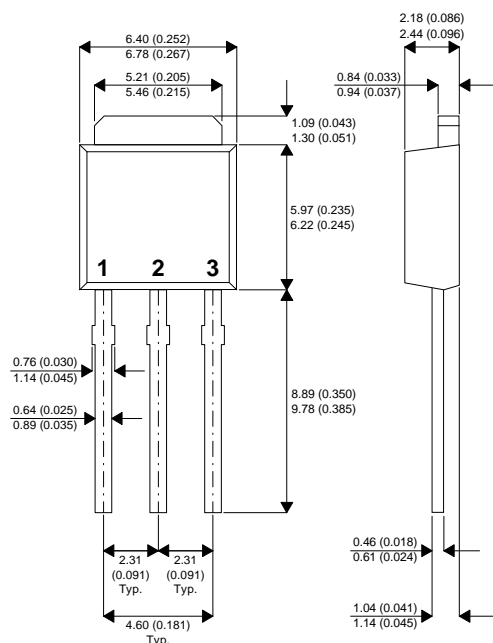


**MECHANICAL DATA**

Dimensions in mm



**I-PAK(TO251)**

Pin 1 – Base

Pin 2 – Collector

Pin 3 – Emitter

**ADVANCED  
DISTRIBUTED BASE DESIGN  
HIGH VOLTAGE  
HIGH SPEED NPN  
SILICON POWER TRANSISTOR**

Designed for use in  
electronic ballast applications

- SEMEFAB DESIGNED AND DIFFUSED DIE
- HIGH VOLTAGE
- FAST SWITCHING
- HIGH ENERGY RATING

**FEATURES**

- Multi-base for efficient energy distribution across the chip resulting in significantly improved switching and energy ratings across full temperature range.
- Ion implant and high accuracy masking for tight control of characteristics from batch to batch.
- Triple Guard Rings for improved control of high voltages.

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

|             |   |               |
|-------------|---|---------------|
| $V_{CBO}$   | Collector – Base Voltage ( $I_E=0$ )          | 350V          |
| $V_{CEO}$   | Collector – Emitter Voltage ( $I_B = 0$ )     | 160V          |
| $V_{EBO}$   | Emitter – Base Voltage ( $I_C = 0$ )          | 10V           |
| $I_C$       | Continuous Collector Current                  | 16A           |
| $I_{C(PK)}$ | Peak Collector Current                        | 25A           |
| $I_B$       | Base Current                                  | 5A            |
| $P_{tot}$   | Total Dissipation at $T_{case} = 25^{\circ}C$ | 25W           |
| $T_{stg}$   | Operating and Storage Temperature Range       | -55 to +150°C |

**ELECTRICAL CHARACTERISTICS** ( $T_{\text{case}} = 25^{\circ}\text{C}$  unless otherwise stated)

| Parameter                         | Test Conditions                        | Min.                          | Typ.                                 | Max.                                 | Unit          |     |
|-----------------------------------|--|-------------------------------|--------------------------------------|--------------------------------------|---------------|-----|
| <b>ELECTRICAL CHARACTERISTICS</b> |  |                               |                                      |                                      |               |     |
| $V_{\text{CEO(sus)}}$             | Collector – Emitter Sustaining Voltage | $I_{\text{C}} = 10\text{mA}$  | 160                                  |                                      | V             |     |
| $V_{\text{(BR)CBO}}$              | Collector – Base Breakdown Voltage     | $I_{\text{C}} = 1\text{mA}$   | 350                                  |                                      |               |     |
| $V_{\text{(BR)EBO}}$              | Emitter – Base Breakdown Voltage       | $I_{\text{E}} = 1\text{mA}$   | 10                                   |                                      |               |     |
| $I_{\text{CBO}}$                  | Collector – Base Cut-Off Current       | $V_{\text{CB}} = 350\text{V}$ |                                      | 10                                   | $\mu\text{A}$ |     |
|                                   |  |                               | $T_{\text{C}} = 125^{\circ}\text{C}$ | 100                                  |               |     |
| $I_{\text{CEO}}$                  | Collector – Emitter Cut-Off Current    | $I_{\text{B}} = 0$            | $V_{\text{CE}} = 150\text{V}$        | 100                                  | $\mu\text{A}$ |     |
| $I_{\text{EBO}}$                  | Emitter Cut-Off Current                | $V_{\text{EB}} = 9\text{V}$   | $I_{\text{C}} = 0$                   |                                      | 10            |     |
|                                   |  |                               |                                      | $T_{\text{C}} = 125^{\circ}\text{C}$ | 100           |     |
| $h_{\text{FE}}^*$                 | DC Current Gain                        | $I_{\text{C}} = 0.3\text{A}$  | $V_{\text{CE}} = 5\text{V}$          | 30                                   | 80            |     |
|                                   |  | $I_{\text{C}} = 5\text{A}$    | $V_{\text{CE}} = 5\text{V}$          | 25                                   | 60            |     |
|                                   |  | $I_{\text{C}} = 12\text{A}$   | $V_{\text{CE}} = 1\text{V}$          | 5                                    |               |     |
|                                   |  |                               | $T_{\text{C}} = 125^{\circ}\text{C}$ |                                      |               |     |
| $V_{\text{CE(sat)}}^*$            | Collector – Emitter Saturation Voltage | $I_{\text{C}} = 1\text{A}$    | $I_{\text{B}} = 0.1\text{A}$         |                                      | .07           | 0.2 |
|                                   |  | $I_{\text{C}} = 5\text{A}$    | $I_{\text{B}} = 0.5\text{A}$         |                                      | 0.2           | 0.6 |
|                                   |  | $I_{\text{C}} = 10\text{A}$   | $I_{\text{B}} = 1.0\text{A}$         |                                      | 0.6           | 1.2 |
| $V_{\text{BE(sat)}}^*$            | Base – Emitter Saturation Voltage      | $I_{\text{C}} = 5\text{A}$    | $I_{\text{B}} = 0.5\text{A}$         |                                      | 0.95          | 1.2 |
|                                   |  | $I_{\text{C}} = 10\text{A}$   | $I_{\text{B}} = 1.0\text{A}$         |                                      | 1.2           | 1.8 |
| <b>DYNAMIC CHARACTERISTICS</b>    |  |                               |                                      |                                      |               |     |
| $f_{\text{t}}$                    | Transition Frequency                   | $I_{\text{C}} = 0.2\text{A}$  | $V_{\text{CE}} = 4\text{V}$          |                                      | 20            | MHz |
| $C_{\text{ob}}$                   | Output Capacitance                     | $V_{\text{CB}} = 10\text{V}$  | $f = 1\text{MHz}$                    |                                      | 75            | pF  |

\* Pulse test  $t_{\text{p}} = 300\mu\text{s}$ ,  $\delta < 2\%$



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

**[LittleDiode.com](http://LittleDiode.com)**

Looking forward to providing you with the best possible service.