

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

**2SB857** TRANSISTOR (PNP)

### FEATURES

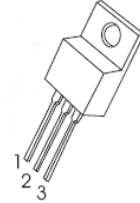
- Low Frequency Power Amplifier

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

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	-70	V
$V_{CE0}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current	-4	A
$P_C$	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	62.5	$^{\circ}\text{C}/\text{W}$
$T_j$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^{\circ}\text{C}$

### TO-220-3L

- 1.BASE
- 2.COLLECTOR
- 3.EMITTER



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

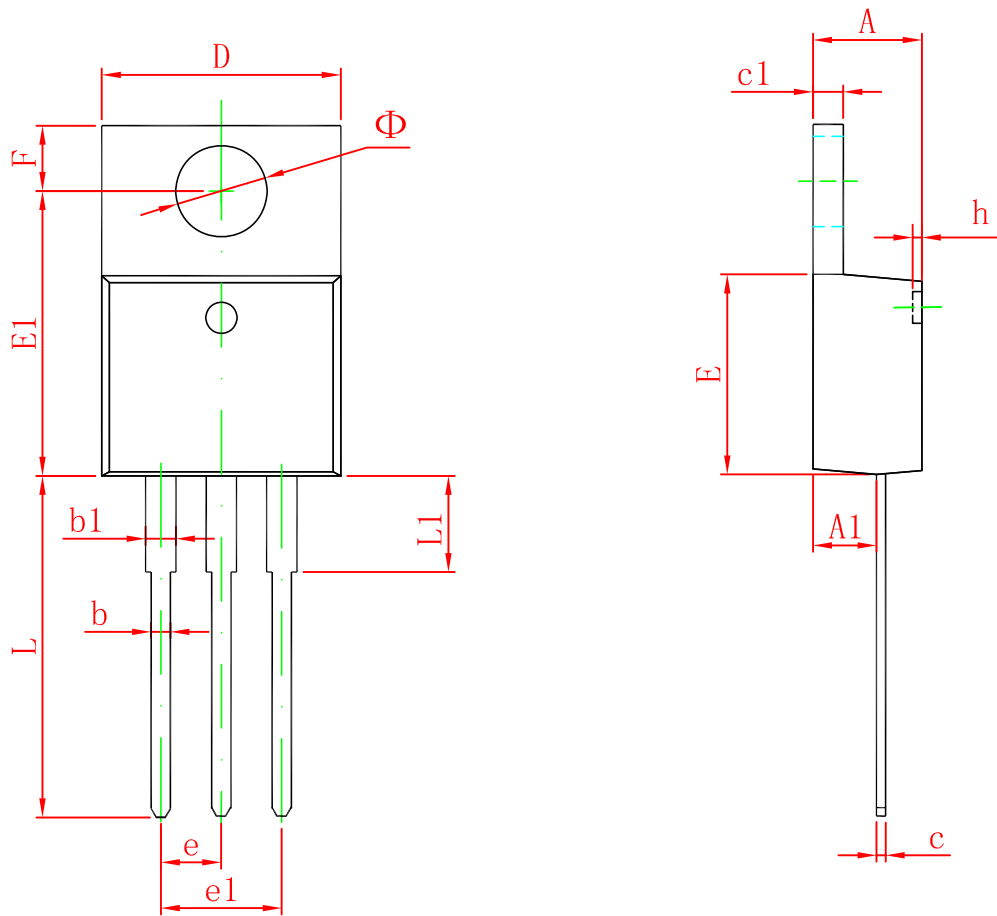
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C=-10\mu\text{A}, I_E=0$	-70			V
Collector-emitter breakdown voltage	$V_{(BR)CE0}^*$	$I_C=-50\text{mA}, I_B=0$	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-50\text{V}, I_E=0$			-1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-1	$\mu\text{A}$
DC current gain	$h_{FE(1)}^*$	$V_{CE}=-4\text{V}, I_C=-1\text{A}$	60		320	
	$h_{FE(2)}^*$	$V_{CE}=-4\text{V}, I_C=-0.1\text{A}$	35			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=-2\text{A}, I_B=-200\text{mA}$			-1	V
Base-emitter voltage	$V_{BE}^*$	$V_{CE}=-4\text{V}, I_C=-1\text{A}$			-1	V
Transition frequency	$f_T^*$	$V_{CE}=-4\text{V}, I_C=-500\text{mA}$		15		MHz

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

### CLASSIFICATION OF $h_{FE(1)}$

RANK	B	C	D
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