

2N3439  
2N3440

SILICON  
NPN TRANSISTOR



TO-39 CASE



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N3439 and 2N3440 are silicon NPN transistors designed for consumer and industrial line-operated applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

|  |  |
|--|--|
| Collector-Base Voltage                     |  |
| Collector-Emitter Voltage                  |  |
| Emitter-Base Voltage                       |  |
| Continuous Collector Current               |  |
| Continuous Base Current                    |  |
| Power Dissipation                          |  |
| Operating and Storage Junction Temperature |  |

| SYMBOL         | 2N3439 | 2N3440      | UNITS            |
|----------------|--------|-------------|------------------|
| $V_{CBO}$      | 450    | 300         | V                |
| $V_{CEO}$      | 350    | 250         | V                |
| $V_{EBO}$      |        | 7.0         | V                |
| $I_C$          |        | 1.0         | A                |
| $I_B$          |        | 0.5         | A                |
| $P_D$          |        | 1.0         | W                |
| $T_J, T_{stg}$ |        | -65 to +200 | $^\circ\text{C}$ |

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

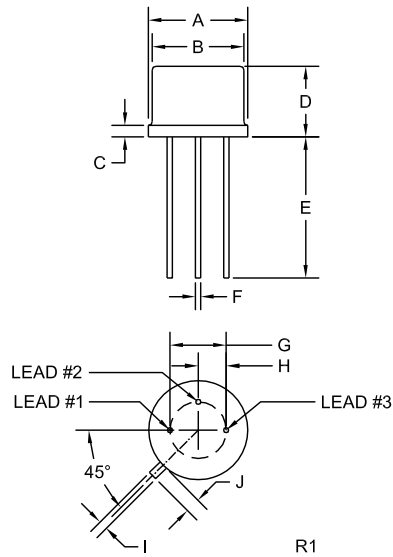
| SYMBOL        | TEST CONDITIONS                                       | MIN | MAX | UNITS         |
|---------------|---|-----|-----|---------------|
| $I_{CBO}$     | $V_{CB}=360\text{V}$ (2N3439)                         |     | 20  | $\mu\text{A}$ |
| $I_{CBO}$     | $V_{CB}=250\text{V}$ (2N3440)                         |     | 20  | $\mu\text{A}$ |
| $I_{CEX}$     | $V_{CE}=450\text{V}, V_{BE}=1.5\text{V}$ (2N3439)     |     | 500 | $\mu\text{A}$ |
| $I_{CEX}$     | $V_{CE}=300\text{V}, V_{BE}=1.5\text{V}$ (2N3440)     |     | 500 | $\mu\text{A}$ |
| $I_{CEO}$     | $V_{CE}=300\text{V}$ (2N3439)                         |     | 20  | $\mu\text{A}$ |
| $I_{CEO}$     | $V_{CE}=200\text{V}$ (2N3440)                         |     | 50  | $\mu\text{A}$ |
| $I_{EBO}$     | $V_{EB}=6.0\text{V}$                                  |     | 20  | $\mu\text{A}$ |
| $BV_{CEO}$    | $I_C=50\text{mA}$ (2N3439)                            | 350 |     | V             |
| $BV_{CEO}$    | $I_C=50\text{mA}$ (2N3440)                            | 250 |     | V             |
| $V_{CE(SAT)}$ | $I_C=50\text{mA}, I_B=4.0\text{mA}$                   |     | 0.5 | V             |
| $V_{BE(SAT)}$ | $I_C=50\text{mA}, I_B=4.0\text{mA}$                   |     | 1.3 | V             |
| $h_{FE}$      | $V_{CE}=10\text{V}, I_C=2.0\text{mA}$ (2N3439)        | 30  |     |               |
| $h_{FE}$      | $V_{CE}=10\text{V}, I_C=20\text{mA}$                  | 40  | 160 |               |
| $f_T$         | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=5.0\text{MHz}$ | 15  |     | MHz           |
| $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$           |     | 10  | pF            |
| $C_{ib}$      | $V_{EB}=5.0\text{V}, I_C=0, f=1.0\text{MHz}$          |     | 75  | pF            |

R2 (25-November 2019)

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TO-39 CASE - MECHANICAL OUTLINE



| SYMBOL  | DIMENSIONS |       |             |      |
|---------|------------|-------|-------------|------|
|         | INCHES     |       | MILLIMETERS |      |
|         | MIN        | MAX   | MIN         | MAX  |
| A (DIA) | 0.335      | 0.370 | 8.51        | 9.40 |
| B (DIA) | 0.315      | 0.335 | 8.00        | 8.51 |
| C       | -          | 0.040 | -           | 1.02 |
| D       | 0.240      | 0.260 | 6.10        | 6.60 |
| E       | 0.500      | -     | 12.70       | -    |
| F (DIA) | 0.016      | 0.021 | 0.41        | 0.53 |
| G (DIA) | 0.200      |       | 5.08        |      |
| H       | 0.100      |       | 2.54        |      |
| I       | 0.028      | 0.034 | 0.71        | 0.86 |
| J       | 0.029      | 0.045 | 0.74        | 1.14 |

TO-39 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING: FULL PART NUMBER

R2 (25-November 2019)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

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