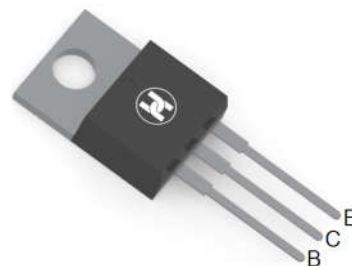


NPN DARLINGTON TRANSISTOR
FEATURES

- Medium power silicon transistors
- Complementary TIP125/TIP126/TIP127

MECHANICAL DATA

- Case: TO-220
- Case material: Molded plastic. UL flammability 94V-0
- Weight: 2.30grams (approximate)


TO-220
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

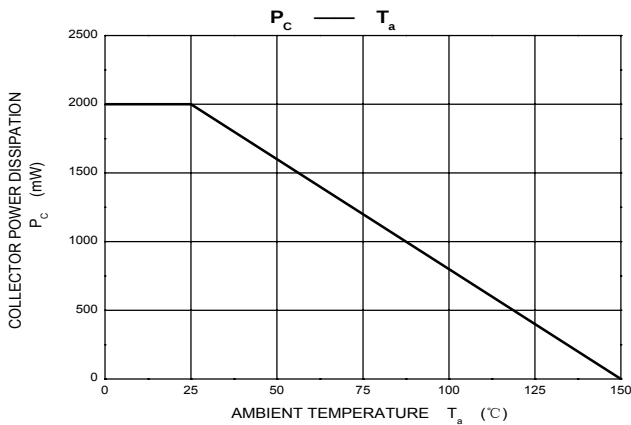
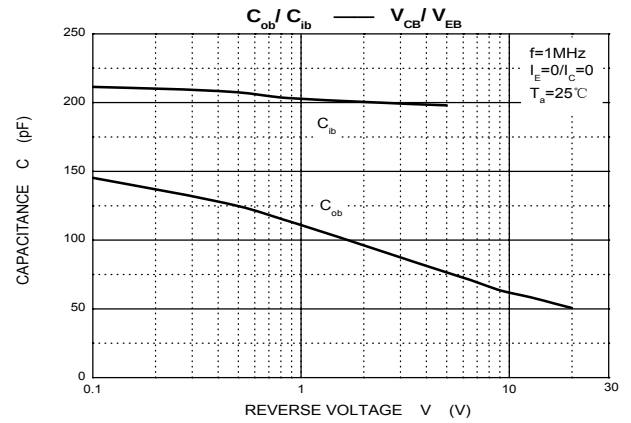
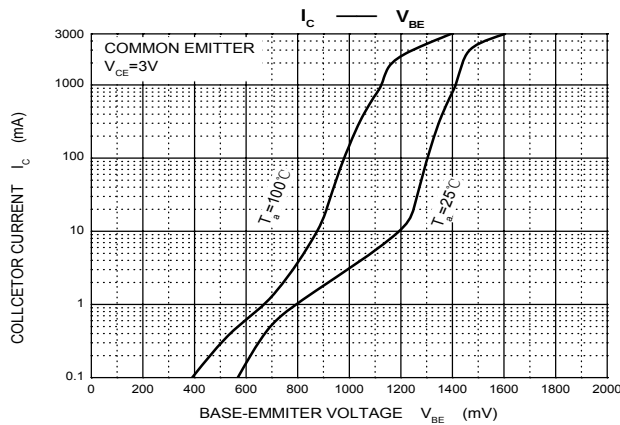
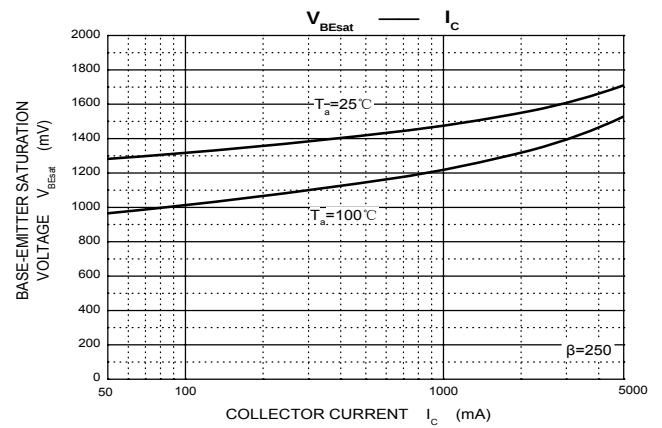
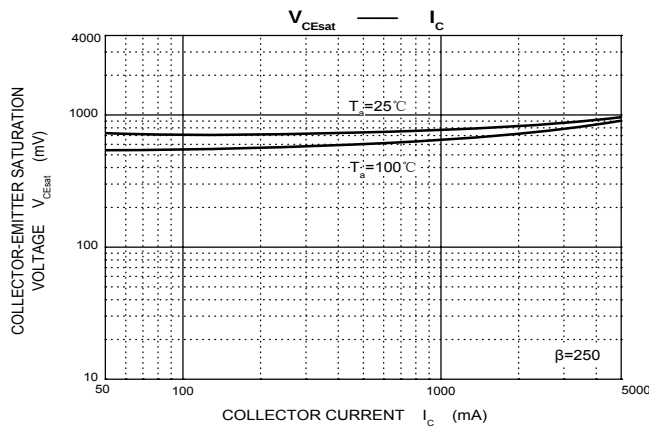
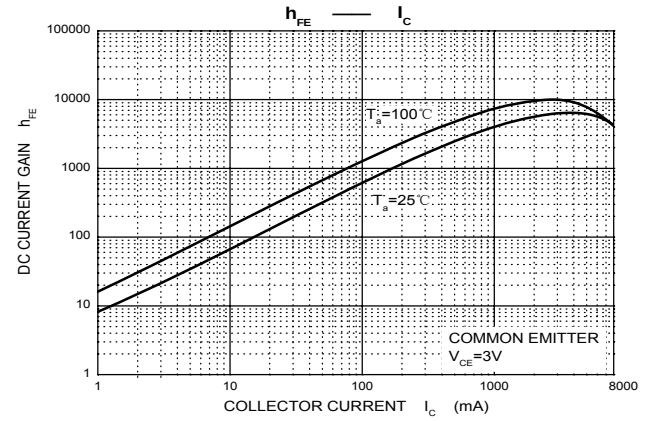
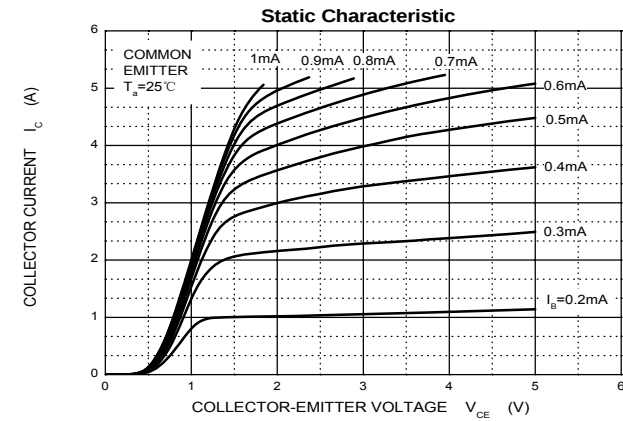
Parameter	Symbol	TIP120	TIP121	TIP122	Unit
Collector-base voltage	V_{CBO}	60	80	100	V
Collector-emitter voltage	V_{CEO}	60	80	100	V
Emitter-base voltage	V_{EBO}	5			V
Collector current -continuous	I_C	5			A
Collector power dissipation	P_C	2			W
Thermal resistance junction to ambient	$R_{\theta JA}$	62.5			$^{\circ}\text{C/W}$
Thermal resistance junction to case	$R_{\theta JC}$	1.92			$^{\circ}\text{C/W}$
Junction temperature	T_J	150			$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55 ~ +150			$^{\circ}\text{C}$

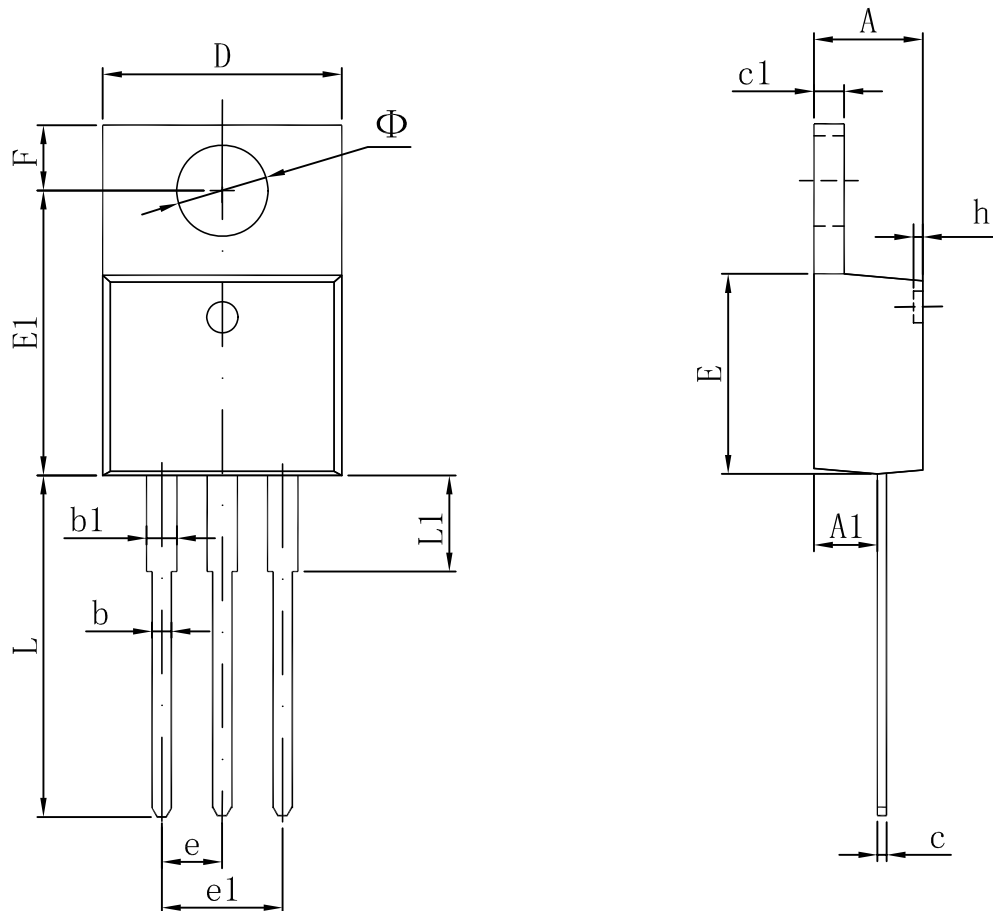
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter		Symbol	Min	Max	Unit	Conditions
Collector-base breakdown voltage	TIP120	$V_{(BR)CBO}$	60		V	$I_C = 1\text{mA}, I_E = 0$
	TIP121		80			
	TIP122		100			
Collector-emitter breakdown voltage	TIP120	$V_{CEO(SUS)}$	60		V	$I_C = 30\text{mA}, I_B = 0$
	TIP121		80			
	TIP122		100			
Collector cut-off current	TIP120	I_{CBO}		0.2	mA	$V_{CB} = 60\text{V}, I_E = 0$
	TIP121					$V_{CB} = 80\text{V}, I_E = 0$
	TIP122					$V_{CB} = 100\text{V}, I_E = 0$
Collector cut-off current	TIP120	I_{CEO}		0.5	mA	$V_{CE} = 30\text{V}, I_B = 0$
	TIP121					$V_{CE} = 40\text{V}, I_B = 0$
	TIP122					$V_{CE} = 50\text{V}, I_B = 0$
Emitter cut-off current		I_{EBO}		2	mA	$V_{EB} = 5\text{V}, I_C = 0$
DC current gain		$h_{FE(1)}$	1000			$V_{CE} = 3\text{V}, I_C = 0.5\text{A}$
		$h_{FE(2)}$	1000			$V_{CE} = 3\text{V}, I_C = 3\text{A}$
Collector-emitter saturation voltage	$V_{CE(sat)}$			2	V	$I_C = 3\text{A}, I_B = 12\text{mA}$
				4		$I_C = 5\text{A}, I_B = 20\text{mA}$
Base-emitter voltage	V_{BE}			2.5	V	$V_{CE} = 3\text{V}, I_C = 3\text{A}$
Output capacitance	C_{ob}			300	pF	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$

NPN DARLINGTON TRANSISTOR
TYPICAL CHARACTERISTICS

TIP122



NPN DARLINGTON TRANSISTOR
TO-220 PACKAGE OUTLINE DIMENSIONS


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155