

TO-220-3L Plastic-Encapsulate Transistors

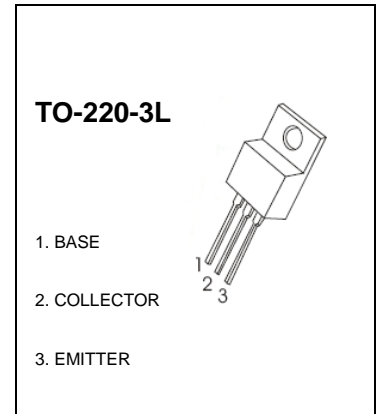
2SD2137 TRANSISTOR (NPN)

FEATURES

- High Forward Current Transfer Ratio h_{FE} which Has Satisfactory Linearity
- Low Collector to Emitter Saturation Voltage $V_{CE(sat)}$
- Allowing Supply with the Radial Taping

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	3	A
P_C	Collector Power Dissipation	2	W
T_J	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	-55-150	$^{\circ}C$



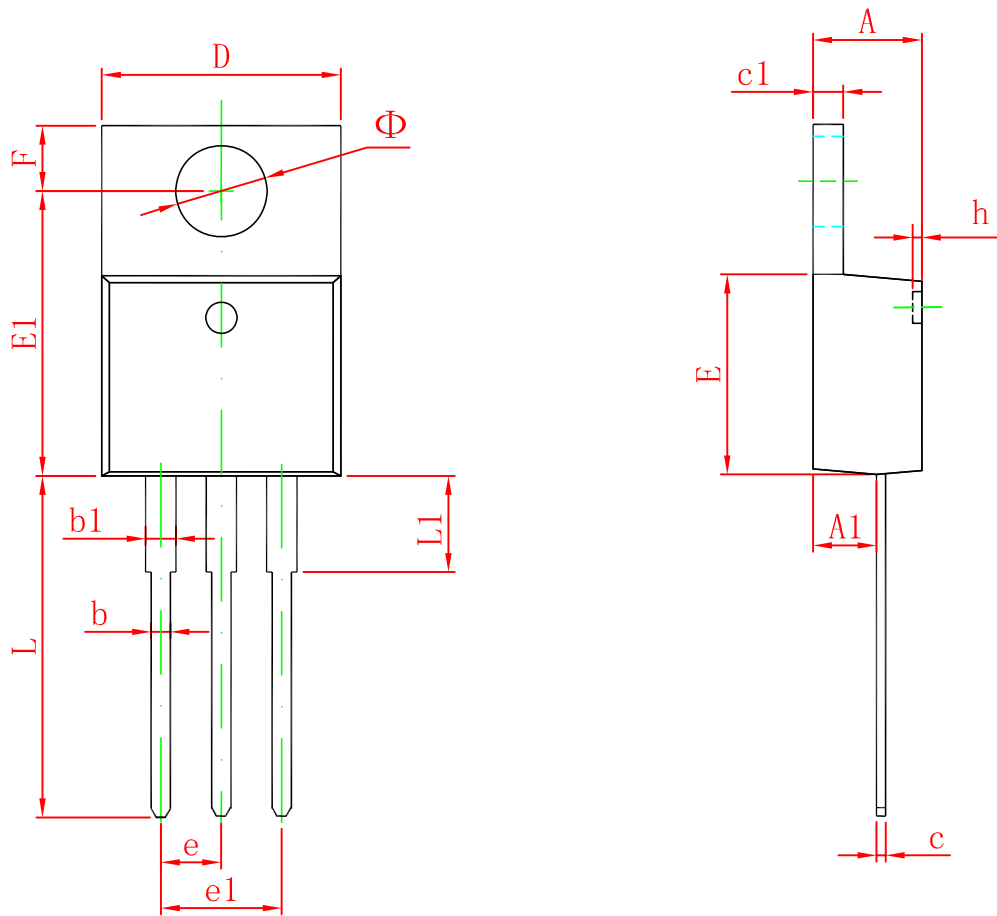
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.1mA, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=30mA, I_B=0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.1mA, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=60V, I_E=0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=6V, I_C=0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=4V, I_C=1A$	70		320	
	$h_{FE(2)}$	$V_{CE}=4V, I_C=3A$	10			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3A, I_B=375mA$			1.2	V
Base-emitter voltage	V_{BE}	$V_{CE}=4V, I_C=3A$			1.8	V
Transition frequency	f_T	$V_{CE}=5V, I_C=0.2A, f=10MHz$		30		MHz
Switch time	Turn-on time	t_{on}		0.3		μs
	Storage time	t_{stg}	$V_{CC}=50V, I_C=1A, I_{B1}=-I_{B2}=0.1A$	2.5		μs
	Fall time	t_f		0.2		μs

CLASSIFICATION OF $h_{FE(1)}$

Rank	Q	P	O
Range	70-150	120-250	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
Φ	3.735	3.935	0.147	0.155