° BSC	---	45° BSC
N	---	5.08 BSC	---	0.200 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:

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

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