

# 2N3019S

## 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                         | $V_{CE0}$      | 80          | Vdc              |
| Collector - Base Voltage                            | $V_{CB0}$      | 140         | Vdc              |
| Emitter - Base Voltage                              | $V_{EB0}$      | 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

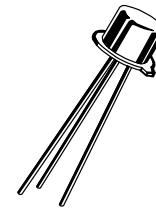
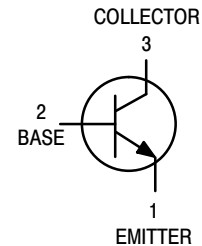
| Characteristic                          | Symbol          | Max | Unit               |
|---|-----------------|-----|--------------------|
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 195 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case    | $R_{\theta JC}$ | 30  | $^\circ\text{C/W}$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

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-39  
CASE 205AB  
STYLE 1

#### ORDERING INFORMATION

| Device        | Package | Shipping |
|---------------|---------|----------|
| JAN2N3019S    | TO-39   | Bulk     |
| JANTX2N3019S  |         |          |
| JANTXV2N3019S |         |          |

## 2N3019S

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

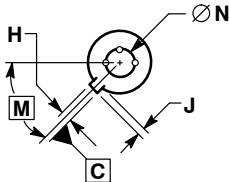
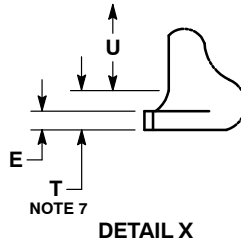
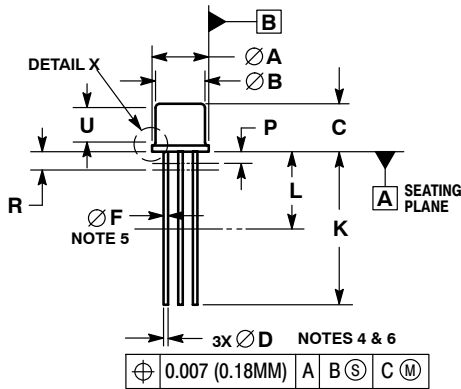
| Characteristic   | Symbol        | Min                         | Max                         | Unit |
|--|---------------|-----------------------------|-----------------------------|------|
| <b>ON CHARACTERISTICS</b>  |               |                             |                             |      |
| DC Current Gain<br>( $I_C = 0.1 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ ) (Note 1)<br>( $I_C = 10 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ ) (Note 1)<br>( $I_C = 150 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ ) (Note 1)<br>( $I_C = 500 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ ) (Note 1)<br>( $I_C = 1.0 \text{ A}$ , $V_{CE} = 10 \text{ Vdc}$ ) (Note 1) | $h_{FE}$      | 50<br>90<br>100<br>50<br>15 | 300<br>–<br>300<br>300<br>– | –    |
| Collector – Emitter Saturation Voltage (Note 1)<br>( $I_C = 150 \text{ mA}$ , $I_B = 15 \text{ mA}$ )<br>( $I_C = 500 \text{ mA}$ , $I_B = 50 \text{ mA}$ )  | $V_{CE(sat)}$ | –<br>–                      | 0.2<br>0.5                  | Vdc  |
| Base – Emitter Saturation Voltage (Note 1)<br>( $I_C = 150 \text{ mA}$ , $I_B = 15 \text{ mA}$ )   | $V_{BE(sat)}$ | –                           | 1.1                         | Vdc  |
| <b>SMALL – SIGNAL CHARACTERISTICS</b>  |               |                             |                             |      |
| 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<br>( $I_C = 50 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 20 \text{ MHz}$ )  | $ h_{fe} $    | 5.0                         | 20                          | –    |

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

# 2N3019S

## 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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