



TO-220-3L Plastic-Encapsulate Transistors

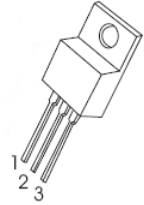
2SD313 TRANSISTOR (NPN)

FEATURES

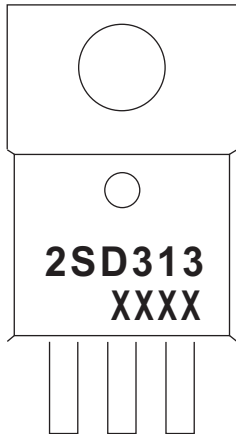
- Low Collector-Emitter Saturation Voltage
 $V_{ce(sat)}=1V(MAX)@I_C=2A, I_B=0.2A$
- DC Current Gain $h_{FE}=40\sim 320@I_C=1A$
- Complementray to PNP 2SB507

TO-220-3L

1. BASE
2. COLLECTOR
3. EMITTER

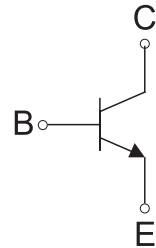


MARKING



2SD313=Device code
XXXX=Code

Equivalent Circuit



MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	60	V
V _{CE0}	Collector-Emitter Voltage	60	V
V _{EB0}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	3	A
P _C	Collector Power Dissipation	1.75	W
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55-150	°C

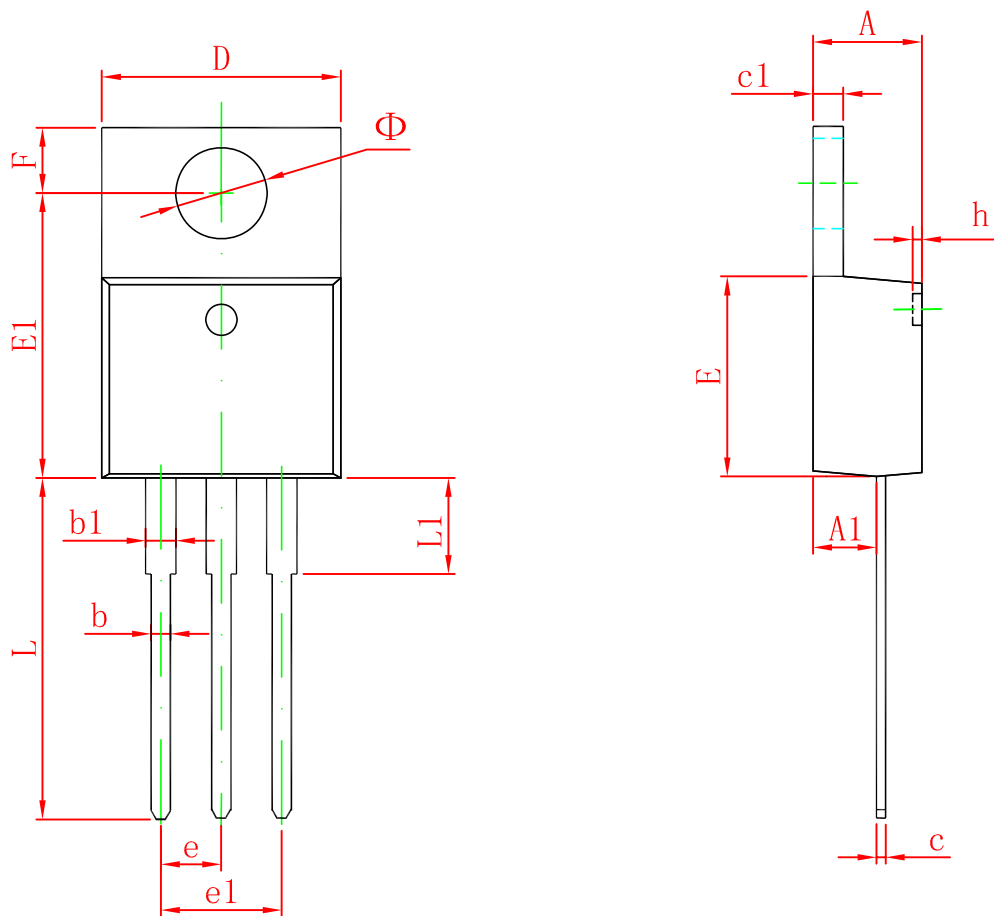
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =100μA, I _E =0	60			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =1mA, I _B =0	60			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =100μA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} =60V, I _E =0			100	μA
Collector cut-off current	I _{CEO}	V _{CE} =60V, I _E =0			1	mA
Emitter cut-off current	I _{EBO}	V _{EB} =4V, I _C =0			100	μA
DC current gain	h _{FE(1)}	V _{CE} =2V, I _C =1A	40		320	
	h _{FE(2)}	V _{CE} =2V, I _C =0.1A	40			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =2A, I _B =200mA			1	V
Base-emitter voltage	V _{BE}	V _{CE} =2V, I _C =1A			1.5	V
Transition frequency	f _T	V _{CE} =5V, I _C =500mA		8		MHz
Collector output capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz		65		pF

CLASSIFICATION OF h_{FE(1)}

Rank	C	D	E	F
Range	40-80	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
Φ	3.735	3.935	0.147	0.155