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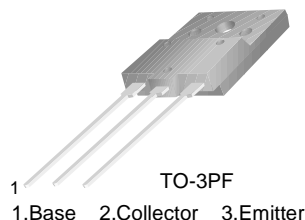
sales@integrated-circuit.com



TIP140F/141F/142F

Monolithic Construction With Built In Base-Emitter Shunt Resistors

- Complement to TIP145F/146F/147F
- High DC Current Gain : $h_{FE} = 1000$ @ $V_{CE} = 4V, I_C = 5A$ (Min.)
- Industrial Use

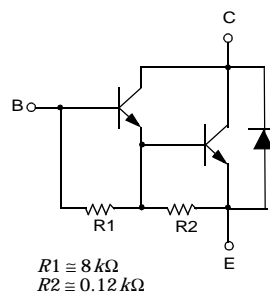


NPN Epitaxial Darlington Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : TIP140F	60	V
	: TIP141F	80	V
	: TIP142F	100	V
V_{CEO}	Collector-Emitter Voltage : TIP140F	60	V
	: TIP141F	80	V
	: TIP142F	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 ($T_C=25^\circ C$)	60	W
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ C$

Equivalent Circuit



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units		
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage : TIP140F	$I_C = 30mA, I_B = 0$	60			V		
	: TIP141F					80	V	
	: TIP142F					100	V	
I_{CEO}	Collector Cut-off Current : TIP140F	$V_{CE} = 30V, I_B = 0$			2	mA		
	: TIP141F					$V_{CE} = 40V, I_B = 0$	2	mA
	: TIP142F					$V_{CE} = 50V, I_B = 0$	2	mA
I_{CBO}	Collector Cut-off Current : TIP140F	$V_{CB} = 60V, I_E = 0$			1	mA		
	: TIP141F					$V_{CB} = 80V, I_E = 0$	1	mA
	: TIP142F					$V_{CB} = 100V, I_E = 0$	1	mA
I_{EBO}	Emitter Cut-off Current	$V_{BE} = 5V, I_C = 0$			2	mA		
h_{FE}	DC Current Gain	$V_{CE} = 4V, I_C = 5A$ $V_{CE} = 4V, I_C = 10A$	1000 500					
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 5A, I_B = 10mA$ $I_C = 10A, I_B = 40mA$			2 3	V V		
						$I_C = 10A, I_B = 40mA$		
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 4V, I_C = 10A$			3	V		
t_D	Delay Time	$V_{CC} = 30V, I_C = 5A$ $I_{B1} = 20mA, I_{B2} = -20mA$ $R_L = 6\Omega$		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

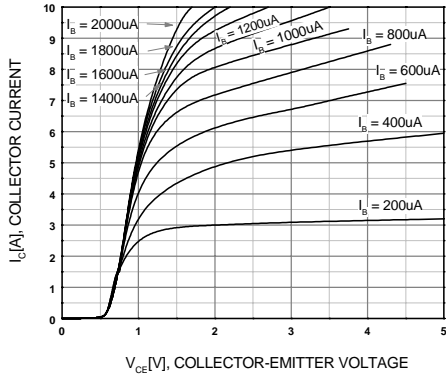


Figure 1. Static Characteristics

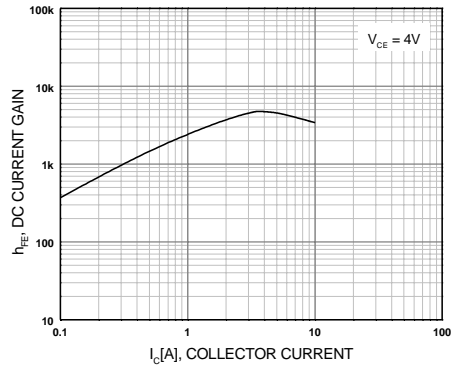
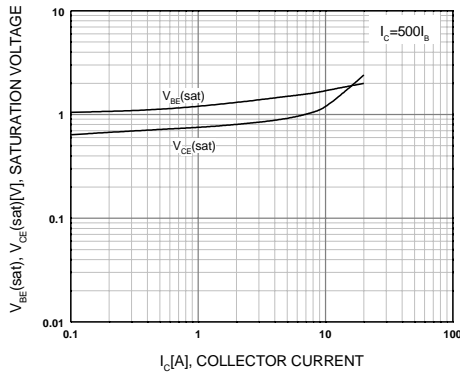


Figure 2. DC current Gain



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

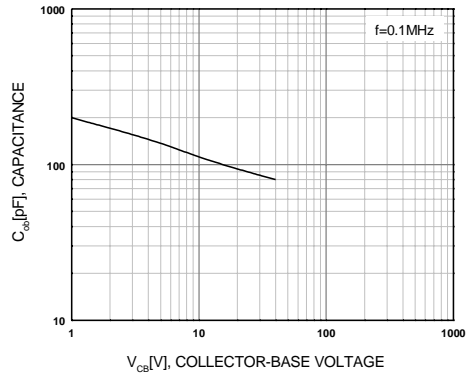


Figure 4. Collector Output Capacitance

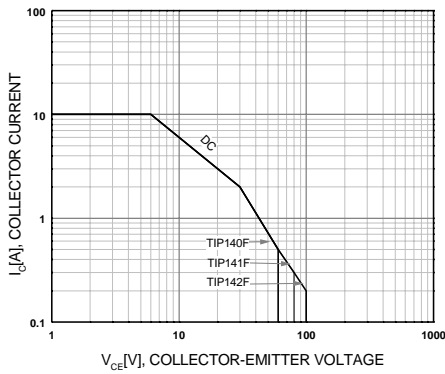


Figure 5. Safe Operating Area

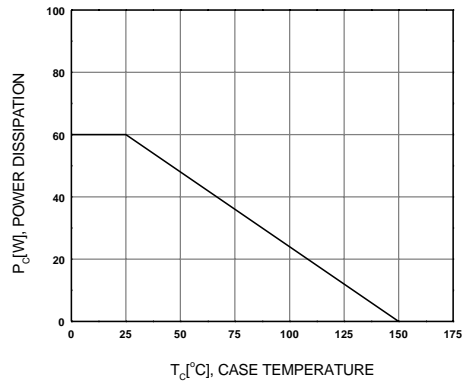
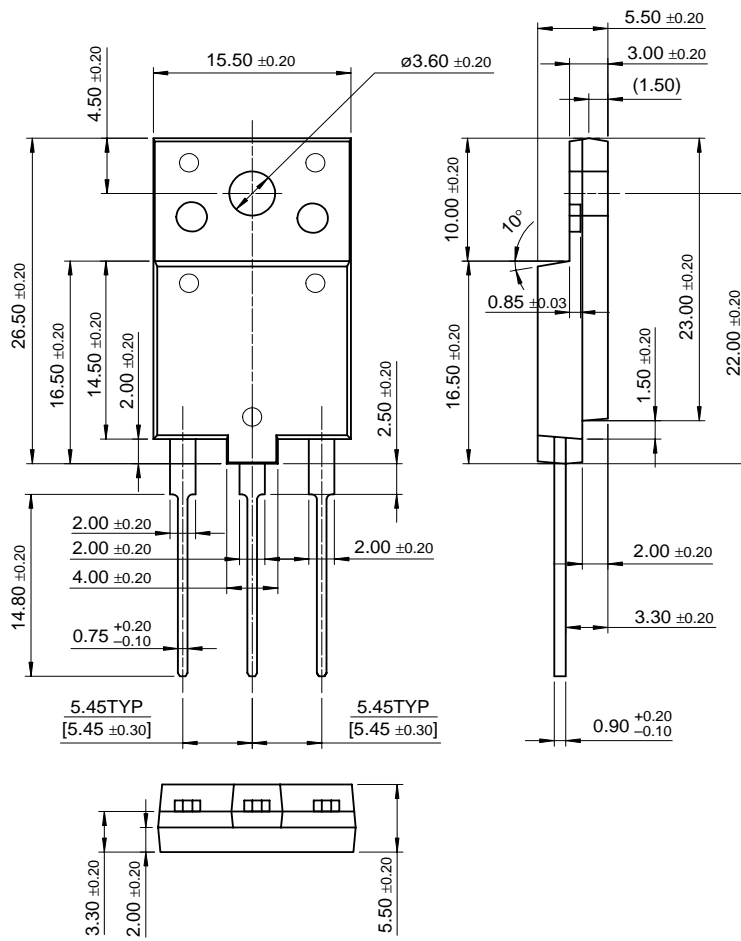


Figure 6. Power Derating

Package Dimensions

TO-3PF



Dimensions in Millimeters

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