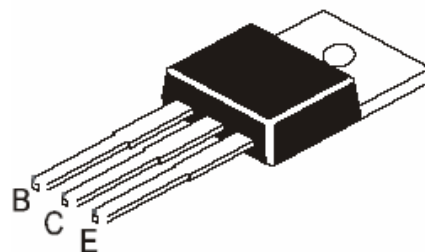


## Darlington Power Transistors (NPN)

### Features

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



TO-220



### Mechanical Data

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

### Maximum Ratings *(T<sub>Ambient</sub>=25°C unless noted otherwise)*

Symbol	Description	TIP100	TIP101	TIP102	Unit
<b>V<sub>CB0</sub></b>	Collector-Base Voltage	60	80	100	V
<b>V<sub>CEO</sub></b>	Collector-Emitter Voltage	60	80	100	V
<b>V<sub>EB0</sub></b>	Emitter-Base Voltage	5.0			V
<b>I<sub>C</sub></b>	Collector Current Continuous	8.0			A
<b>I<sub>CM</sub></b>	Collector Current Peak	15			A
<b>I<sub>B</sub></b>	Base Current	1.0			A
<b>P<sub>D</sub></b>	Power Dissipation upto T <sub>C</sub> =25°C	80			W
	Power Dissipation upto T <sub>A</sub> =25°C	2.0			W
	Power Dissipation Derate above T <sub>A</sub> =25°C	16			mW/° C
<b>R<sub>θJA</sub></b>	Thermal Resistance from Junction to Ambient in Free Air	62.5			° C /W
<b>R<sub>θJC</sub></b>	Thermal Resistance from Junction to Case	1.56			° C /W
<b>T<sub>J</sub>, T<sub>STG</sub></b>	Operating Junction and Storage Temperature Range	-65 to +150			° C

# Darlington Power Transistors (NPN)

## TIP100/101/102

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

Symbol	Description	Min.	Max.	Unit	Conditions	
<b>*hFE</b>	D.C. Current Gain	1000	20000		$V_{CE}=4\text{V}$ , $I_C=3\text{A}$	
		200	-		$V_{CE}=4\text{V}$ , $I_C=8\text{A}$	
<b>*V<sub>CEO(sus)</sub></b>	Collector-Emitter Sustaining Voltage	<b>TIP100</b>	60	-	V	$I_C=30\text{mA}$ , $I_B=0$
		<b>TIP101</b>	80	-	V	
		<b>TIP102</b>	100	-	V	
<b>*V<sub>CE(sat)</sub></b>	Collector-Emitter Saturation Voltage	-	2.0	V	$I_C=3\text{A}$ , $I_B=6\text{mA}$	
		-	2.5	V	$I_C=8\text{A}$ , $I_B=80\text{mA}$	
<b>*V<sub>BE(on)</sub></b>	Base-Emitter On Voltage	-	2.8	V	$I_C=8\text{A}$ , $V_{CE}=4\text{V}$	
<b>I<sub>CEO</sub></b>	Collector-Emitter Cut-off Current	<b>TIP100</b>	-	50	$\mu\text{A}$	$V_{CE}=30\text{V}$ , $I_B=0$
		<b>TIP101</b>	-	50		$V_{CE}=40\text{V}$ , $I_B=0$
		<b>TIP102</b>	-	50		$V_{CE}=50\text{V}$ , $I_B=0$
<b>I<sub>CBO</sub></b>	Collector-Base Cut-off Current	<b>TIP100</b>	-	50	$\mu\text{A}$	$V_{CB}=60\text{V}$ , $I_E=0$
		<b>TIP101</b>	-	50		$V_{CB}=80\text{V}$ , $I_E=0$
		<b>TIP102</b>	-	50		$V_{CB}=100\text{V}$ , $I_E=0$
<b>I<sub>EBO</sub></b>	Emitter-Base Cut-off Current	-	8.0	mA	$V_{EB}=5\text{V}$ , $I_C=0$	
<b>*V<sub>F</sub></b>	Forward Voltage of Commutation Diode	-	6.0	V	$I_F=I_C=10\text{A}$ , $I_B=0$	

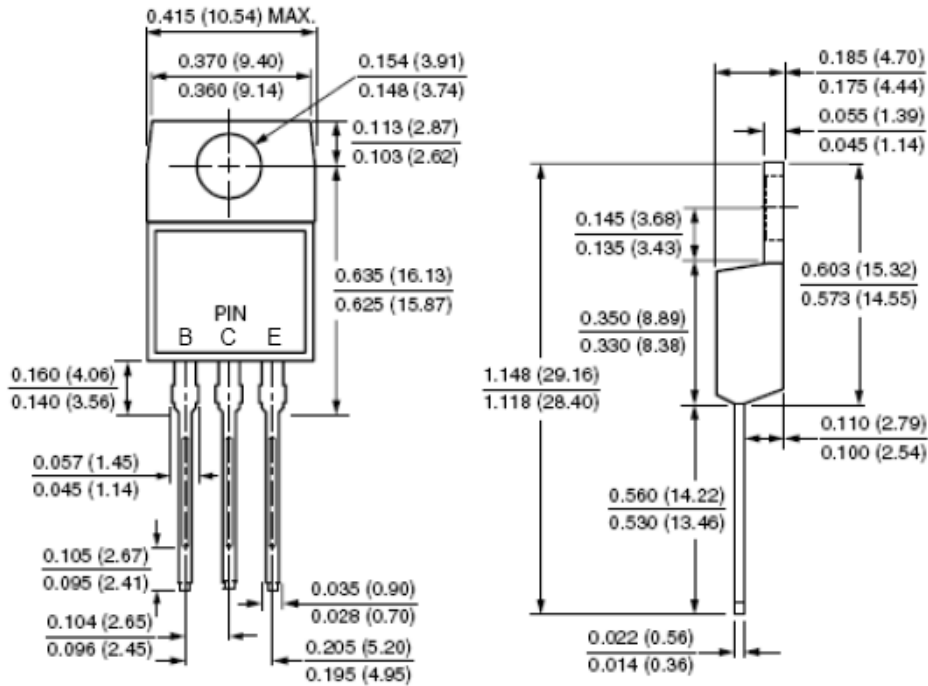
\*Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

# Darlington Power Transistors (NPN)

## TIP100/101/102

Dimensions in inch (mm)

### TO-220



### Pin Configuration

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

# Darlington Power Transistors (NPN)

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TIP100/101/102

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