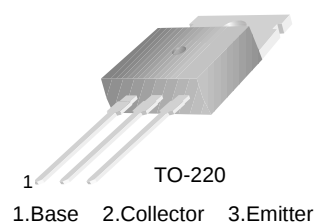




TIP145T/146T/147T

Monolithic Construction With Built In Base-Emitter Shunt Resistors

- High DC Current Gain : $h_{FE} = 1000 @ V_{CE} = -4V, I_C = -5A$ (Min.)
- Industrial Use
- Complement to TIP140T/141T/142T

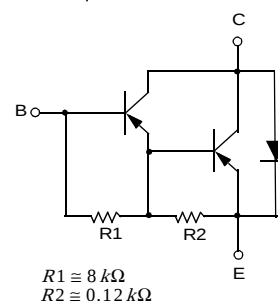


PNP Epitaxial Silicon Darlington Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : TIP145T	- 60	V
	: TIP146T	- 80	V
	: TIP147T	- 100	V
V_{CEO}	Collector-Emitter Voltage : TIP145T	- 60	V
	: TIP146T	- 80	V
	: TIP147T	- 100	V
V_{EBO}	Emitter-Base Voltage	- 5	V
I_C	Collector Current (DC)	- 10	A
I_{CP}	Collector Current (Pulse)	- 15	A
I_B	Base Current (DC)	- 0.5	A
P_C	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.	Typ.	Max.	Units
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage : TIP145T : TIP146T : TIP147T	$I_C = -30\text{mA}, I_B = 0$	- 60			V
			- 80			V
			- 100			V
I_{CEO}	Collector Cut-off Current : TIP145T : TIP146T : TIP147T	$V_{CE} = -30V, I_B = 0$ $V_{CE} = -40V, I_B = 0$ $V_{CE} = -50V, I_B = 0$			- 2	mA
					- 2	mA
					- 2	mA
I_{CBO}	Collector Cut-off Current : TIP145T : TIP146T : TIP147T	$V_{CB} = -60V, I_E = 0$ $V_{CB} = -80V, I_E = 0$ $V_{CB} = -100V, I_E = 0$			- 1	mA
					- 1	mA
					- 1	mA
I_{EBO}	Emitter Cut-off Current	$V_{BE} = -5V, I_C = 0$			- 2	mA
h_{FE}	DC Current Gain	$V_{CE} = -4V, I_C = -5A$	1000			
		$V_{CE} = -4V, I_C = -10A$	500			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -5A, I_B = -10\text{mA}$			- 2	V
		$I_C = -10A, I_B = -40\text{mA}$			- 3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -10A, I_B = -40\text{mA}$			- 3.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -4V, I_C = -10A$			- 3	V
t_D	Delay Time	$V_{CC} = -30V, I_C = -5A$ $I_{B1} = -20\text{mA}, I_{B2} = 20\text{mA}$ $R_L = 6\Omega$		0.15		μs
t_R	Rise Time			0.55		μs
t_{STG}	Storage Time			2.5		μs
t_F	Fall Time			2.5		μs

Typical Characteristics

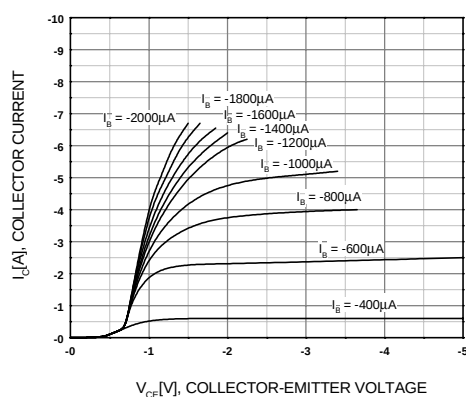


Figure 1. Static Characteristic

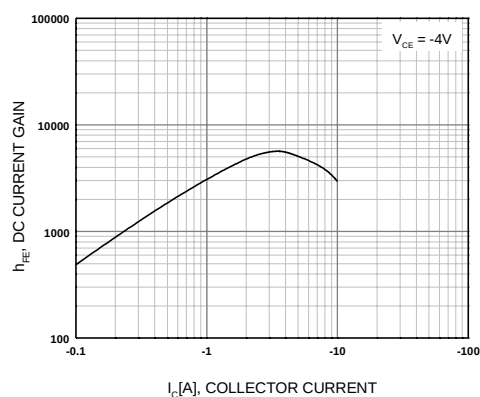


Figure 2. DC current Gain

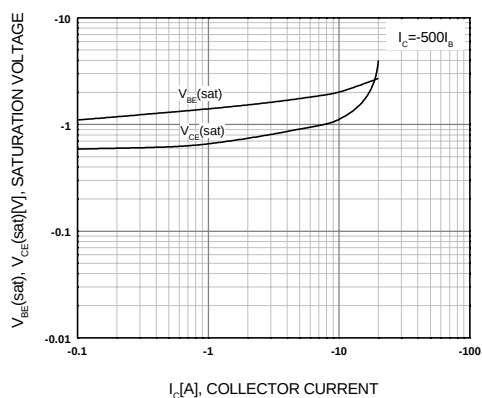


Figure 3. Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

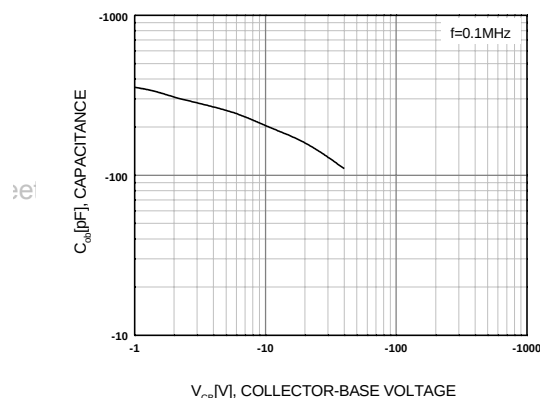


Figure 4. Collector Output Capacitance

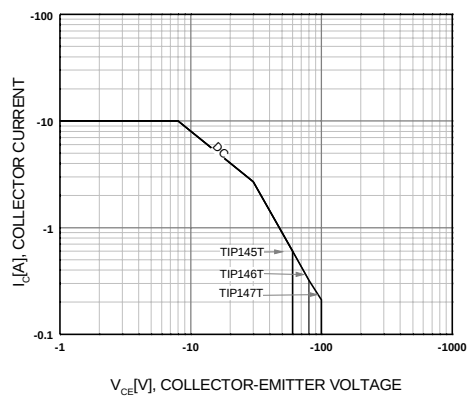


Figure 5. Safe Operating Area

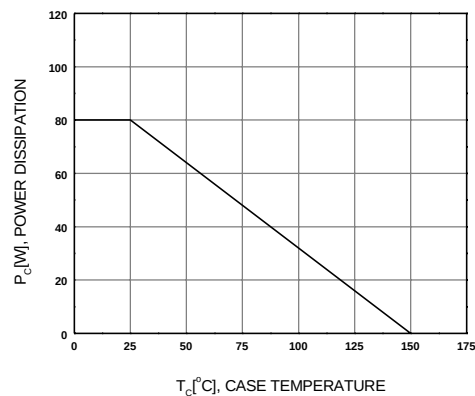
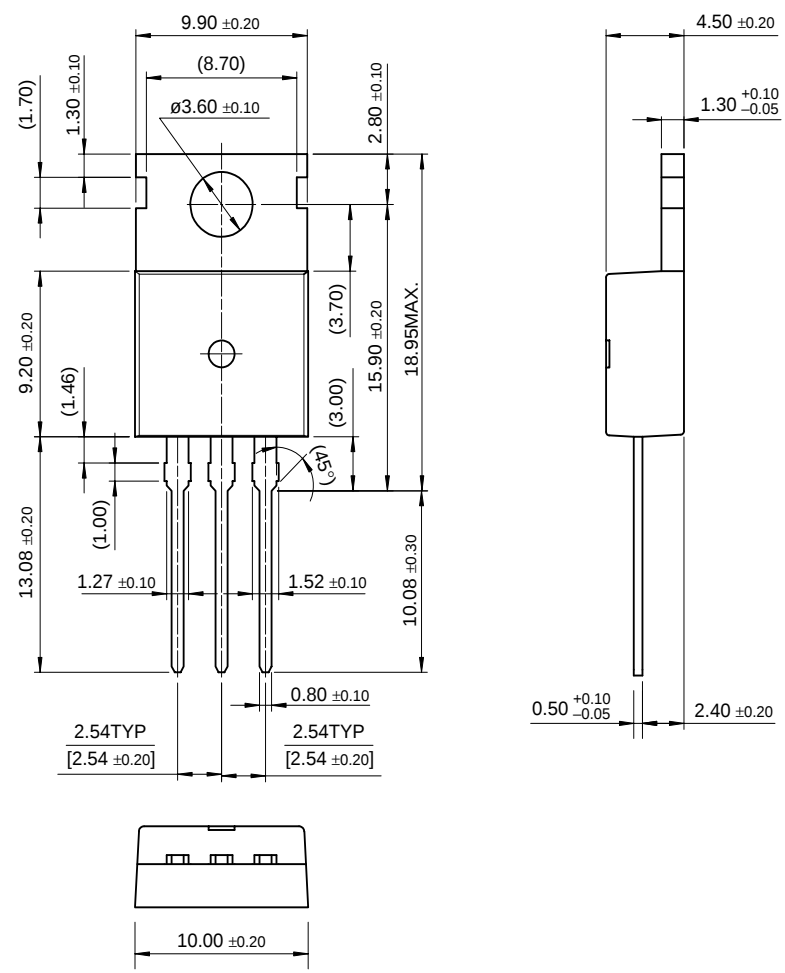


Figure 6. Power Derating

Package Dimensions

TO-220



Dimensions in Millimeters

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