



## TO-220-3L Plastic-Encapsulate Transistors

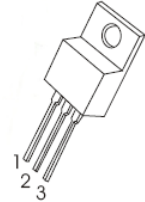
### TIP112 DARLINGTON TRANSISTOR (NPN)

#### FEATURES

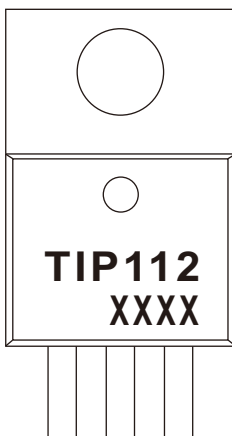
- High DC Current Gain :  $h_{FE}=1000$  @  $V_{CE}=4V$ ,  $I_C=1A$ (Min.)
- Low Collector-Emitter Saturation Voltage
- Industrial Use

#### TO-220-3L

1. BASE
2. COLLECTOR
3. EMITTER



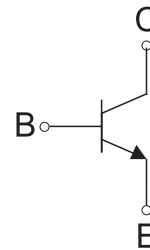
#### MARKING



TIP112=Device code

XXXX=Code

#### Equivalent Circuit



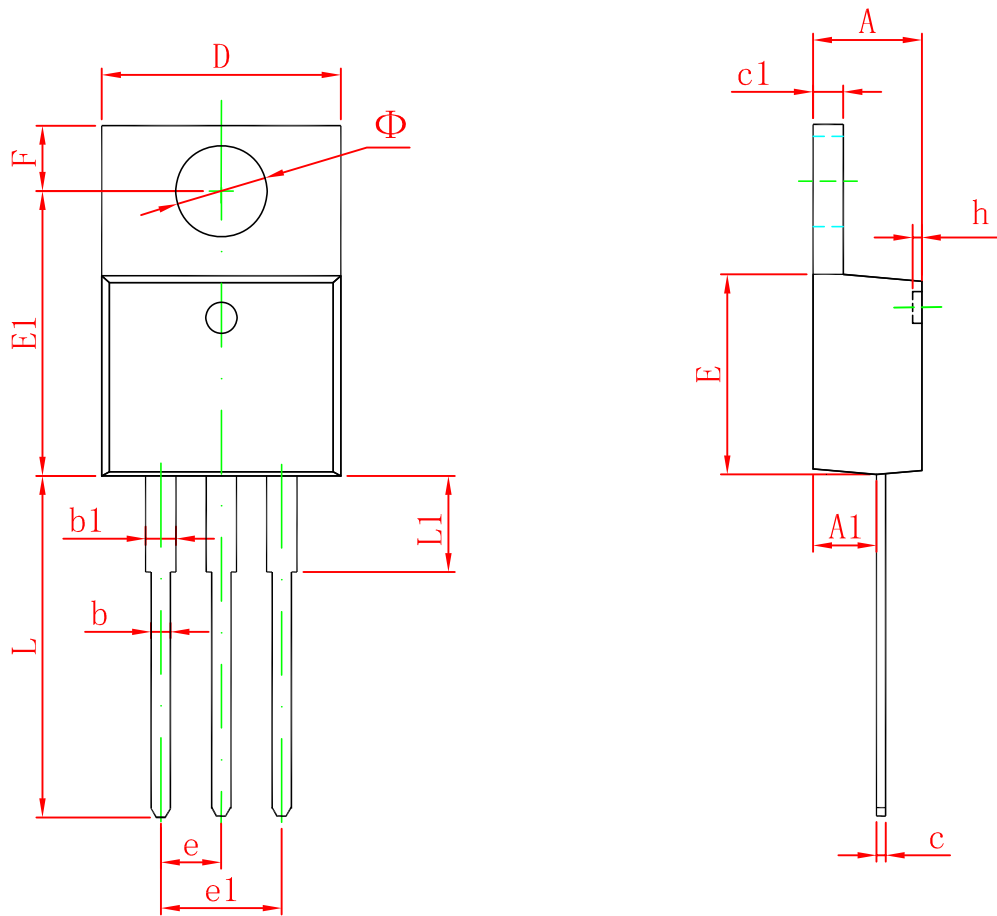
#### MAXIMUM RATINGS ( $T_a=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	2	A
$P_C$	Collector Power Dissipation	2	W
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55 to +150	$^{\circ}C$

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10mA, I_E=0$	100			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=30mA, I_B=0^{(SUS)}$	100			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10mA, I_C=0$	5			V
Collector cut-off current	$I_{CEO}$	$V_{CE}=50V, I_B=0$			2	mA
Collector cut-off current	$I_{CBO}$	$V_{CB}=100V, I_E=0$			1	mA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			2	mA
DC current gain	$h_{FE(1)}$	$V_{CE}=4V, I_C=1A$	1000		12000	
	$h_{FE(2)}$	$V_{CE}=4V, I_C=2A$	500			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=2A, I_B=8mA$			2.5	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=4V, I_C=2A$			2.8	V
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=0.1MHz$			100	pF

# 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