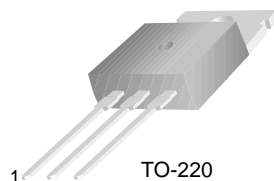


## TIP100/101/102

### 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



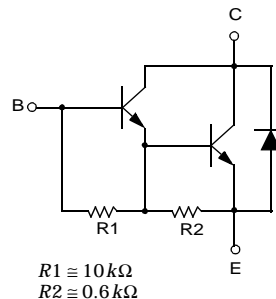
1.Base 2.Collector 3.Emmitter

### 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	$V_{CE} = 30\text{V}$ , $I_B = 0$	50	$\mu\text{A}$
		: TIP101	$V_{CE} = 40\text{V}$ , $I_B = 0$	50	$\mu\text{A}$
		: TIP102	$V_{CE} = 50\text{V}$ , $I_B = 0$	50	$\mu\text{A}$
$I_{CBO}$	Collector Cut-off Current	: TIP100	$V_{CE} = 60\text{V}$ , $I_E = 0$	50	$\mu\text{A}$
		: TIP101	$V_{CE} = 80\text{V}$ , $I_E = 0$	50	$\mu\text{A}$
		: TIP102	$V_{CE} = 100\text{V}$ , $I_E = 0$	50	$\mu\text{A}$
$I_{EBO}$	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

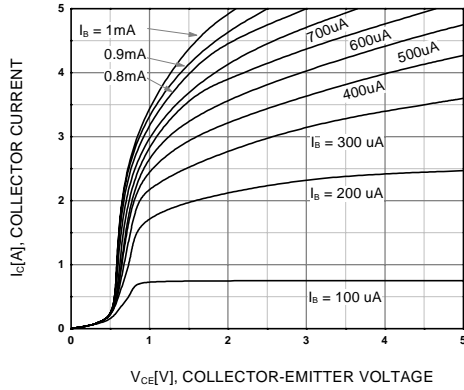


Figure 1. Static Characteristic

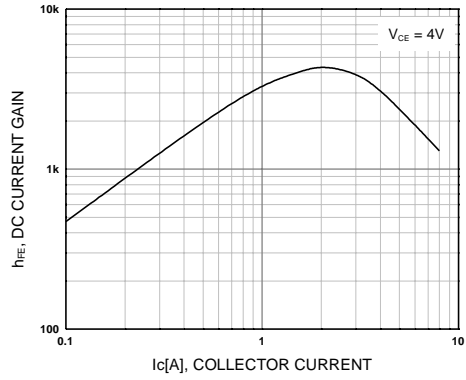


Figure 2. DC current Gain

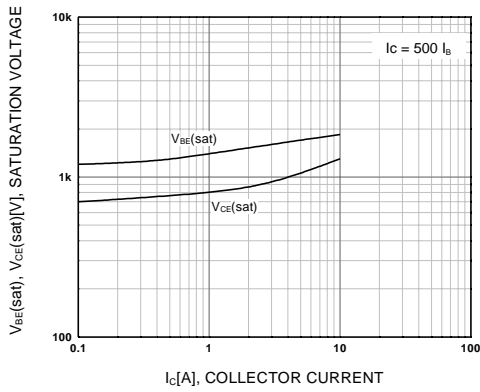


Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

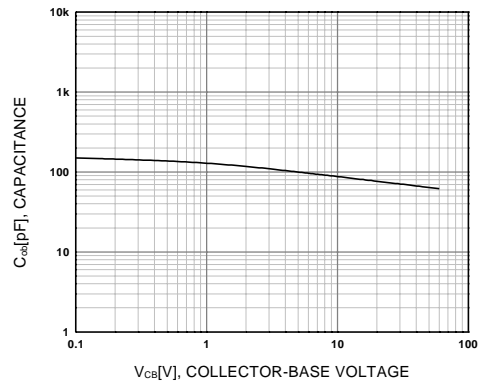


Figure 4. Collector Output Capacitance

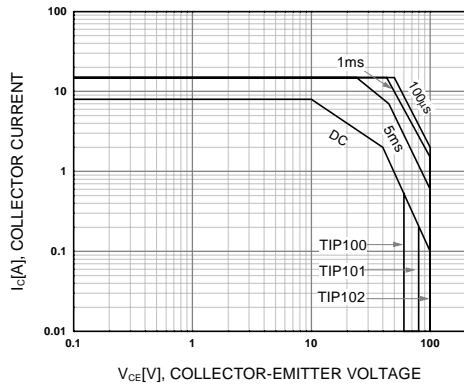


Figure 5. Safe Operating Area

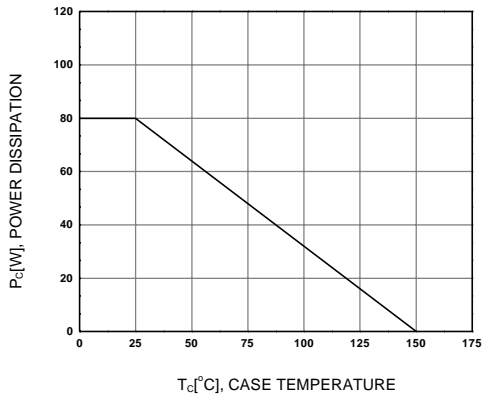
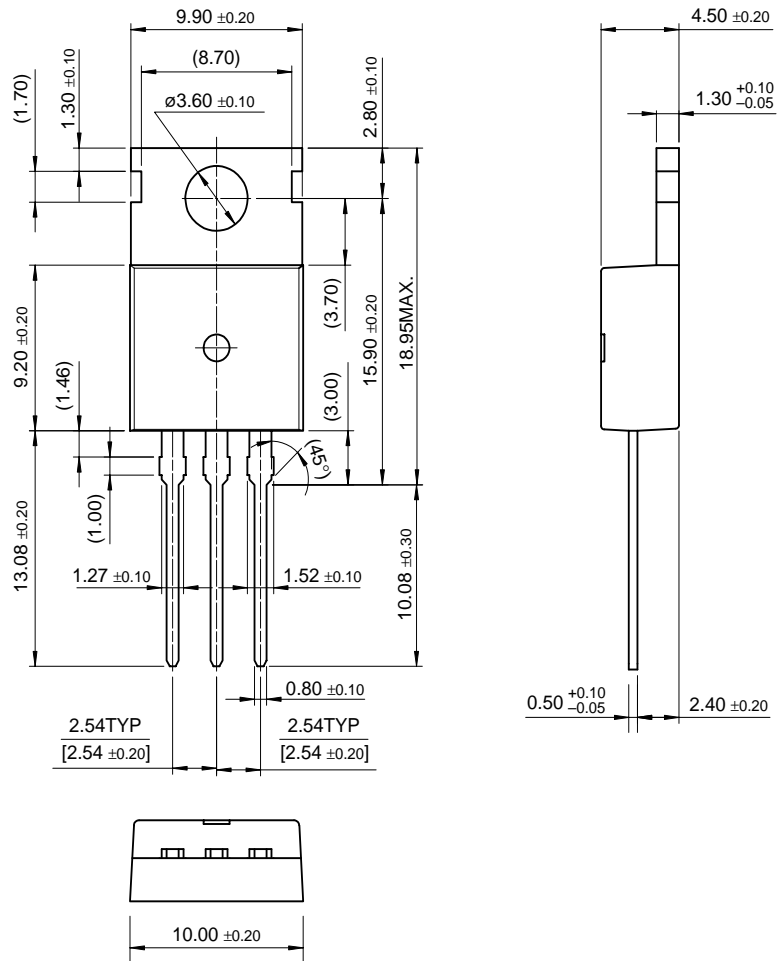


Figure 6. Power Derating

# Package Dimensions

## TO-220

TIP100/101/102



Dimensions in Millimeters

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