

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

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2N5679 2N5680 PNP  
2N5681 2N5682 NPN

COMPLEMENTARY SILICON  
HIGH POWER TRANSISTORS

JEDEC TO-39 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5679 Series types are complementary silicon high power transistors manufactured by the epitaxial planar process and designed for general-purpose amplifier and switching applications where high voltages are required.

## MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

|   | SYMBOL                            | 2N5679<br>2N5681 | 2N5680<br>2N5682 | UNITS |
|---|-----------------------------------|------------------|------------------|-------|
| Collector-Base Voltage                        | V <sub>CB0</sub>                  | 100              | 120              | V     |
| Collector-Emitter Voltage                     | V <sub>CEO</sub>                  | 100              | 120              | V     |
| Emitter-Base Voltage                          | V <sub>EBO</sub>                  |                  | 4.0              | V     |
| Collector Current                             | I <sub>C</sub>                    |                  | 1.0              | A     |
| Base Current                                  | I <sub>B</sub>                    |                  | 0.5              | A     |
| Power Dissipation                             | P <sub>D</sub>                    |                  | 1.0              | W     |
| Power Dissipation(T <sub>C</sub> =25°C)       | P <sub>D</sub>                    |                  | 10               | W     |
| Operating and Storage<br>Junction Temperature | T <sub>J</sub> , T <sub>stg</sub> | -65 to +200      |                  | °C    |
| Thermal Resistance                            | θ <sub>JA</sub>                   |                  | 175              | °C/W  |
| Thermal Resistance                            | θ <sub>JC</sub>                   |                  | 17.5             | °C/W  |

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

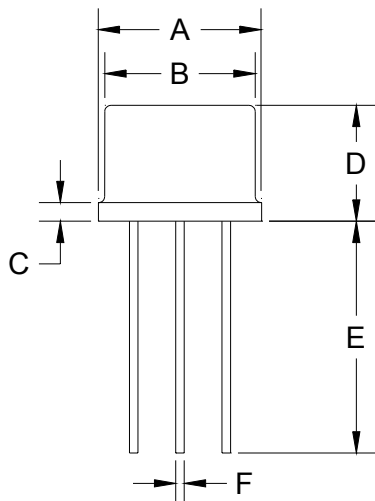
| SYMBOL               | TEST CONDITIONS   | 2N5679<br>2N5681 |     | 2N5680<br>2N5682 |     | UNITS |
|----------------------|---|------------------|-----|------------------|-----|-------|
|                      |   | MIN              | MAX | MIN              | MAX |       |
| I <sub>CB0</sub>     | V <sub>CB</sub> = Rated V <sub>CB0</sub>  |                  | 1.0 |                  | 1.0 | μA    |
| I <sub>CEV</sub>     | V <sub>CE</sub> = Rated V <sub>CEO</sub> , V <sub>EB</sub> =1.5V                        |                  | 1.0 |                  | 1.0 | μA    |
| I <sub>CEV</sub>     | V <sub>CE</sub> = Rated V <sub>CEO</sub> , V <sub>EB</sub> =1.5V, T <sub>C</sub> =150°C |                  | 1.0 |                  | 1.0 | mA    |
| I <sub>CEO</sub>     | V <sub>CE</sub> =70V  |                  | 10  | ---              |     | μA    |
| I <sub>CEO</sub>     | V <sub>CE</sub> =80V  |                  | --- |                  | 10  | μA    |
| I <sub>EBO</sub>     | V <sub>EB</sub> =4.0V   |                  | 1.0 |                  | 1.0 | μA    |
| BV <sub>CEO</sub>    | I <sub>C</sub> =10mA  | 100              |     | 120              |     | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =250mA, I <sub>B</sub> =25mA   |                  | 0.6 |                  | 0.6 | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =500mA, I <sub>B</sub> =50mA   |                  | 1.0 |                  | 1.0 | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =1.0A, I <sub>B</sub> =200mA   |                  | 2.0 |                  | 2.0 | V     |
| V <sub>BE(ON)</sub>  | V <sub>CE</sub> =2.0V, I <sub>C</sub> =250mA  |                  | 1.0 |                  | 1.0 | V     |
| h <sub>FE</sub>      | V <sub>CE</sub> =2.0V, I <sub>C</sub> =250mA  | 40               | 150 | 40               | 150 |       |
| h <sub>FE</sub>      | V <sub>CE</sub> =2.0V, I <sub>C</sub> =1.0A   | 5.0              |     | 5.0              |     |       |

(SEE REVERSE SIDE)

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

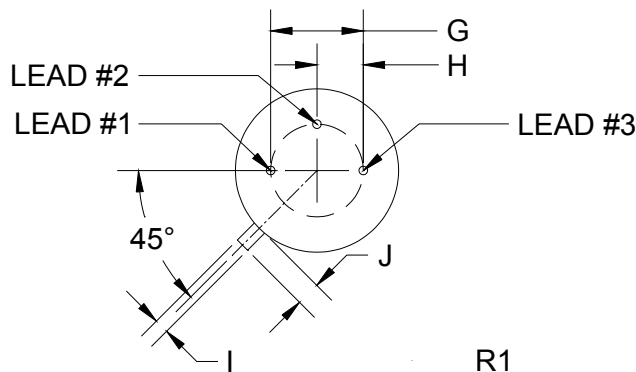
| SYMBOL   | TEST CONDITIONS  | 2N5679<br>2N5681 |     | 2N5680<br>2N5682 |     | UNITS |
|----------|--|------------------|-----|------------------|-----|-------|
|          |  | MIN              | MAX | MIN              | MAX |       |
| $h_{fe}$ | $V_{CE}=1.5\text{V}, I_C=0.2\text{A}, f=1.0\text{kHz}$ | 40               |     | 40               |     |       |
| $f_T$    | $V_{CE}=10\text{V}, I_C=100\text{mA}, f=10\text{MHz}$  | 30               |     | 30               |     | MHz   |
| $C_{ob}$ | $V_{CB}=20\text{V}, I_E=0, f=1.0\text{MHz}$            |                  | 50  |                  | 50  | pF    |

TO-39 PACKAGE - MECHANICAL OUTLINE



| SYMBOL  | 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)



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