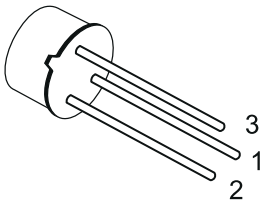
# SPTECH Silicon NPN/PNP Power Transistor 2N3440/2N5416

## DESCRIPTION

- With TO-39 package
- High breakdown voltage $V_{CEO}$:250V
- High current 1A
- Low saturation voltage,excellent $h_{FE}$ linearity




TO-39

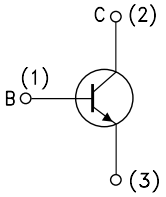
## APPLICATIONS

- For low-frequency power amplifier applications

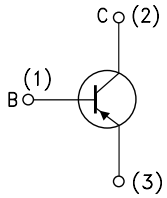
## ABSOLUTE MAXIMUM RATINGS(Ta=25℃)

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 300 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 250 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 7 | V |
| $I_C$ | Collector Current-Continuous | 1 | A |
| $I_B$ | Base Current-Continuous | 0.5 | A |
| $P_C$ | Collector Power Dissipation @ $T_C$=25℃ | 10 | W |
| $T_J$ | Junction Temperature | 200 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -65~200 | ℃ |

INTERNAL SCHEMATIC DIAGRAM




NPN




PNP

## ELECTRICAL CHARACTERISTICS

**$T_C$=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$= 50mA ; $I_B$= 0 | 250 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 50mA ; $I_B$= 4mA | | | 0.5 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 50mA ; $I_B$= 4mA | | | 1.3 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= 250V ; $I_E$= 0 | | | 20 | μA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 6V; $I_C$= 0 | | | 20 | μA |
| $h_{FE-1}$ | DC Current Gain | $I_C$= 20mA ; $V_{CE}$= 10V | 60 | | 200 | |
| $f_T$ | Current-Gain—Bandwidth Product | $I_C$=5mA ; $V_{CE}$= 10V | 15 | | | MHz |

**TO-39 MECHANICAL DATA**

| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 12.7 | | | 0.500 | | |
| B | | | 0.49 | | | 0.019 |
| D | | | 6.6 | | | 0.260 |
| E | | | 8.5 | | | 0.334 |
| F | | | 9.4 | | | 0.370 |
| G | 5.08 | | | 0.200 | | |
| H | | | 1.2 | | | 0.047 |
| I | | | 0.9 | | | 0.035 |
| L | $45^{o}$ (typ.) | | | | | |