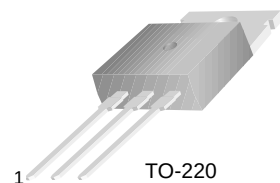


TIP110/111/112

Monolithic Construction With Built In Base-Emitter Shunt Resistors

- Complementary to TIP115/116/117
- High DC Current Gain : $h_{FE}=1000$ @ $V_{CE}=4V$, $I_C=1A$ (Min.)
- Low Collector-Emitter Saturation Voltage
- Industrial Use

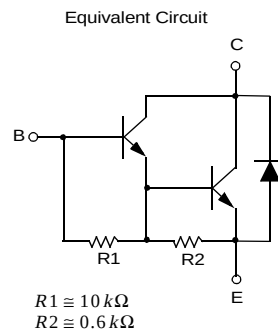


1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Darlington Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : TIP110	60	V
	: TIP111	80	V
	: TIP112	100	V
V_{CEO}	Collector-Emitter Voltage : TIP110	60	V
	: TIP111	80	V
	: TIP112	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	2	A
I_{CP}	Collector Current (Pulse)	4	A
I_B	Base Current (DC)	50	mA
P_C	Collector Dissipation ($T_a=25^\circ C$)	2	W
	Collector Dissipation ($T_C=25^\circ C$)	50	W
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ C$



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

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = 30mA$, $I_B = 0$	60 80 100		V
	: TIP110				V
	: TIP111				V
	: TIP112				V
I_{CEO}	Collector Cut-off Current	$V_{CE} = 30V$, $I_B = 0$ $V_{CE} = 40V$, $I_B = 0$ $V_{CE} = 50V$, $I_B = 0$		2 2 2	mA
	: TIP110				mA
	: TIP111				mA
	: TIP112				mA
I_{CBO}	Collector Cut-off Current	$V_{CB} = 60V$, $I_E = 0$ $V_{CB} = 80V$, $I_E = 0$ $V_{CB} = 100V$, $I_E = 0$		1 1 1	mA
	: TIP110				mA
	: TIP111				mA
	: TIP112				mA
I_{EBO}	Emitter Cut-off Current	$V_{BE} = 5V$, $I_C = 0$		2	mA
h_{FE}	DC Current Gain	$V_{CE} = 4V$, $I_C = 1A$ $V_{CE} = 4V$, $I_C = 2A$	1000 500		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2A$, $I_B = 8mA$		2.5	V
$V_{BE(on)}$	Base-Emitter ON Voltage	$V_{CE} = 4V$, $I_C = 2A$		2.8	V
C_{ob}	Output Capacitance	$V_{CB} = 10V$, $I_E = 0$, $f = 0.1MHz$		100	pF

Typical Characteristics

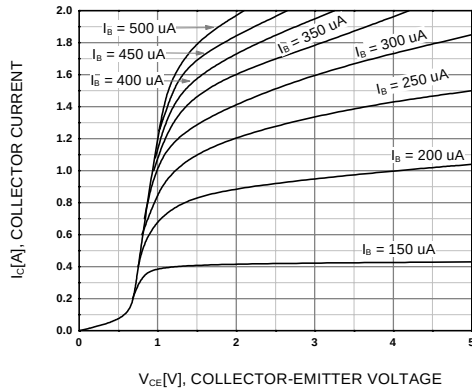


Figure 1. Static Characteristic

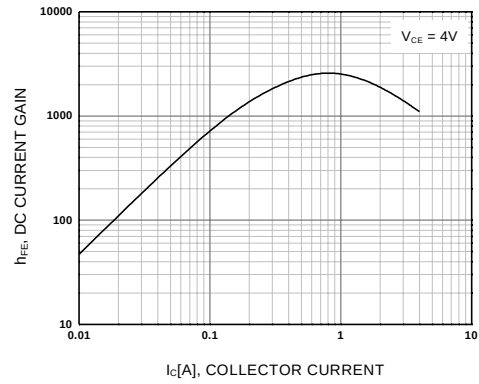


Figure 2. DC current Gain

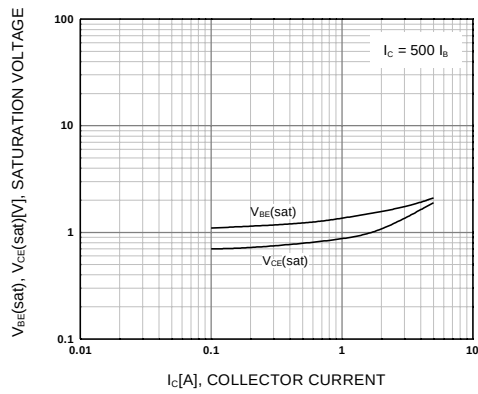


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

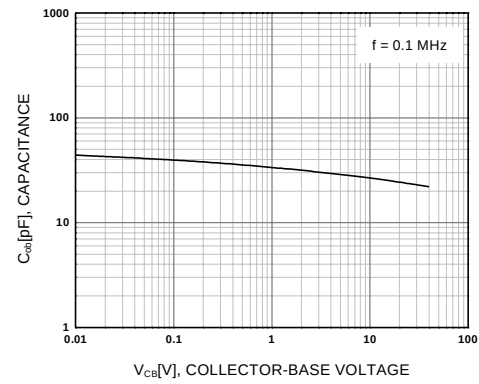


Figure 4. Collector Output Capacitance

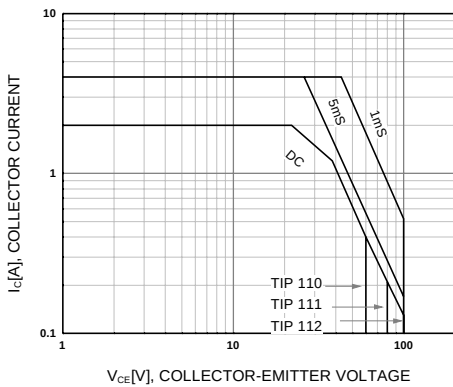


Figure 5. Safe Operating Area

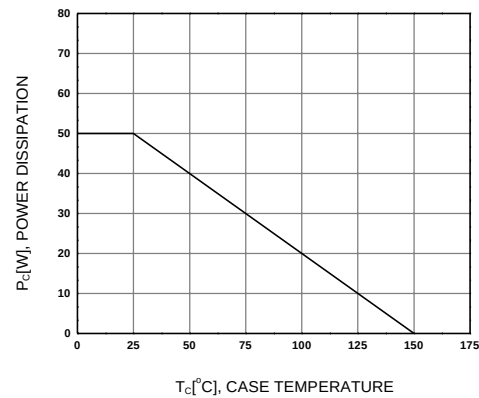
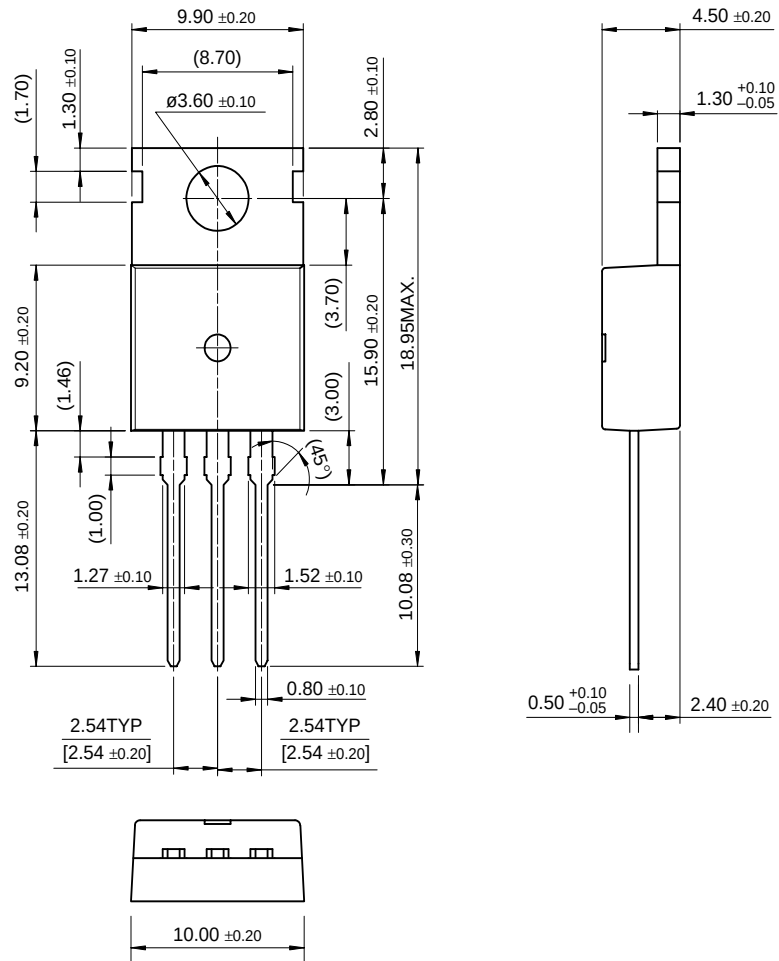


Figure 6. Power Derating

Package Dimensions

TO-220



Dimensions in Millimeters

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