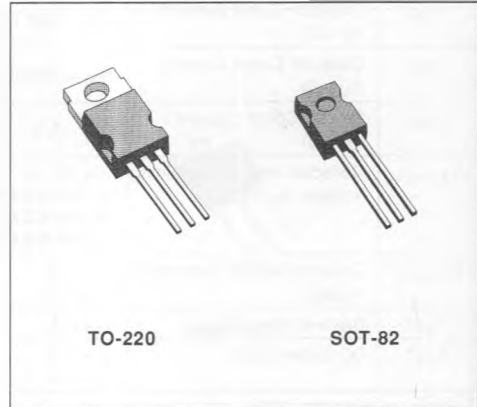


POWER DARLINGTONS

DESCRIPTION

The TIP130, TIP131, TIP132 and SGS130, SGS131, SGS132 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration respectively in TO-220 and SOT-82 plastic package. They are intended for use in linear and switching applications. The complementary PNP types are the TIP135, TIP136, TIP137 and SGS135, SGS136, SGS137 respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | NPN NPN PNP PNP | Value | | | Unit |
|-----------|--|--------------------------|------------------|------------------|------------------|------------|
| | | | TIP130 SGS130 | TIP131 SGS131 | TIP132 SGS132 | |
| V_{CBO} | Collector-base Voltage ($I_E = 0$) | | 60 | 80 | 100 | V |
| V_{CEO} | Collector-emitter Voltage ($I_B = 0$) | | 60 | 80 | 100 | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | | | 5 | | V |
| I_C | Collector Current | | | 8 | | A |
| I_{CM} | Collector Peak Current | | | 12 | | A |
| I_B | Base Current | | | 0.3 | | A |
| P_{tot} | Total Power Dissipation at $T_{case} \leq 25^\circ C$ $T_{amb} \leq 25^\circ C$ | | | 70 | | W |
| T_{stg} | Storage Temperature | | | -65 to 150 | | $^\circ C$ |
| T_j | Junction Temperature | | | 150 | | $^\circ C$ |

For PNP types voltage and current values are negative.

THERMAL DATA

| | | | | |
|------------------|-------------------------------------|-----|------|-----------------------------|
| $R_{th(j-case)}$ | Thermal Resistance Junction-case | Max | 1.78 | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(j-amb)}$ | Thermal Resistance Junction-ambient | Max | 63.5 | $^{\circ}\text{C}/\text{W}$ |

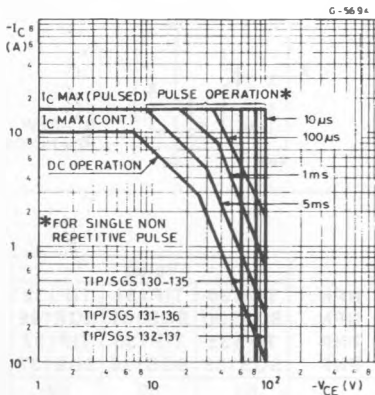
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------|--|---|-----------------|------|--------|-------------|
| I_{CEO} | Collector Cutoff Current ($I_B = 0$) | $V_{CE} = \text{Half Rated } V_{CEO}$ | | | 0.5 | mA |
| I_{CBO} | Collector Cutoff Current ($I_E = 0$) | $V_{CB} = \text{Rated } V_{CBO}$ | | | 0.2 | mA |
| I_{EBO} | Emitter Cutoff Current ($I_C = 0$) | $V_{EB} = 5\text{ V}$ | | | 5 | mA |
| $V_{CEO(sus)}^*$ | Collector-emitter Sustaining Voltage ($I_B = 0$) | $I_C = 30\text{ mA}$ for TIP/SGS130 and TIP/SGS135 for TIP/SGS131 and TIP/SGS136 for TIP/SGS132 and TIP/SGS137 | 60 80 100 | | | V V V |
| $V_{CE(sat)}^*$ | Collector-emitter Saturation Voltage | $I_C = 4\text{ A}$ $I_B = 16\text{ mA}$ $I_C = 6\text{ A}$ $I_B = 30\text{ mA}$ | | | 2 3 | V V |
| V_{BE}^* | Base-emitter Voltage | $I_C = 4\text{ A}$ $V_{CE} = 4\text{ V}$ | | | 2.5 | V |
| h_{FE}^* | DC current Gain | $I_C = 1\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 4\text{ A}$ $V_{CE} = 4\text{ V}$ | 500 1000 | | 15000 | |

* Pulsed : pulse duration = 300 μs , duty cycle $\leq 2\%$.
For PNP types voltage and current values are negative.

Safe Operating Areas.

Power Derating Chart.



For the others characteristics see TIP100/105 series

