



Micro Commercial Components

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 20736 Marilla Street Chatsworth  
 CA 91311  
 Phone: (818) 701-4933  
 Fax: (818) 701-4939

# TIP110/111/112

## Features

- The complementary PNP types are the TIP115/116/117 respectively
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL Rating 1
- Marking: Part number

## Silicon NPN

## Darlington Power Transistor

### Absolute Maximum Ratings @ T<sub>a</sub> = 25°C (unless otherwise noted)

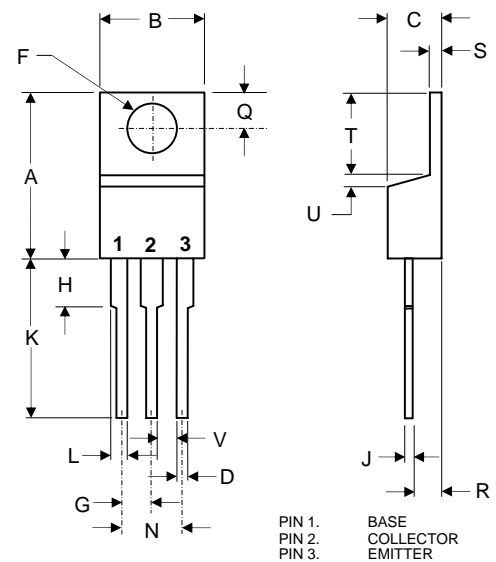
Symbol	Parameter	Value	Unit
V <sub>CB0</sub> TIP110 TIP111 TIP112	Collector-base voltage (Open emitter)	60 80 100	V
V <sub>CE0</sub> TIP110 TIP111 TIP112	Collector-emitter voltage (Open base)	60 80 100	V
V <sub>EBO</sub>	Emitter-base Voltage(Open collector)	5	V
I <sub>C</sub>	Collector Current	2	A
I <sub>CM</sub>	Collector Current Pulse	4	A
I <sub>B</sub>	Base Current	0.05	A
P <sub>C</sub>	Total Device Dissipation(T <sub>a</sub> =25°C)	2	W
	Total Device Dissipation(T <sub>c</sub> =25°C)	50	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-65 to +150	°C

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
V <sub>CE(SUS)</sub> TIP110 TIP111 TIP112	Collector-emitter sustaining voltage (I <sub>C</sub> =30mA; I <sub>B</sub> =0)	60 80 100		V
V <sub>CE(sat)</sub>	Collector-emitter Saturation Voltage (I <sub>C</sub> =2A I <sub>B</sub> =0.008A)		2.5	V
V <sub>BE</sub>	Base-emitter Voltage (I <sub>C</sub> =2A; V <sub>CE</sub> =4V)		2.8	V
I <sub>CB0</sub> TIP110 TIP111 TIP112	Collector cut-off current (V <sub>CB</sub> =60V; I <sub>E</sub> =0) (V <sub>CB</sub> =80V; I <sub>E</sub> =0) (V <sub>CB</sub> =100V; I <sub>E</sub> =0)	1		mA
I <sub>CE0</sub> TIP110 TIP111 TIP112	Collector cut-off current (V <sub>CE</sub> =30V; V <sub>EB</sub> =0) (V <sub>CE</sub> =40V; V <sub>EB</sub> =0) (V <sub>CE</sub> =50V; V <sub>EB</sub> =0)	2		mA
I <sub>EBO</sub>	Emitter cut-off current (V <sub>EB</sub> =5V; I <sub>C</sub> =0)		2.0	mA
h <sub>FE</sub>	DC current gain (I <sub>C</sub> =1A; V <sub>CE</sub> =4V) (I <sub>C</sub> =2A; V <sub>CE</sub> =4V)	1000 500		
C <sub>OB</sub>	Output capacitance (I <sub>E</sub> =0; V <sub>CB</sub> =-10V, f=0.1MHz)		100	PF

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.

## TO-220AB



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.139	.161	3.53	4.09	∅
G	.190	.110	2.29	2.79	
H	---	.250	---	6.35	
J	.012	.025	0.30	0.64	
K	.500	.580	12.70	14.73	
L	.045	.060	1.14	1.52	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.43	
R	.080	.115	2.04	2.92	
S	.045	.055	1.14	1.39	
T	.230	.270	5.84	6.86	
U	----	.050	----	1.27	
V	.045	----	1.15	----	



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## Ordering Information

Device (Part Number)-BP	Packing Bulk;1Kpcs/Box
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