

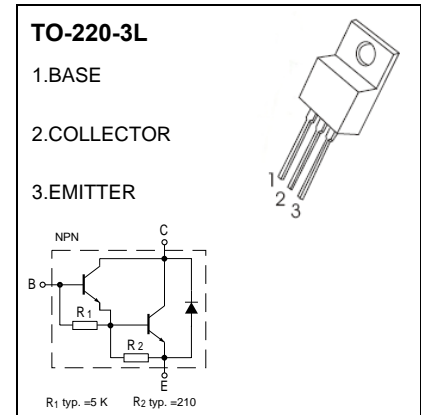


**TO-2203L Plastic-Encapsulate Transistors**

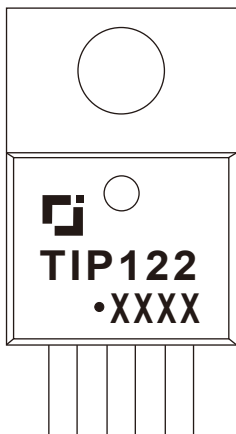
**TIP122** DARLINGTON TRANSISTOR (NPN)

**FEATURES**

- Medium Power Complementary Silicon Transistors



**MARKING**



TIP122=Device code  
 Solid dot=Green moldinn compound device,  
 if none,the normal device  
 XXXX=Code

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

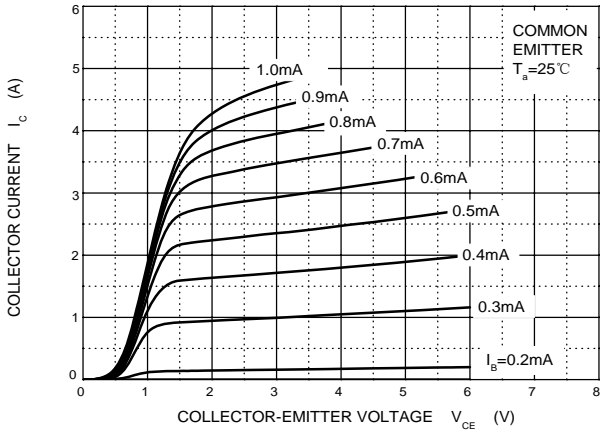
Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage	100	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current -Continuous	5	A
P <sub>C</sub>	Collector Power Dissipation	2	W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	62.5	°C/W
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	1.92	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150	°C

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

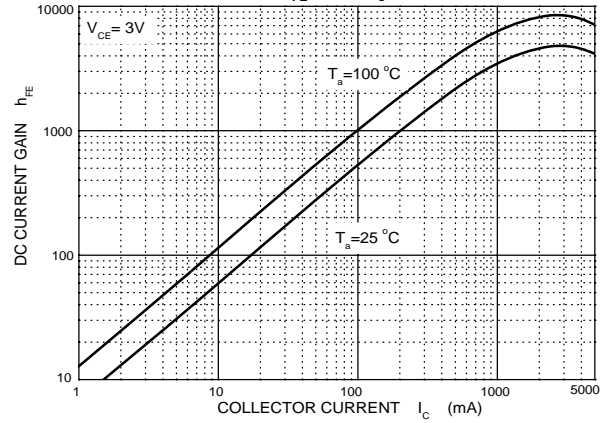
Parameter	Symbol	Test conditions	Min	Max	U
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 1mA, I <sub>E</sub> =0	100		V
Collector-emitter breakdown voltage	V <sub>CEO(SUS)</sub>	I <sub>C</sub> = 30mA, I <sub>B</sub> =0	60		V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0		0.2	mA
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> =50 V, I <sub>B</sub> =0		0.5	mA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5 V, I <sub>C</sub> =0		2	mA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = 3V, I <sub>C</sub> =0.5A	1000		
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 3V, I <sub>C</sub> =3 A	1000	12000	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =3A, I <sub>B</sub> =12mA I <sub>C</sub> =5 A, I <sub>B</sub> =20mA		2 4	V
Base-emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> =3V, I <sub>C</sub> =3 A		2.5	V
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=0.1MHz		200	pF

# Typical Characteristics

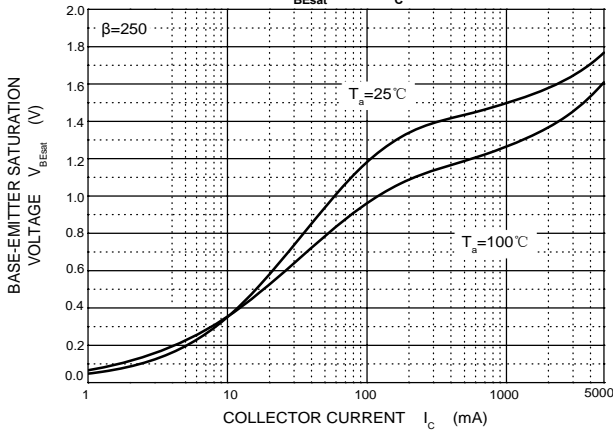
**Static Characteristic**



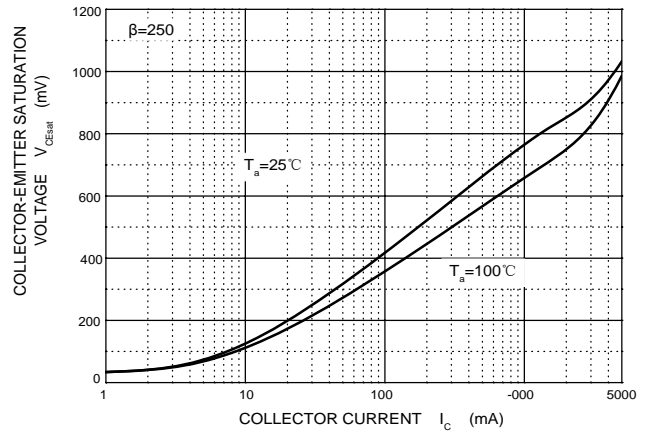
$h_{FE} - I_c$



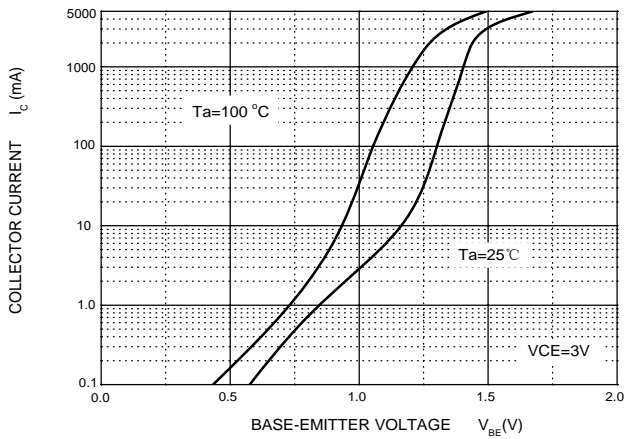
$V_{BEsat} - I_c$



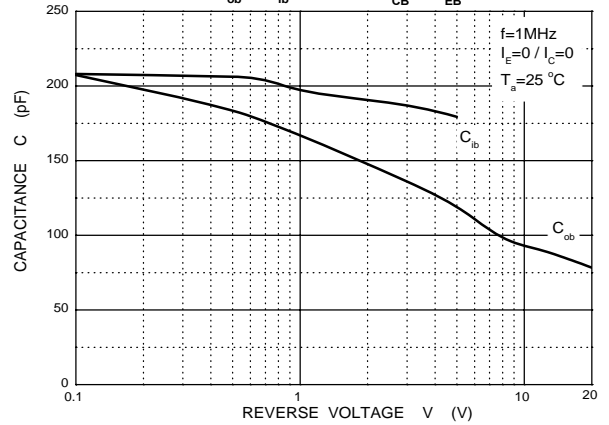
$V_{CEsat} - I_c$



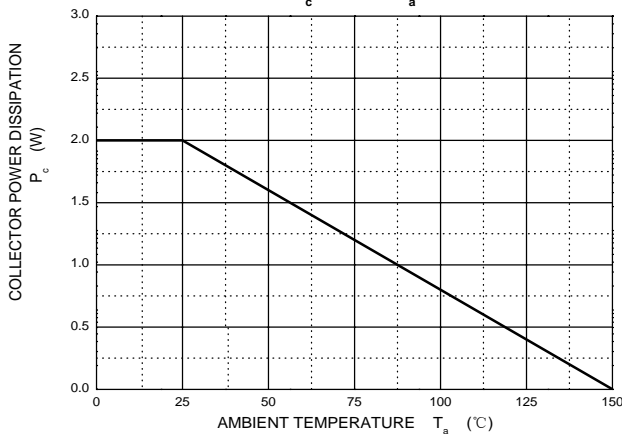
$I_c - V_{BE}$



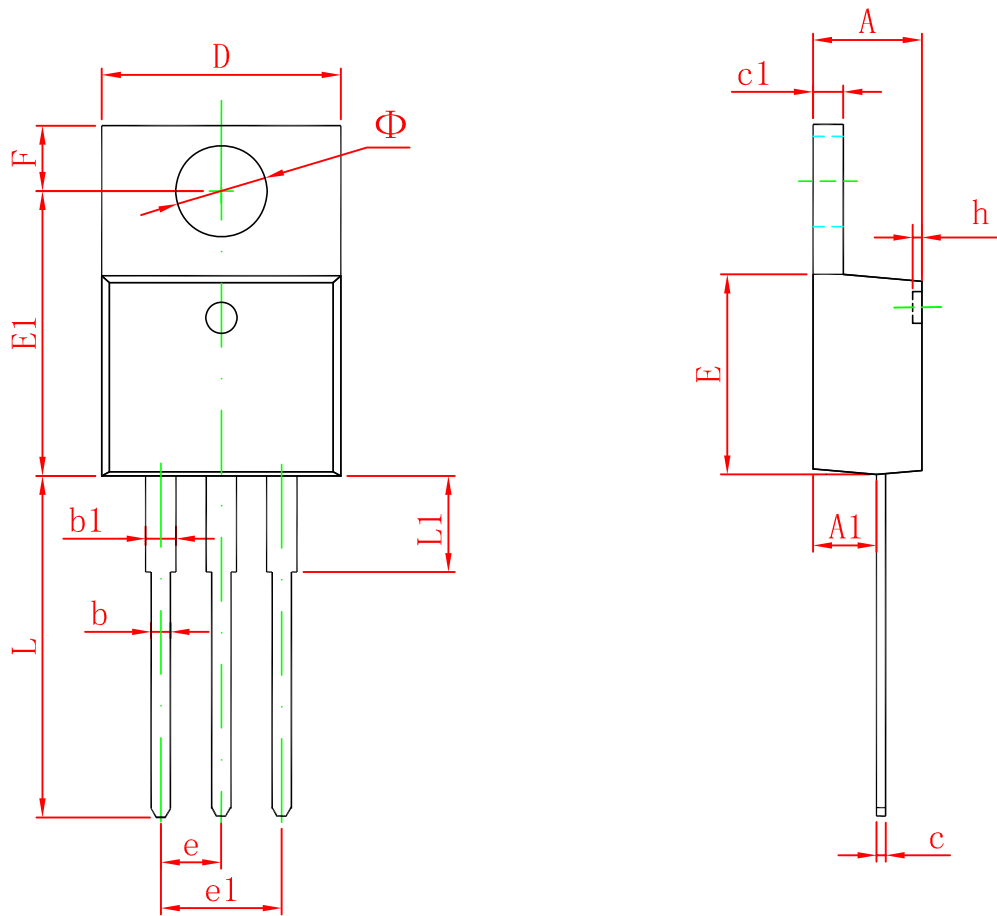
$C_{ob} / C_{ib} - V_{CB} / V_{EB}$



$P_c - T_a$



# TO-220-3L 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
$\Phi$	3.735	3.935	0.147	0.155