2N2907A

Product Preview

Switching Transistor

PNP Silicon Epitaxial

ON Semiconductor®

http://onsemi.com

Features

- MIL−PRF−19500/291 Qualified
- Available as JAN, JANTX, and JANTXV
- Hermetically Sealed Commercial Product with Option for Military Temperature Range Screening

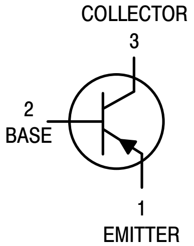
MAXIMUM RATINGS

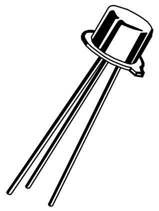
Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	−60	Vdc
Collector−Base Voltage	V_{CBO}	−60	Vdc
Emitter−Base Voltage	V_{EBO}	−5.0	Vdc
Collector Current − Continuous	I_C	−600	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_T	625 5.0	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_T	1.5 12	W mW/°C
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 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.





TO−18
CASE 206AA
STYLE 1

ORDERING INFORMATION

Device	Package	Shipping
2N2907A	TO−18	Bulk

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector – Emitter Breakdown Voltage (Note 1) ($I_C = -10$ mAdc, $I_B = 0$)	$V_{(BR)CEO}$	−60	–	Vdc
Collector – Base Breakdown Voltage ($I_C = -10$ μAdc, $I_E = 0$)	$V_{(BR)CBO}$	−60	–	Vdc
Emitter – Base Breakdown Voltage ($I_E = -10$ μAdc, $I_C = 0$)	$V_{(BR)EBO}$	−5.0	–	Vdc
Collector Cutoff Current ($V_{CE} = -30$ Vdc, $V_{EB(off)} = -0.5$ Vdc)	I_{CEX}	–	−50	nAdc
Collector Cutoff Current	I_{CBO}			μAdc
($V_{CB} = -50$ Vdc, $I_E = 0$)		–	−0.01	
($V_{CB} = -50$ Vdc, $I_E = 0$, T_A = 150°C)		–	−10	
Base Current ($V_{CE} = -30$ Vdc, $V_{EB(off)} = -0.5$ Vdc)	I_B	–	−50	nAdc
ON CHARACTERISTICS				
DC Current Gain	h_{FE}			–
($I_C = -0.1$ mAdc, $V_{CE} = -10$ Vdc)		75	–	
($I_C = -1.0$ mAdc, $V_{CE} = -10$ Vdc)		100	–	
($I_C = -10$ mAdc, $V_{CE} = -10$ Vdc)		100	–	
($I_C = -150$ mAdc, $V_{CE} = -10$ Vdc) (Note 1)		100	300	
($I_C = -500$ mAdc, $V_{CE} = -10$ Vdc) (Note 1)		50	–	
Collector – Emitter Saturation Voltage (Note 1)	$V_{CE(sat)}$			Vdc
($I_C = -150$ mAdc, $I_B = -15$ mAdc)		–	−0.4	
($I_C = -500$ mAdc, $I_B = -50$ mAdc)		–	−1.6	
Base – Emitter Saturation Voltage (Note 1)	$V_{BE(sat)}$			Vdc
($I_C = -150$ mAdc, $I_B = -15$ mAdc)		−0.6	−1.3	
($I_C = -500$ mAdc, $I_B = -50$ mAdc)		–	−2.6	
SMALL– SIGNAL CHARACTERISTICS				
Current – Gain – Bandwidth Product (Notes 1 and 2), ($I_C = -50$ mAdc, $V_{CE} = -20$ Vdc, f = 100 MHz)	f_T	200	–	MHz
$\lvert h_{fe} \rvert$, ($I_C = -20$ mAdc, $V_{CE} = -20$ Vdc, f = 100 MHz)		2.0	–	–
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, $I_C = 0$, f = 1.0 MHz)	C_{ibo}	–	30	pF

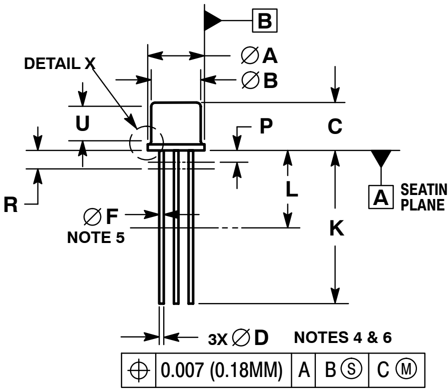
SWITCHING CHARACTERISTICS

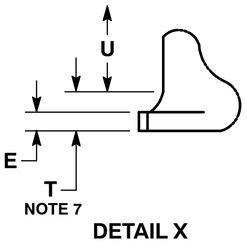
Turn−On Time	($V_{CC} = -30$ Vdc, $I_C = -150$ mAdc, $I_{B1} = -15$ mAdc) (Figures NO TAG and NO TAG)	t_{on}	–	45	ns
Delay Time		t_d	–	10	ns
Rise Time		t_r	–	40	ns
Turn−Off Time	($V_{CC} = -6.0$ Vdc, $I_C = -150$ mAdc, $I_{B1} = I_{B2} = 15$ mAdc) (Figure NO TAG)	t_{off}	–	100	ns
Storage Time		t_s	–	80	ns
Fall Time		t_f	–	30	ns

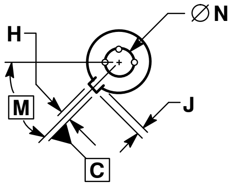
1. Pulse Test: See section 4 of MIL−STD−750.
2. f_T is defined as the frequency at which $\lvert h_{fe} \rvert$ extrapolates to unity.

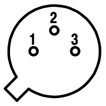
PACKAGE DIMENSIONS

TO−18 3
CASE 206AA−01
ISSUE O









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

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