

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

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

2N5770

NPN SILICON RF TRANSISTOR

JEDEC TO-92 CASE (EBC)

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5770 type is a NPN Silicon Epitaxial Planar Transistors designed for high frequency amplifier and oscillator applications.

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

|                           | SYMBOL         |             | UNITS              |
|---------------------------|----------------|-------------|--------------------|
| Collector-Base Voltage    | $V_{CB0}$      | 30          | V                  |
| Collector-Emitter Voltage | $V_{CEO}$      | 15          | V                  |
| Emitter-Base Voltage      | $V_{EBO}$      | 3.0         | V                  |
| Collector Current         | $I_C$          | 50          | mA                 |
| Power Dissipation         | $P_D$          | 625         | mW                 |
| Operating and Storage     |                |             |                    |
| Junction Temperature      | $T_J, T_{stg}$ | -65 to +150 | $^\circ\text{C}$   |
| Thermal Resistance        | $\theta_{JA}$  | 200         | $^\circ\text{C/W}$ |

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

| SYMBOL        | TEST CONDITIONS                                                               | MIN | MAX | UNITS         |
|---------------|-------------------------------------------------------------------------------|-----|-----|---------------|
| $I_{CBO}$     | $V_{CB} = 15\text{V}$                                                         |     | 10  | nA            |
| $I_{CBO}$     | $V_{CB} = 15\text{V}, T_A = 150^\circ\text{C}$                                |     | 1.0 | $\mu\text{A}$ |
| $BV_{CBO}$    | $I_C = 1.0\mu\text{A}$                                                        | 30  |     | V             |
| $BV_{CEO}$    | $I_C = 3.0\text{mA}$                                                          | 15  |     | V             |
| $BV_{EBO}$    | $I_E = 10\mu\text{A}$                                                         | 3.0 |     | V             |
| $V_{CE(SAT)}$ | $I_C = 10\text{mA}, I_B = 1.0\text{mA}$                                       |     | 0.4 | V             |
| $V_{BE(SAT)}$ | $I_C = 10\text{mA}, I_B = 1.0\text{mA}$                                       |     | 1.0 | V             |
| $h_{FE}$      | $V_{CE} = 1.0\text{V}, I_C = 3.0\text{mA}$                                    | 20  |     |               |
| $h_{FE}$      | $V_{CE} = 1.0\text{V}, I_C = 8.0\text{mA}$                                    | 50  | 200 |               |
| $f_T$         | $V_{CE} = 10\text{V}, I_C = 8.0\text{mA}, f = 100\text{MHz}$                  | 900 |     | MHz           |
| $C_{ob}$      | $V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$                             |     | 1.7 | pF            |
| $C_{ib}$      | $V_{EB} = 0.5\text{V}, I_C = 0, f = 1.0\text{MHz}$                            |     | 2.0 | pF            |
| $G_{pe}$      | $V_{CB} = 12\text{V}, I_C = 6.0\text{mA}, f = 200\text{MHz}$                  | 15  |     | dB            |
| $P_O$         | $V_{CB} = 15\text{V}, I_C = 8.0\text{mA}, f = 500\text{MHz}$                  | 30  |     | mW            |
| $\eta$        | $V_{CB} = 15\text{V}, I_C = 8.0\text{mA}, f = 500\text{MHz}$                  | 25  |     | %             |
| NF            | $V_{CE} = 6.0\text{V}, I_C = 1.0\text{mA}, R_G = 400\Omega, f = 60\text{MHz}$ |     | 6.0 | dB            |