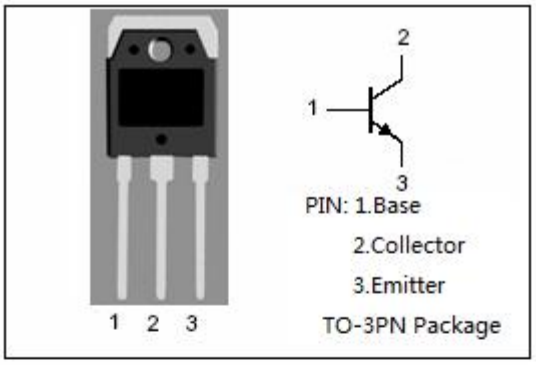
# SPTECH Silicon NPN Power Transistor

## DESCRIPTION

- High Collector-Emitter Breakdown Voltage-
  : $V_{(BR)CEO}$= 400V(Min)
- High Switching Speed
- High Reliability

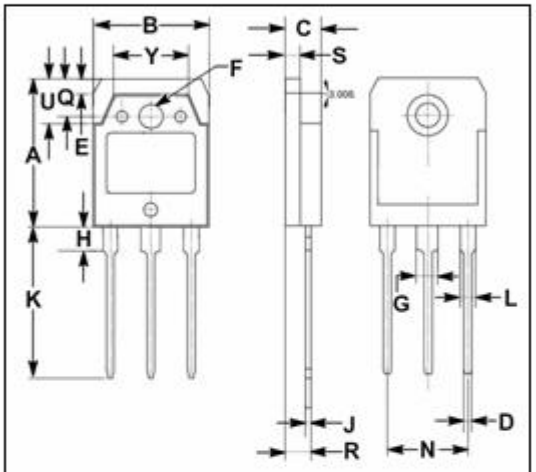



## APPLICATIONS

- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

## ABSOLUTE MAXIMUM RATINGS($T_a$=25℃)

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 500 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 400 | V |
| $V_{CEO(SUS)}$ | Collector-Emitter Voltage | 400 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 7 | V |
| $I_C$ | Collector Current-Continuous | 16 | A |
| $I_B$ | Base Current-Continuous | 5 | A |
| $P_C$ | Collector Power Dissipation @ $T_C$=25℃ | 120 | W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -65~150 | ℃ |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 19.60 | 20.30 |
| B | 15.50 | 15.70 |
| C | 4.70 | 4.90 |
| D | 0.90 | 1.10 |
| E | 1.90 | 2.10 |
| F | 3.40 | 3.60 |
| G | 2.90 | 3.20 |
| H | 3.20 | 3.40 |
| J | 0.595 | 0.605 |
| K | 19.80 | 20.70 |
| L | 1.90 | 2.20 |
| N | 10.89 | 10.91 |
| Q | 4.90 | 5.10 |
| R | 3.35 | 3.45 |
| S | 1.995 | 2.100 |
| U | 5.90 | 6.20 |
| Y | 9.90 | 10.10 |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 1.56 | ℃/W |

# SPTECH Silicon NPN Power Transistor

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$= 10mA ; $I_B$= 0 | 400 | | | V |
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C$= 50mA ; $I_B$= 0 | 400 | | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C$= 1mA ; $I_E$= 0 | 500 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= 1mA ; $I_C$= 0 | 7 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 6A; $I_B$= 1.2A | | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 6A; $I_B$= 1.2A | | | 1.5 | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= 500V ; $I_E$= 0 | | | 1.0 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 7V; $I_C$= 0 | | | 1.0 | mA |
| $h_{FE}$ | DC Current Gain | $I_C$= 6A ; $V_{CE}$= 5V | 10 | | | |

Switching times

| | | | | | | |
|---|---|---|---|---|---|---|
| $t_{on}$ | Turn-on Time | $I_C$= 7.5A , $I_{B1}$= 1.5A; $I_{B2}$= -3A<br>$R_L$= 20Ω ;$P_W$=20μs Duty≤2% | | | 0.5 | μs |
| $t_{stg}$ | Storage Time | | | | 1.5 | μs |
| $t_f$ | Fall Time | | | | 0.15 | μs |