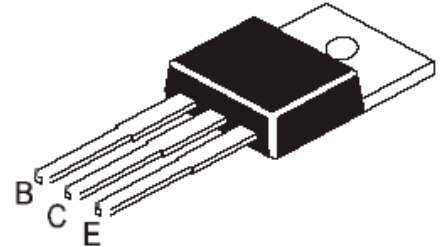


Darlington Power Transistors (NPN)

Features

- Designed for general-purpose amplifier and low speed switching applications
- RoHS Compliant



TO-220

Maximum Ratings *(T_{Ambient}=25°C unless noted otherwise)*

Symbol	Description	TIP120	TIP121	TIP122	Unit
V_{CB0}	Collector-Base Voltage	60	80	100	V
V_{CEO}	Collector-Emitter Voltage	60	80	100	V
V_{EB0}	Emitter-Base Voltage	5.0			V
I_C	Collector Current Continuous	5.0			A
I_{CM}	Collector Current Peak	8.0			A
I_B	Base Current	120			mA
P_D	Power Dissipation upto T _C =25°C	65			W
	Power Dissipation Derate above T _C =25°C	0.52			W/° C
	Power Dissipation upto T _A =25°C	2.0			W
	Power Dissipation Derate above T _A =25°C	16			mW/° C
R_{θJA}	Thermal Resistance from Junction to Ambient in Free Air	62.5			° C /W
R_{θJC}	Thermal Resistance from Junction to Case	1.92			° C /W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-65 to +150			° C

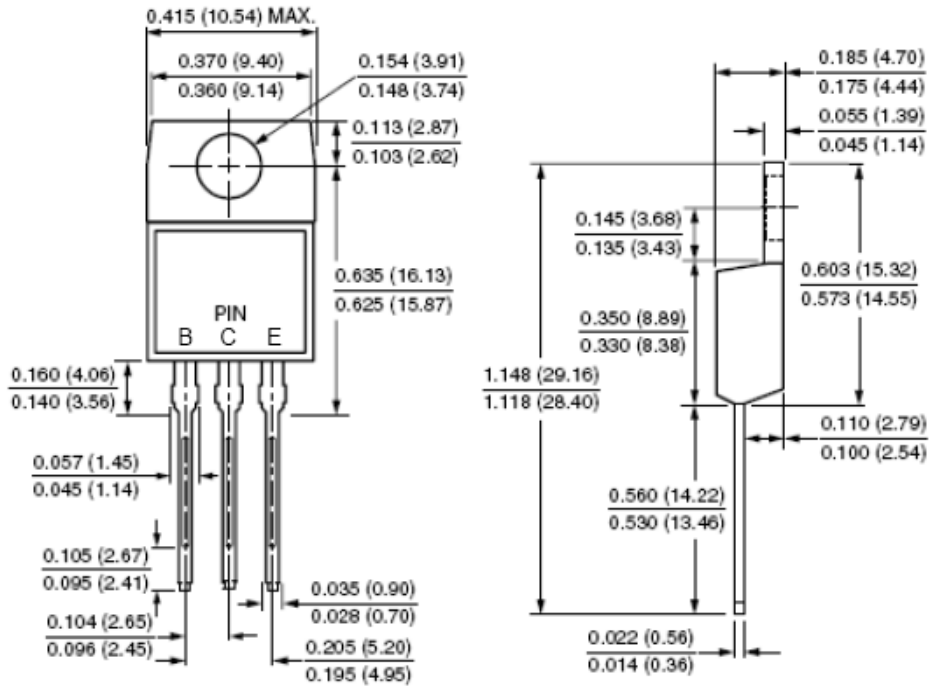
Electrical Characteristics ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	Min.	Max.	Unit	Conditions	
*h_{FE}	D.C. Current Gain	1000	-		V _{CE} =3V, I _C =0.5A	
		1000	-		V _{CE} =3V, I _C =3A	
*V_{CEO(sus)}	Collector-Emitter Sustaining Voltage	TIP120	60	-	V	I _C =100mA, I _B =0
		TIP121	80	-	V	
		TIP122	100	-	V	
*V_{CE(sat)}	Collector-Emitter Saturation Voltage	-	2.0	V	I _C =3A, I _B =12mA	
		-	4.0	V	I _C =5A, I _B =20mA	
*V_{BE(on)}	Base-Emitter On Voltage	-	2.5	V	I _C =3A, V _{CE} =3V	
I_{CEO}	Collector-Emitter Cut-off Current	TIP120	-	0.5	mA	V _{CE} =30V, I _B =0
		TIP121	-	0.5		V _{CE} =40V, I _B =0
		TIP122	-	0.5		V _{CE} =50V, I _B =0
I_{CBO}	Collector-Base Cut-off Current	TIP120	-	0.2	mA	V _{CB} =60V, I _E =0
		TIP121	-	0.2		V _{CB} =80V, I _E =0
		TIP122	-	0.2		V _{CB} =100V, I _E =0
I_{EBO}	Emitter-Base Cut-off Current	-	2	mA	V _{EB} =5V, I _C =0	
h_{fe}	Small Signal Current Gain	4.0	-		I _C =3A, V _{CE} =4V, f=1.0MHz,	
C_{ob}	Output Capacitance	-	200	pF	V _{CB} =10V, I _E =0, f=0.1MHz,	
t_{on}	Turn on time	Typ. 0.4		μS	I _C =3A, R _L =10Ω, I _{B1} =I _{B2} =12mA, V _{EB(off)} =5V	
t_{off}	Turn off time	Typ. 1.2				

*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Dimensions in inch (mm)

TO-220



Pin Configuration

- B. Base
- C. Collector
- E. Emitter