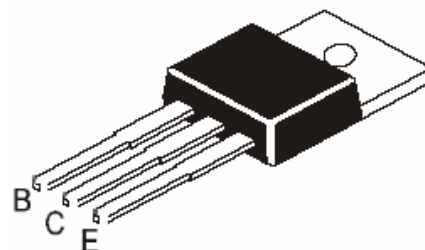


Darlington Power Transistors (NPN)

Features

- Designed for use in automotive ignition, switching and motor control applications
- RoHS Compliant



TO-220



Mechanical Data

Case:	TO-220, Plastic Package
Terminals:	Solderable per MIL-STD-202, Method 208
Weight:	0.08 ounces, 2.24 grams

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

Symbol	Description	TIP150	TIP151	TIP152	Unit
V_{CB0}	Collector-Base Voltage	300	350	400	V
V_{CEO}	Collector-Emitter Voltage	300	350	400	V
V_{EB0}	Emitter-Base Voltage	8.0			V
I_C	Collector Current Continuous	7.0			A
I_{CM}	Collector Current Peak	10			A
I_B	Base Current	1.5			A
P_D	Power Dissipation upto $T_C=25^{\circ}C$	80			W
	Power Dissipation Derate above $T_A=25^{\circ}C$	640			mW/ $^{\circ}C$
R_{θJC}	Thermal Resistance from Junction to Case	1.56			$^{\circ}C/W$
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-65 to +150			$^{\circ}C$

Darlington Power Transistors (NPN)

TIP150/151/152

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

Symbol	Description		Min.	Max.	Unit	Conditions
*h_{FE}	D.C. Current Gain		150	-		V _{CE} =5V, I _C =2.5A
			50	-		V _{CE} =5V, I _C =5A
			15	-		V _{CE} =5V, I _C =7A
*V_{CEO}	Collector-Emitter Sustaining Voltage	TIP150	300	-	V	I _C =10mA, I _B =0
		TIP151	350	-	V	
		TIP152	400	-	V	
*V_{CBO}	Collector-Base Breakdown Voltage	TIP150	300	-	V	I _C =1.0mA, I _B =0
		TIP151	350	-	V	
		TIP152	400	-	V	
*V_{CE(sat)}	Collector-Emitter Saturation Voltage		-	1.5	V	I _C =1A, I _B =10mA
			-	1.5	V	I _C =2A, I _B =100mA
			-	2.0	V	I _C =5A, I _B =250mA
*V_{BE(sat)}	Base-Emitter Saturation Voltage		-	2.2	V	I _C =2A, I _B =100mA
			-	2.3	V	I _C =5A, I _B =250mA
I_{CEO}	Collector-Emitter Cut-off Current	TIP150	-	250	μA	V _{CE} =300V, I _B =0
		TIP151	-	250		V _{CE} =350V, I _B =0
		TIP152	-	250		V _{CE} =400V, I _B =0
I_{EBO}	Emitter-Base Cut-off Current		-	15	mA	V _{EB} =8.0V, I _C =0
*V_F	Forward Voltage of Commutation Diode		-	3.5	V	I _F =7A

Darlington Power Transistors (NPN)

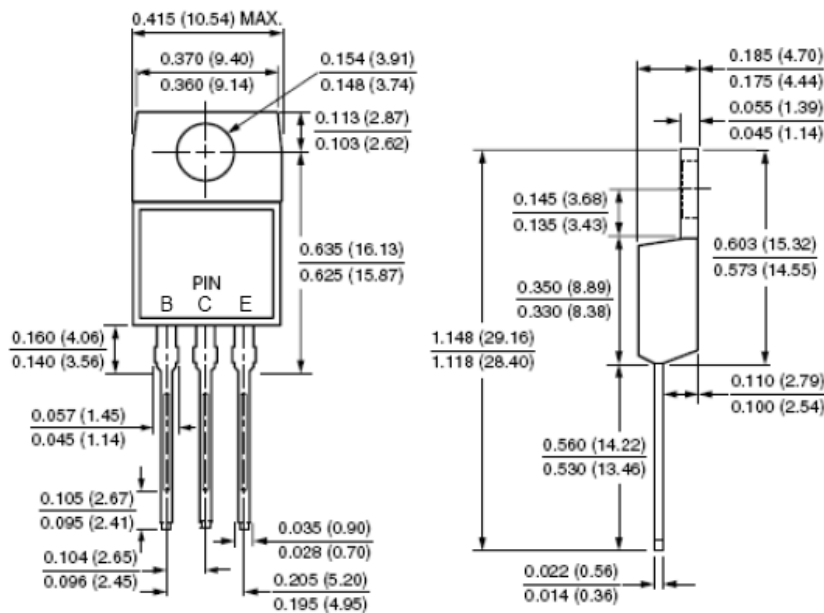
TIP150/151/152

Symbol	Description	Min.	Typ.	Max.	Unit	Conditions
h_{fe}	Small-Signal Current Gain	200	-	-		$V_{CE}=5V$, $I_C=0.5A$, $f=1.0KHz$
C_{ob}	Output Capacitance	-	-	150	pF	$V_{CB}=10V$, $I_E=0$, $f=1.0MHz$
t_d	Delay Time	-	30	-	ns	$V_{CC}=250V$, $I_C=5.0A$, $I_{B1}=-I_{B2}=250mA$, $t_p=20\mu s$, Duty Cycle $\leq 2.0\%$
t_r	Rise Time	-	180	-	ns	
t_s	Storage Time	-	3.5	-	μs	
t_f	Fall Time	-	1.6	-	μs	

*Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Dimensions in inch (mm)

TO-220



Pin Configuration

B. Base
C. Collector
E. Emitter

Darlington Power Transistors (NPN)

TIP150/151/152

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