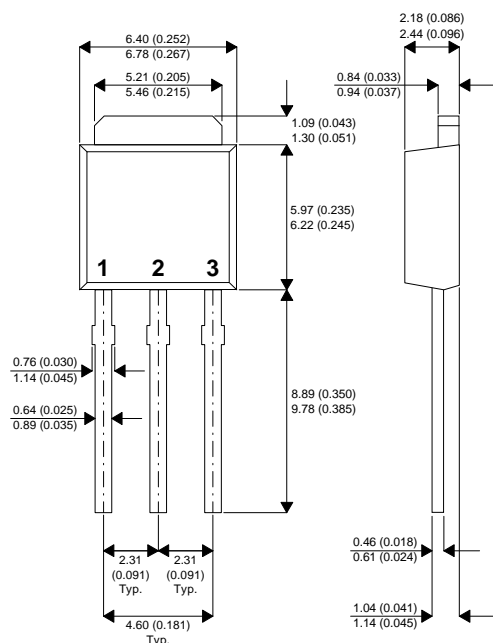


MECHANICAL DATA

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

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

* Pulse test $t_p = 300\mu s$, $\delta < 2\%$