

# Darlington Silicon NPN Power Transistors

TO-220 Package

7-33-29



### Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	TIP110	TIP111	TIP112	Unit
Collector-Base Voltage	V <sub>CB0</sub>	60	80	100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	60	80	100	V
Emitter-Base Voltage	V <sub>EB0</sub>	5			V
Collector Current	I <sub>C</sub>	2			A
Peak Collector Current	I <sub>CM</sub>	4			A
Base Current	I <sub>B</sub>	50			mA
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>C</sub>	50			W
Junction Temperature	T <sub>J</sub>	-65~+150			°C
Storage Temperature	T <sub>stg</sub>	-65~+150			°C

### Applications:

- Power Amplifier and High Speed Switching
- Complementary pair with TIP115, TIP116, TIP117

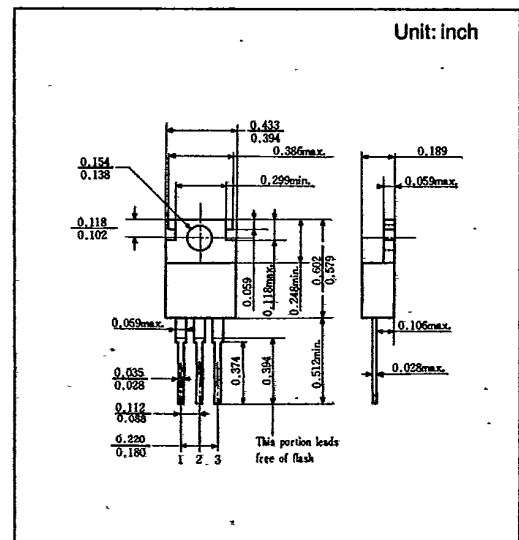
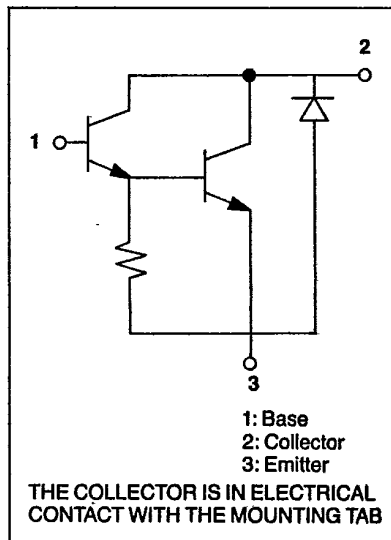
### Features:

- 50W at 25°C case temperature
- Min. h<sub>FE</sub> of 500 at 4V, 2A
- 2A rated collector current
- 25mJ reverse energy rating

### Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	TIP110		TIP111		TIP112		Unit
			min.	max.	min.	max.	min.	max.	
Collector-Emitter Voltage	V <sub>CEO</sub>	I <sub>C</sub> = 30mA, I <sub>B</sub> = 0	60		80		100		V
Collector Cutoff Current	I <sub>CEO</sub>	V <sub>CE</sub> = 30V, I <sub>B</sub> = 0		2					mA
		V <sub>CE</sub> = 40V, I <sub>B</sub> = 0			2				
		V <sub>CE</sub> = 60V, I <sub>B</sub> = 0					2		
Collector-Base Current	I <sub>CB0</sub>	V <sub>CB</sub> = 60V, I <sub>E</sub> = 0		1					mA
		V <sub>CB</sub> = 80V, I <sub>E</sub> = 0			1				
		V <sub>CB</sub> = 100V, I <sub>E</sub> = 0					1		
Emitter-Base Current	I <sub>EB0</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0		2		2		2	mA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 4V, I <sub>C</sub> = 1A	1000		1000		1000		
		V <sub>CE</sub> = 4V, I <sub>C</sub> = 2A	500		500		500		
Base-Emitter Voltage	V <sub>BE</sub>	V <sub>CE</sub> = 4V, I <sub>C</sub> = 2A		2.8		2.8		2.8	V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 2A, I <sub>B</sub> = 8mA		2.5		2.5		2.5	V
Turn-on Time	t <sub>on</sub>	I <sub>C</sub> = 2A, I <sub>B1</sub> = 8mA, -I <sub>B2</sub> = 8mA	0.4 (typ.)						
Turn-off Time	t <sub>off</sub>	-V <sub>BE(off)</sub> = 5V, R <sub>L</sub> = 15Ω	4 (typ.)						μs

The device specifications are subject to change without prior notice.





Typical Characteristics

