

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

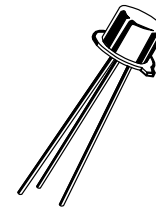
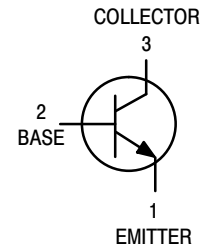
| Characteristic | Symbol | Max | Unit |
|---|-----------------|-----|---------------------------|
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 195 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 30 | $^\circ\text{C}/\text{W}$ |

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.



ON Semiconductor®

<http://onsemi.com>



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)

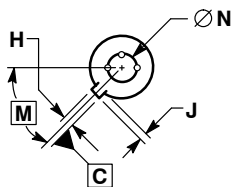
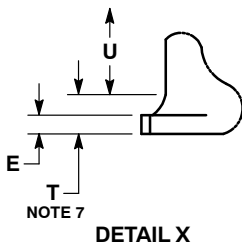
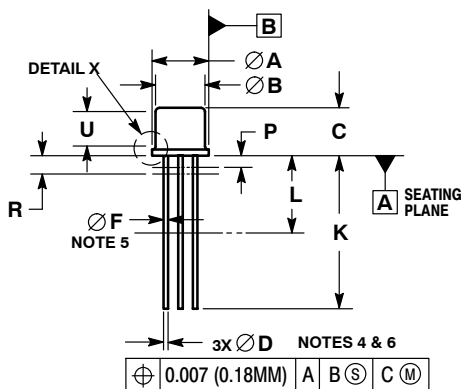
| Characteristic | Symbol | Min | Max | Unit |
|--|---------------|-----------------------------|-----------------------------|------|
| ON CHARACTERISTICS | | | | |
| DC Current Gain ($I_C = 0.1 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$) (Note 1) ($I_C = 10 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$) (Note 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.

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

ON Semiconductor and **ON** are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative