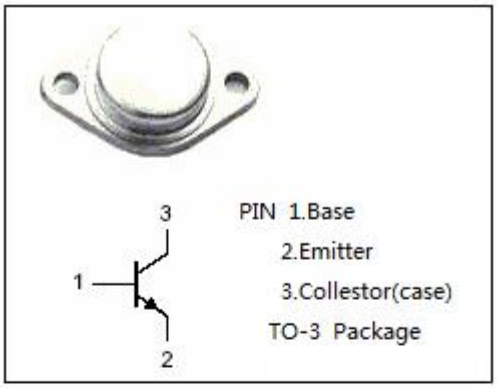
# isc Silicon NPN Power Transistor 2N5686

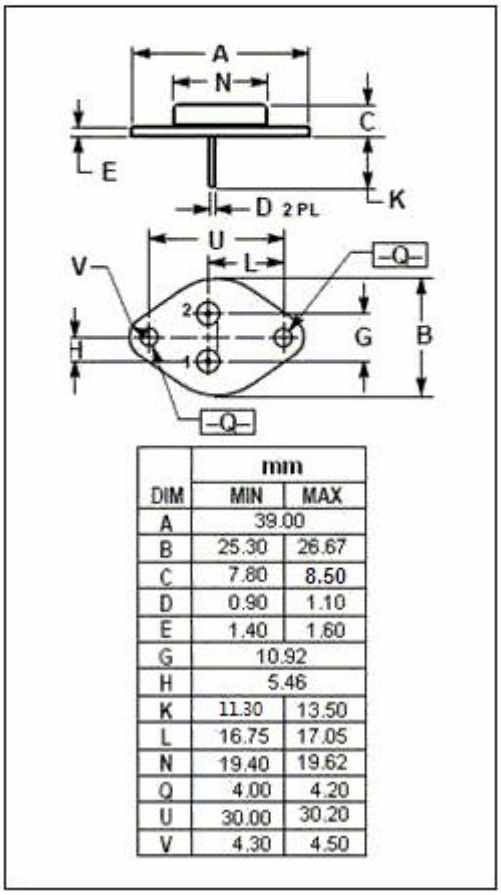



## DESCRIPTION

- High DC Current Gain-$h_{FE}$=15~60@$I_C$ = 25A
- Low Saturation Voltage-
  $V_{CE(sat)}$= 1.0V(Max)@ $I_C$ = 25A
- Minimum Lot-to-Lot variations for robust device performance and reliable operation.

## APPLICATIONS

- Designed for use in high power amplifer and switching circuits applications.




| DIM | mm MIN | MAX |
|---|---|---|
| A | 39.00 | |
| B | 25.30 | 26.67 |
| C | 7.80 | 8.50 |
| D | 0.90 | 1.10 |
| E | 1.40 | 1.60 |
| G | 10.92 | |
| H | 5.46 | |
| K | 11.30 | 13.50 |
| L | 16.75 | 17.05 |
| N | 19.40 | 19.62 |
| Q | 4.00 | 4.20 |
| U | 30.00 | 30.20 |
| V | 4.30 | 4.50 |

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 80 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 80 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current-Continuous | 50 | A |
| $I_B$ | Base Current-Continuous | 15 | A |
| $P_C$ | Collector Power Dissipation @$T_C$=25℃ | 300 | W |
| $T_J$ | Junction Temperature | 200 | ℃ |
| $T_{stg}$ | Storage Temperature | -65~200 | ℃ |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 0.584 | ℃/W |

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## ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | MAX | UNIT |
|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C$=50mA ; $I_B$=0 | 80 | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C$= 25A; $I_B$=2.5A | | 1.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C$= 50A; $I_B$=10A | | 5.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 25A; $I_B$=2.5A | | 2.0 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C$= 25A ; $V_{CE}$=2V | | 2.0 | V |
| $I_{CEO}$ | Collector Cutoff Current | $V_{CE}$=40V; $I_B$=0 | | 1 | mA |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$= 80V; $I_C$=0 | | 2 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 5V; $I_C$=0 | | 5 | mA |
| $h_{FE-1}$ | DC Current Gain | $I_C$= 25A ; $V_{CE}$= 2V | 15 | 60 | |
| $h_{FE-2}$ | DC Current Gain | $I_C$= 50A ; $V_{CE}$= 5V | 5 | | |
| $f_T$ | Current Gain-Bandwidth Product | $I_C$= 5A ; $V_{CE}$= 10V;f=1.0MHz | 2 | | MHz |