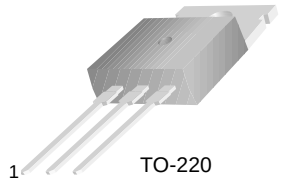
FAIRCHILD
SEMICONDUCTOR®

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

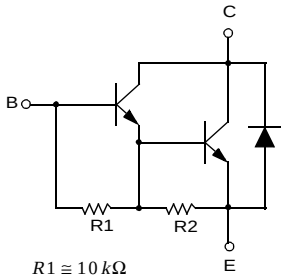
1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Darlington Transistor

Absolute Maximum Ratings T_C=25°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°C)		2	W
	Collector Dissipation (T_C=25°C)		80	W
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		- 65 ~ 150	°C

Equivalent Circuit



$R1 \cong 10\,k\Omega$
$R2 \cong 0.6\,k\Omega$

Electrical Characteristics T_C=25°C unless otherwise noted

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

Typical Characteristics

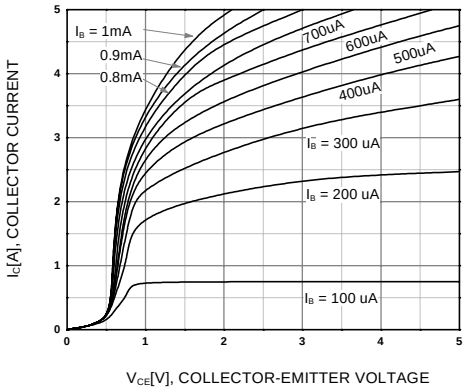


Figure 1. Static Characteristic

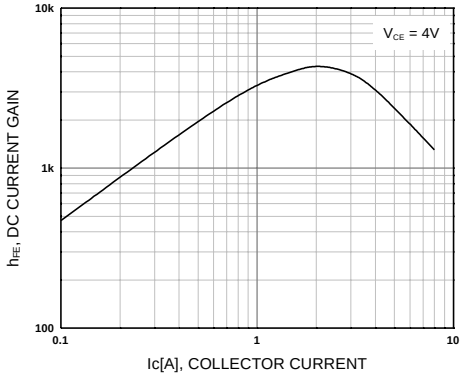


Figure 2. DC current Gain

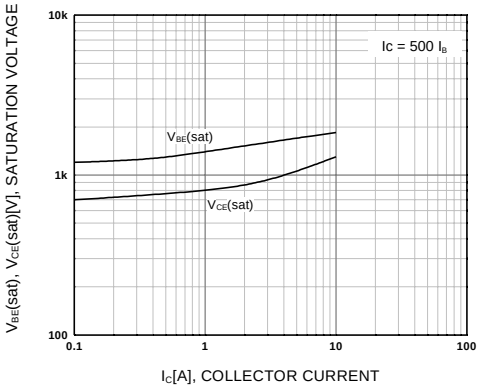


Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

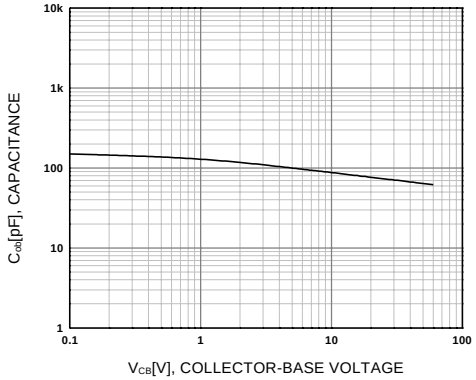


Figure 4. Collector Output Capacitance

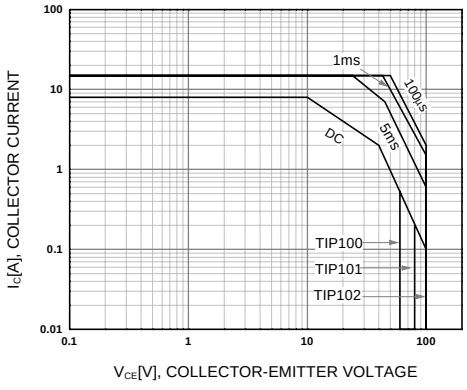


Figure 5. Safe Operating Area

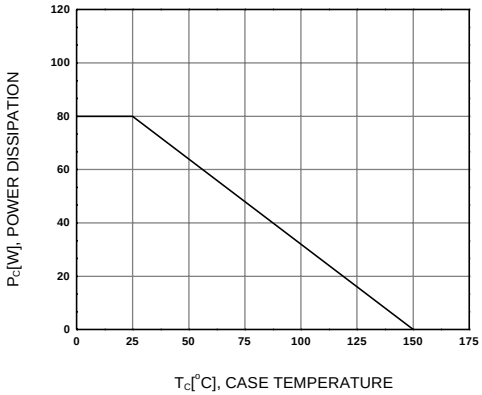
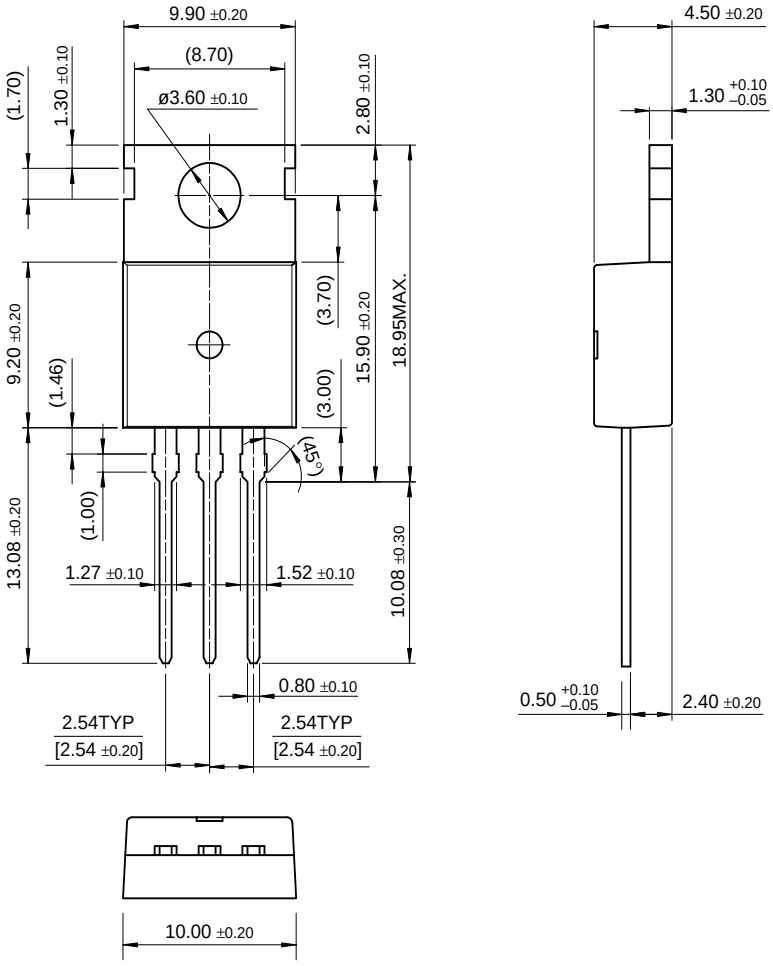


Figure 6. Power Derating

Package Demensions

TO-220



Dimensions in Millimeters

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