

## SPTECH Silicon NPN Power Transistor

BU110

## DESCRIPTION

- Excellent Safe Operating Area
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 1.0 \text{ V(Max)} @ I_C = 5 \text{ A}$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 150 \text{ V(Min)}$

## APPLICATIONS

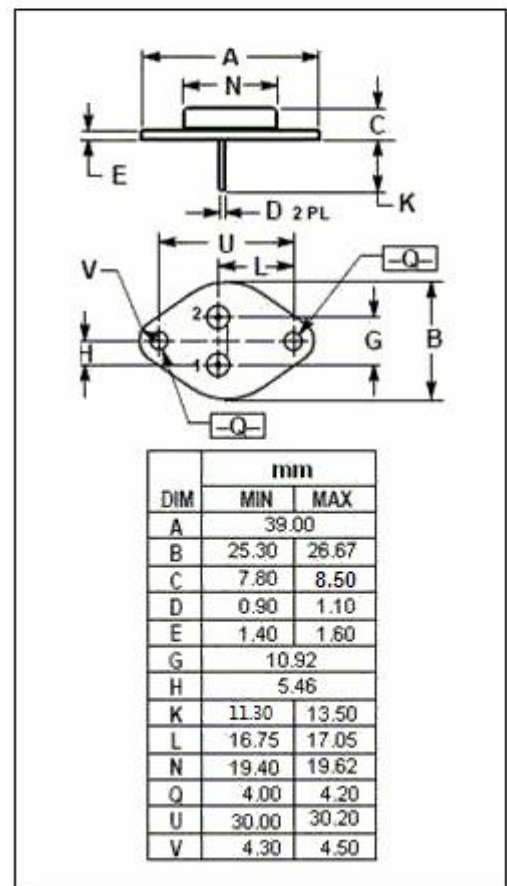
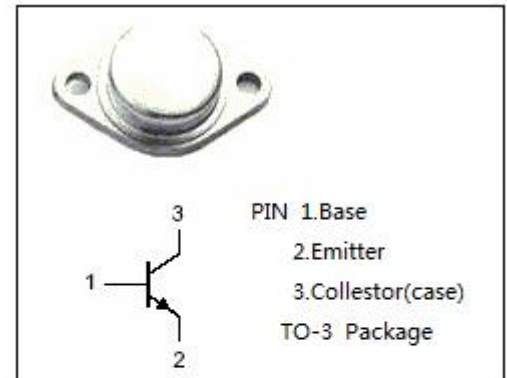
- Designed for horizontal deflection output stage of TVs and CRTs applications

ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                                             | VALUE   | UNIT             |
|-----------|-------------------------------------------------------|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                | 330     | V                |
| $V_{CEV}$ | Collector-Emitter Voltage- $V_{BE} = -1.5 \text{ V}$  | 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( $t = 10 \text{ ms}$ )         | 15      | A                |
| $I_B$     | Base Current                                          | 4       | A                |
| $P_C$     | Collector Power Dissipation@ $T_C = 25^\circ\text{C}$ | 60      | W                |
| $T_J$     | Junction Temperature                                  | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature                                   | -65~150 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL       | PARAMETER                               | MAX  | UNIT               |
|--------------|-----------------------------------------|------|--------------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case    | 2.08 | $^\circ\text{C/W}$ |
| $R_{th j-a}$ | Thermal Resistance, Junction to Ambient | 70   | $^\circ\text{C/W}$ |



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL         | PARAMETER                            | CONDITIONS                                                                                                                              | MIN | MAX               | UNIT          |
|----------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------|---------------|
| $V_{CEQ(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C=50\text{mA}$ ; $I_B=0$                                                                                                             | 150 |                   | V             |
| $V_{CE(sat)}$  | Collector-Emitter Saturation Voltage | $I_C=5\text{A}$ ; $I_B=0.5\text{A}$                                                                                                     |     | 1.0               | V             |
| $V_{BE(sat)}$  | Base-Emitter Saturation Voltage      | $I_C=5\text{A}$ ; $I_B=0.5\text{A}$                                                                                                     |     | 1.2               | V             |
| $I_{CES}$      | Collector Cutoff Current             | $V_{CE}=330\text{V}$ ; $V_{BE}=0$<br>$V_{CE}=200\text{V}$ ; $V_{BE}=0$<br>$V_{CE}=200\text{V}$ ; $V_{BE}=0$ , $T_C=150^{\circ}\text{C}$ |     | 5.0<br>0.1<br>1.0 | mA            |
| $I_{EBO}$      | Emitter Cutoff Current               | $V_{EB}=6\text{V}$ ; $I_C=0$                                                                                                            |     | 1.0               | mA            |
| $h_{FE}$       | DC Current Gain                      | $I_C=5\text{A}$ ; $V_{CE}=1.5\text{V}$                                                                                                  | 8   |                   |               |
| $f_T$          | Current Gain-Bandwidth Product       | $I_C=0.5\text{A}$ ; $V_{CE}=10\text{V}$                                                                                                 | 10  |                   | MHz           |
| $t_{off}$      | Turn-Off Time                        | $I_C=5\text{A}$ ; $I_B=0.5\text{A}$                                                                                                     |     | 0.75              | $\mu\text{s}$ |