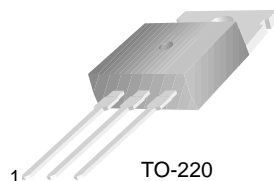


TIP100/101/102

Monolithic Construction With Built In Base-Emitter Shunt Resistors

- High DC Current Gain : $h_{FE}=1000$ @ $V_{CE}=4V$, $I_C=3A$ (Min.)
- Collector-Emitter Sustaining Voltage
- Low Collector-Emitter Saturation Voltage
- Industrial Use
- Complementary to TIP105/106/107



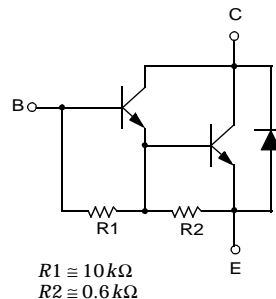
TO-220
1.Base 2.Collector 3.Emmitter

NPN Epitaxial Silicon Darlington Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	: TIP100	60 V
		: TIP101	80 V
		: TIP102	100 V
V_{CEO}	Collector-Emitter Voltage	: TIP100	60 V
		: TIP101	80 V
		: TIP102	100 V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	8	A
I_{CP}	Collector Current (Pulse)	15	A
I_B	Base Current (DC)	1	A
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	2	W
	Collector Dissipation ($T_C=25^\circ\text{C}$)	80	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

Equivalent Circuit



Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	: TIP100	$I_C = 30\text{mA}$, $I_B = 0$	60	V
		: TIP101		80	V
		: TIP102		100	V
I_{CEO}	Collector Cut-off Current	: TIP100	$V_{CE} = 30\text{V}$, $I_B = 0$ $V_{CE} = 40\text{V}$, $I_B = 0$ $V_{CE} = 50\text{V}$, $I_B = 0$	50	μA
		: TIP101		50	μA
		: TIP102		50	μA
I_{CBO}	Collector Cut-off Current	: TIP100	$V_{CE} = 60\text{V}$, $I_E = 0$ $V_{CE} = 80\text{V}$, $I_E = 0$ $V_{CE} = 100\text{V}$, $I_E = 0$	50	μA
		: TIP101		50	μA
		: TIP102		50	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5\text{V}$, $I_C = 0$		2	mA
h_{FE}	DC Current Gain	$V_{CE} = 4\text{V}$, $I_C = 3\text{A}$ $V_{CE} = 4\text{V}$, $I_C = 8\text{A}$	1000 200	20000	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}$, $I_B = 6\text{mA}$		2	V
		$I_C = 8\text{A}$, $I_B = 80\text{mA}$		2.5	V
$V_{BE(on)}$	Base-Emitter ON Voltage	$V_{CE} = 4\text{V}$, $I_C = 8\text{A}$		2.8	V
C_{ob}	Output Capacitance	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 0.1\text{MHz}$		200	pF

Typical Characteristics

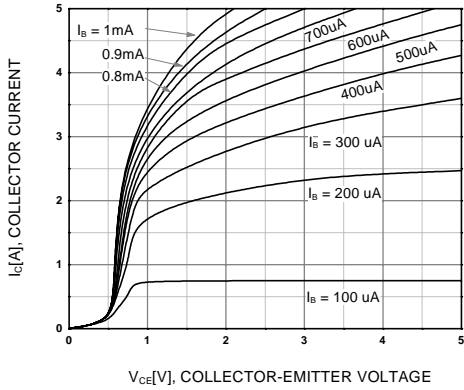


Figure 1. Static Characteristic

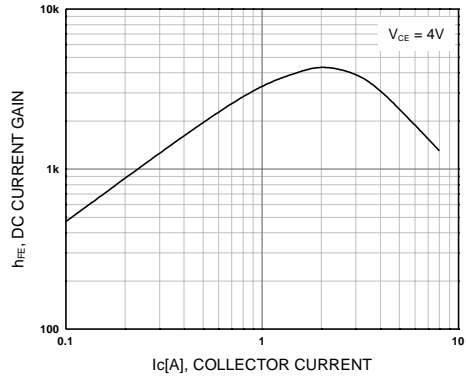


Figure 2. DC current Gain

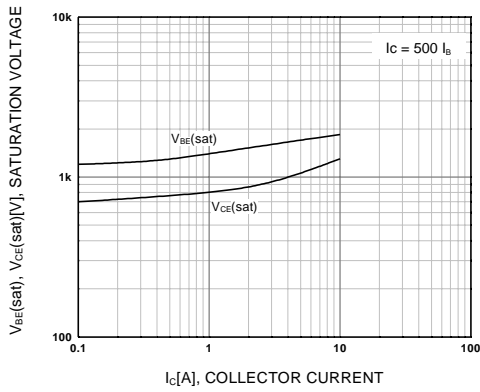


Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

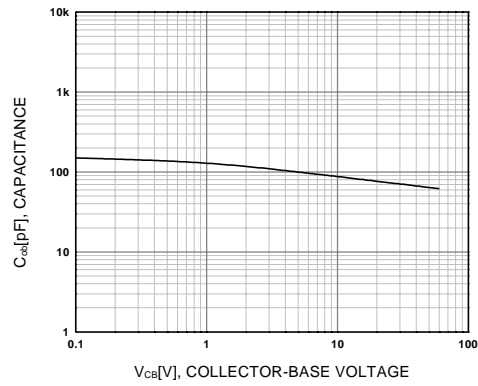


Figure 4. Collector Output Capacitance

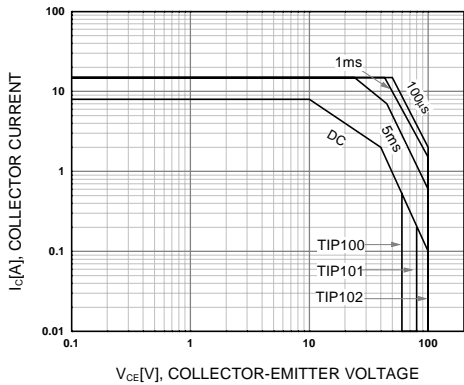


Figure 5. Safe Operating Area

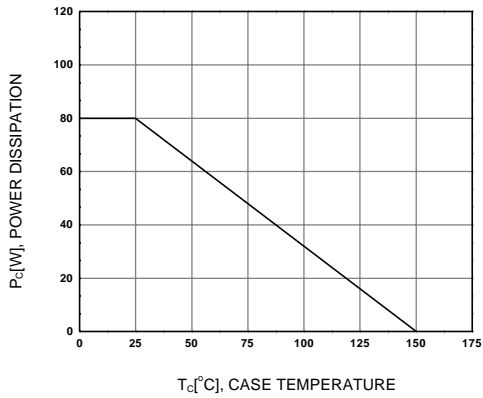
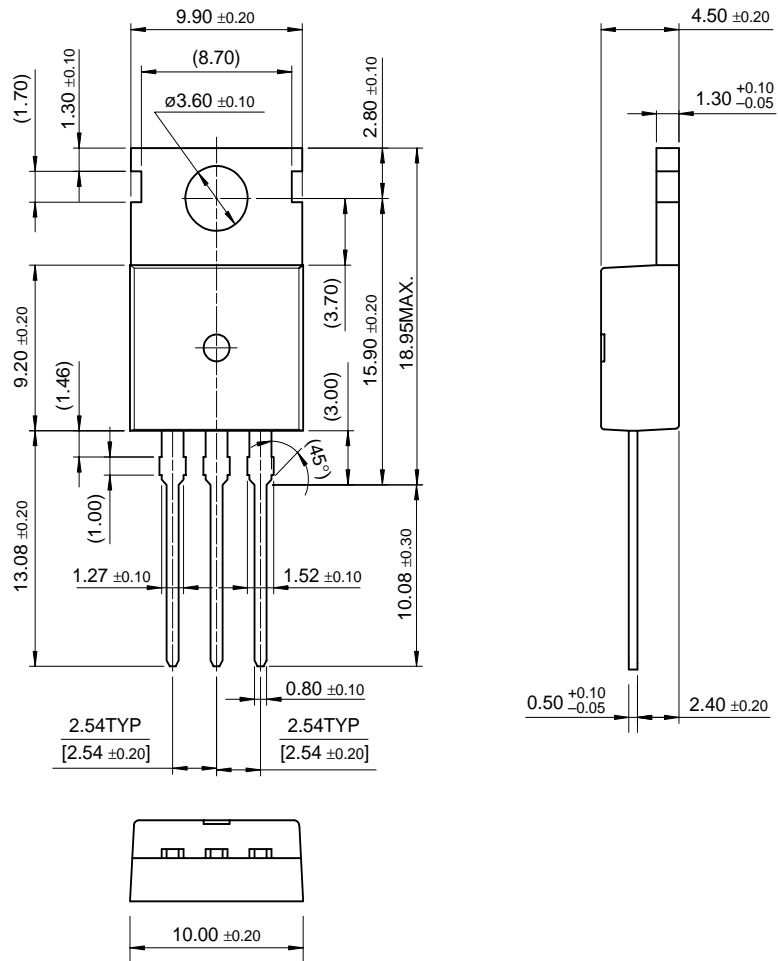


Figure 6. Power Derating

Package Dimensions

TO-220

TIP100/101/102



Dimensions in Millimeters

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