

2N3019

Low Power Transistor

NPN Silicon

Features

- MIL-PRF-19500/391 Qualified
- Available as JAN, JANTX, and JANTXV
- Hermetically Sealed Commercial Product with Option for Military Temperature Range Screening

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

Characteristic	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	80	Vdc
Collector - Base Voltage	V_{CBO}	140	Vdc
Emitter - Base Voltage	V_{EBO}	7.0	Vdc
Collector Current - Continuous	I_C	1.0	Adc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_T	800	mW
Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_T	5.0	W
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

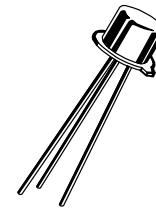
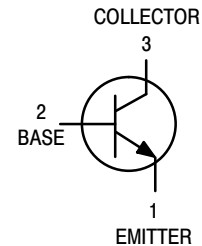
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	195	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	30	$^\circ\text{C/W}$

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.



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TO-5
CASE 205AA
STYLE 1

ORDERING INFORMATION

Device	Package	Shipping
JAN2N3019	TO-5	Bulk
JANTX2N3019		
JANTXV2N3019		

2N3019

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

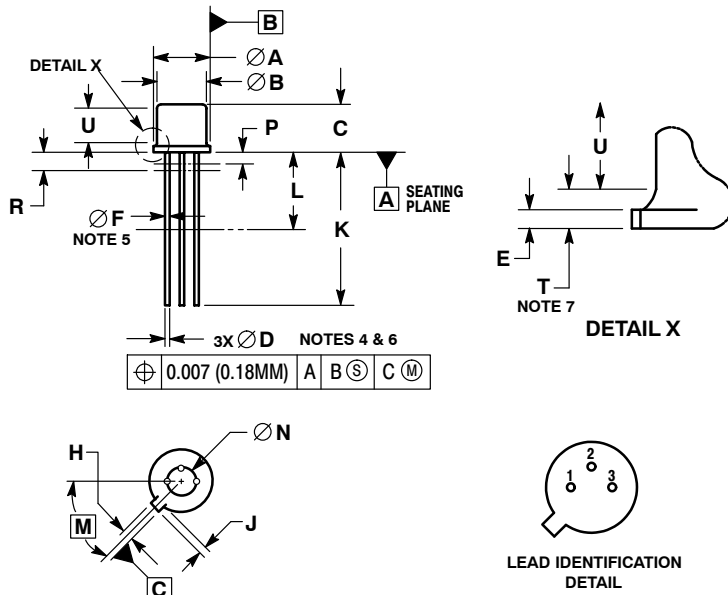
Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain ($I_C = 0.1 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$) (Note 1) ($I_C = 10 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$) (Note 1) ($I_C = 150 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$) (Note 1) ($I_C = 500 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$) (Note 1) ($I_C = 1.0 \text{ A}$, $V_{CE} = 10 \text{ Vdc}$) (Note 1)	h_{FE}	50 90 100 50 15	300 – 300 300 –	–
Collector – Emitter Saturation Voltage (Note 1) ($I_C = 150 \text{ mA}$, $I_B = 15 \text{ mA}$) ($I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$)	$V_{CE(sat)}$	– –	0.2 0.5	Vdc
Base – Emitter Saturation Voltage (Note 1) ($I_C = 150 \text{ mA}$, $I_B = 15 \text{ mA}$)	$V_{BE(sat)}$	–	1.1	Vdc
SMALL – SIGNAL CHARACTERISTICS				
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$)	C_{obo}	–	12	pF
Small – Signal Current Gain ($I_C = 50 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$, $f = 20 \text{ MHz}$)	$ h_{fe} $	5.0	20	–

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

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PACKAGE DIMENSIONS

TO-5 3-Lead CASE 205AA-01 ISSUE A



- 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	0.53	0.016	0.021
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	38.10	44.45	1.500	1.750
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. EMITTER
 2. BASE
 3. COLLECTOR

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