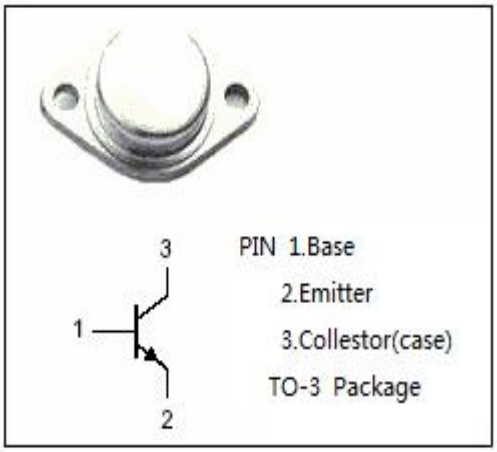
# isc Silicon NPN Power Transistor — BU109

## DESCRIPTION

- Excellent Safe Operating Area
- Collector-Emitter Saturation Voltage-
  : $V_{CE(sat)}$= 1.0 V(Max)@ $I_C$ = 5A
- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$= 150 V(Min)
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

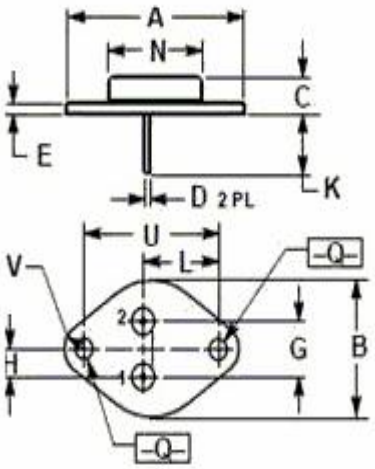



## APPLICATIONS

- Designed for horizontal deflection output stage of TVs and CRTs applications

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 330 | V |
| $V_{CEV}$ | Collector-Emitter Voltage- $V_{BE}$= -1.5V | 330 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 150 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current-Continuous | 7 | A |
| $I_{CM}$ | Collector Current-Peak(Repetitive) | 10 | A |
| $I_{CM}$ | Collector Current-Peak(t= 10ms) | 15 | A |
| $I_B$ | Base Current | 4 | A |
| $P_C$ | Collector Power Dissipation@$T_C$=25℃ | 60 | W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -65~150 | ℃ |




| 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 |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 2.08 | ℃/W |
| $R_{th\ j\text{-}a}$ | Thermal Resistance,Junction to Ambient | 70 | ℃/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 | 150 | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$= 5A; $I_B$= 0.5A | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$= 5A; $I_B$= 0.5A | | 1.2 | V |
| $I_{CES}$ | Collector Cutoff Current | $V_{CE}$= 330V; $V_{BE}$= 0<br>$V_{CE}$= 200V; $V_{BE}$= 0<br>$V_{CE}$= 200V; $V_{BE}$= 0,$T_C$=150℃ | | 5.0<br>0.1<br>1.0 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$= 6V; $I_C$= 0 | | 1.0 | mA |
| $h_{FE}$ | DC Current Gain | $I_C$= 5A ; $V_{CE}$= 1.5V | 15 | | |
| $f_T$ | Current Gain-Bandwidth Product | $I_C$= 0.5A ; $V_{CE}$= 10V | 10 | | MHz |
| $t_{off}$ | Turn-Off Time | $I_C$= 5A; $I_B$= 0.5A | | 0.75 | μs |