



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

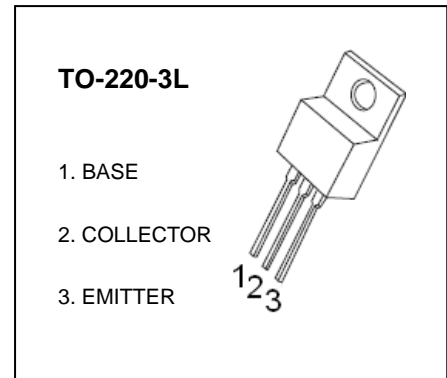
### 2SB1185 TRANSISTOR (PNP)

#### FEATURES

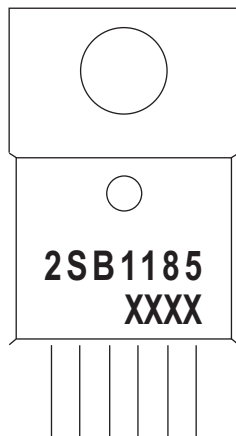
- Low Collector Saturation Voltage
- Complement to Type 2SD1762

#### APPLICATIONS

- For Use in Low Frequency Power Amplifier Applications

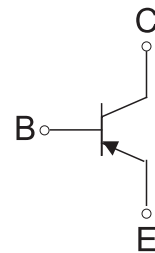


#### MARKING



2SB1185=Device code  
XXXX=Code

#### Equivalent Circuit



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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	-60	V
$V_{CEO}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current	-3	A
$P_C$	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	63	$^\circ\text{C/W}$
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55~+150	$^\circ\text{C}$

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

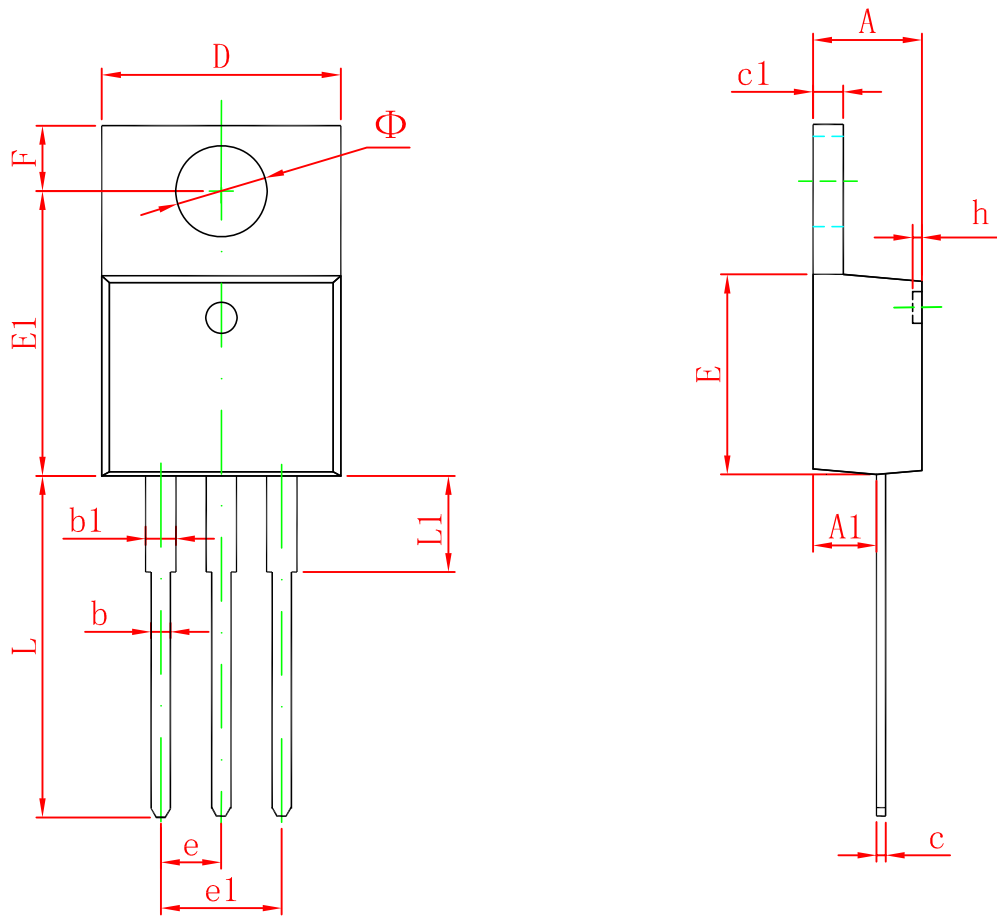
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-50μA, I <sub>E</sub> =0	-60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-50			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-50μA, I <sub>C</sub> =0	-5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =-40V, I <sub>E</sub> =0			-1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0			-1	μA
DC current gain	h <sub>FE</sub> <sup>*</sup>	V <sub>CE</sub> =-3V, I <sub>C</sub> =-0.5A	60		320	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> <sup>*</sup>	I <sub>C</sub> =-2A, I <sub>B</sub> =-0.2A			-1	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> <sup>*</sup>	I <sub>C</sub> =-2A, I <sub>B</sub> =-0.2A			-1.5	V
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz		50		pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-5V, I <sub>C</sub> =-0.5A, f=30MHz		70		MHz

\*Pulse test

**CLASSIFICATION OF h<sub>FE</sub>**

RANK	D	E	F
RANGE	60-120	100-200	160-320

# 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