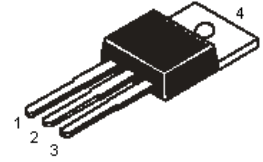
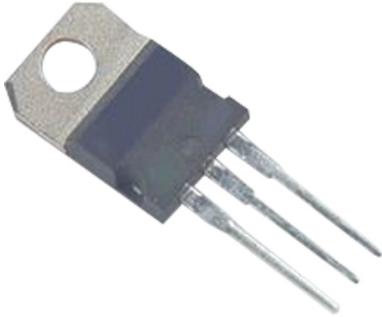


Power Darlington Transistor



Pin Configuration:

- 1. Base
- 2. Collector
- 3. Emitter
- 4. Collector

Feature:

- PNP Plastic Power Darlington Transistors for Linear and Switching Applications

Absolute Maximum Ratings:

| Parameters | Symbol | - | TIP107 | Unit | | |
|---|---------------|--------------|---------|------|-----|------------------|
| Collector-Base Voltage (Open Emitter) | V_{CBO} | Max. | 100 | V | | |
| Collector Emitter Voltage (Open Base) | V_{CEO} | | | | | |
| Collector Current | I_C | | | | 8 | A |
| Total Power Dissipation upto $T_C = 25^\circ\text{C}$ | P_{tot} | | | | 80 | W |
| Junction Temperature | T_j | | | | 150 | $^\circ\text{C}$ |
| Collector-Emitter Saturation Voltage $I_C = 3\text{A}, I_B = 6\text{mA}$ | $V_{CE(sat)}$ | | | | 2 | V |
| DC Current Gain $I_C = 3\text{A}; V_{CE} = 4\text{V}$ | h_{FE} | Min. Max. | 1 20 | - | | |

Ratings (at $T_a = 25^\circ\text{C}$ unless otherwise specified)

| | | | | | | |
|---------------------------------------|-----------|------|-----|---|----|---|
| Collector-Base Voltage (Open Emitter) | V_{CBO} | Max. | 100 | V | | |
| Collector Emitter Voltage (Open Base) | V_{CEO} | | | | | |
| Emitter-Base Voltage (Open Collector) | V_{EBO} | | | | 5 | |
| Collector Current | I_C | | | | 8 | A |
| Collector Peak Current | I_{CM} | | | | 15 | |

Power Darlington Transistor

Ratings (at $T_a = 25^\circ\text{C}$ unless otherwise specified)

| Parameters | Symbol | - | TIP107 | Unit |
|--|-----------|------|-------------|--------------------|
| Base Current | I_B | Max. | 1 | A |
| Total Power Dissipation upto $T_C = 25^\circ\text{C}$ Derate above 25°C | P_{tot} | | 80 | W |
| Total Power Dissipation upto $T = 25^\circ\text{C}$ Derate above 25°C | | | 0.64 | |
| Junction Temperature | T_j | | 2 | $W/^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | 0.016 | |
| | | | 150 | $^\circ\text{C}$ |
| | | | -65 to +150 | |

Thermal Resistance

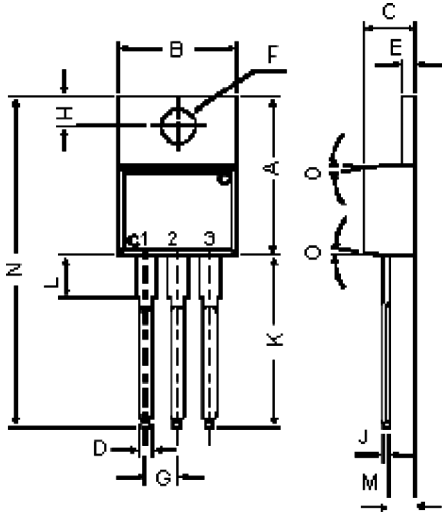
| | | | | |
|--------------------------|---------------|---|------|--------------------|
| From Junction to Ambient | $R_{th(j-a)}$ | - | 62.5 | $^\circ\text{C/W}$ |
| From Junction to Case | $R_{th(j-c)}$ | - | 1.56 | |

Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

| | | | | |
|--|--|----------------------|-----------------|---------------|
| Collector Cut off Current $I_B = 0; V_{CE} = 50\text{V}$ $I_E = 0; V_{CB} = 100\text{V}$ | I_{CEO} I_{CBO} | Max. | 50 | μA |
| Emitter Cut off Current $I_C = 0; V_{EB} = 5\text{V}$ | I_{EBO} | | 50 | |
| Breakdown Voltages $I_C = 30\text{mA}; I_B = 0$ $I_C = 1\text{mA}; I_E = 0$ $I_E = 1\text{mA}; I_C = 0$ | $V_{CEO(sus)}^*$ V_{CBO} V_{EBO} | Min. | 100 100 5 | V |
| Saturation Voltages $I_C = 3\text{A}; I_B = 6\text{mA}$ $I_C = 8\text{A}; I_B = 80\text{mA}$ | $V_{CE(sat)}^*$ | Max. | 2 2.5 | |
| Base-Emitter on Voltage $I_C = 8\text{A}; V_{CE} = 4\text{V}$ | $V_{BE(on)}^*$ | | 2.8 | |
| DC Current Gain $I_C = 3\text{A}; V_{CE} = 4\text{V}$ $I_C = 8\text{A}; V_{CE} = 4\text{V}$ | h_{FE}^* | Min. Max. Min. | 1 20 200 | - |
| Small Signal Current Gain $I_C = 3\text{A}; V_{CE} = 4\text{V}; f = 1\text{MHz}$ | $ h_{fe} $ | Min. | 4 | - |
| Output Capacitance $I_E = 0; V_{CB} = 10\text{V}; f = 0.1\text{MHz}$ | C_O | Max. | 300 | pF |
| Forward Voltage of Commutation Diode $I_F = -I_C = 10\text{A}; I_B = 0$ | V_F^* | Min. | 2.8 | V |

* Pulsed : Pulse Duration = 300 μs ; Duty Cycle $\leq 2\%$.

Power Darlington Transistor



Pin Configuration:

- 1. Base
- 2. Collector
- 3. Emitter
- 4. Collector

| Dimensions | Minimum | Maximum |
|------------|---------|---------|
| A | 14.42 | 16.51 |
| B | 9.63 | 10.67 |
| C | 3.56 | 4.83 |
| D | - | 0.9 |
| E | 1.15 | 1.4 |
| F | 3.75 | 3.88 |
| G | 2.29 | 2.79 |
| H | 2.54 | 3.43 |
| J | - | 0.56 |
| K | 12.7 | 14.73 |
| L | 2.8 | 4.07 |
| M | 2.03 | 2.92 |
| N | - | 31.24 |
| O | 7° | |

Dimensions : Millimetres

Part Number Table

| Description | Part Number |
|-------------------------------|-------------|
| Darlington Transistor, TO-220 | TIP107 |

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