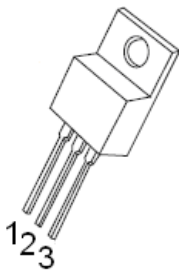
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

TO-220-3L Plastic-Encapsulate Transistors

2SD2012 TRANSISTOR (NPN)

TO-220-3L

1. BASE
2. COLLECTOR
3. EMITTER



FEATURES

- High DC Current Gain
- Low Saturation Voltage
- High Power Dissipation

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

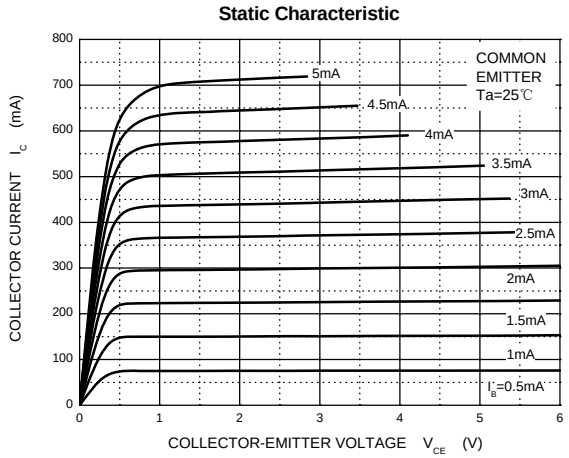
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current	3	A
P_C	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	63	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

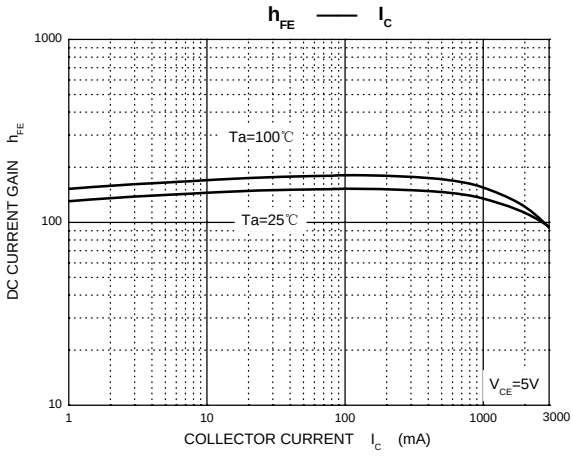
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

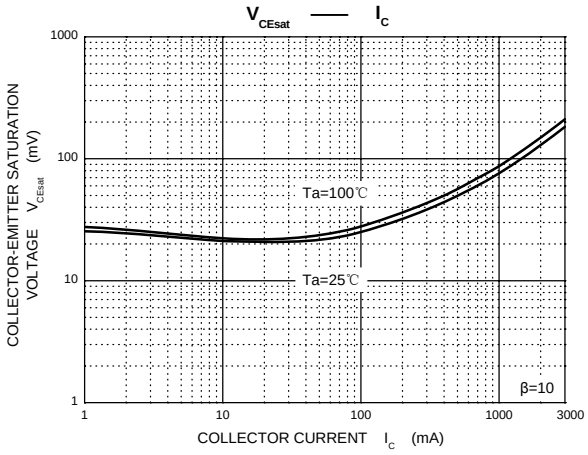
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA,I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$*	I_C=50mA,I_B=0	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA,I_C=0	7			V
Collector cut-off current	I_{CBO}	V_{CB}=60V,I_E=0			100	μA
Emitter cut-off current	I_{EBO}	V_{EB}=7V,I_C=0			100	μA
DC current gain	$h_{FE(1)}$	V_{CE}=5V, I_C=0.5A	100		320	
	$h_{FE(2)}$	V_{CE}=5V, I_C=2A	20			
	$h_{FE(3)}$	V_{CE}=5V, I_C=3A	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=2A,I_B=0.2A			1	V
Base-emitter voltage	V_{BE}	V_{CE}=5V, I_C=0.5A			1	V
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz		35		pF
Transition frequency	f_T	V_{CE}=5V,I_C=0.5A		3		MHz

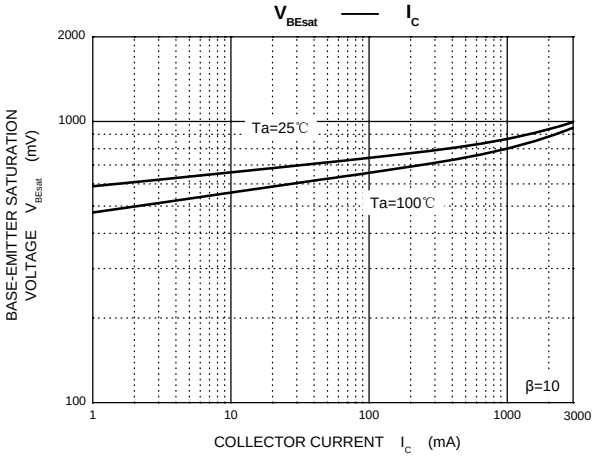
*Pulse test

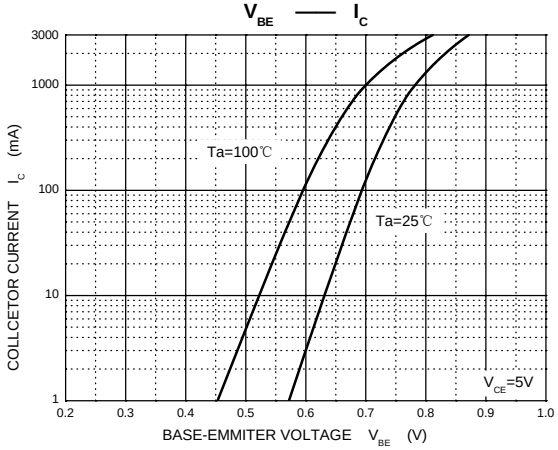
Typical Characteristics

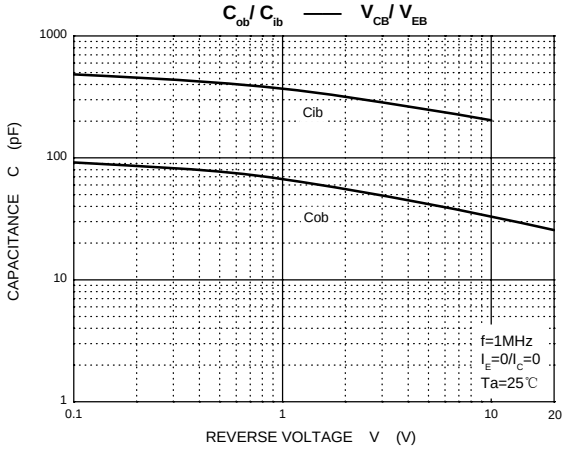


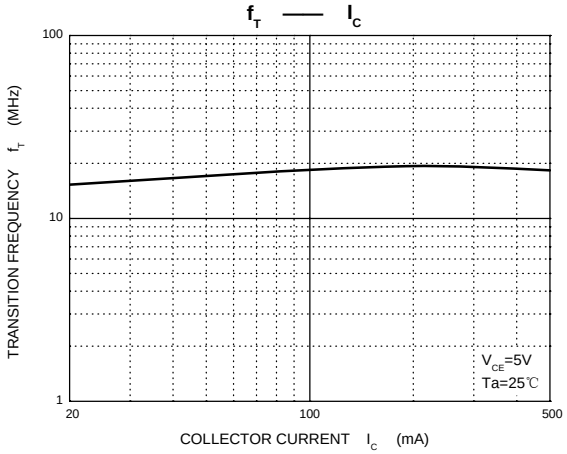


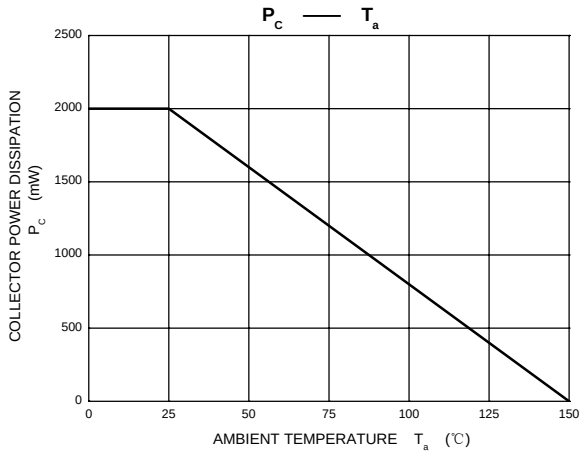




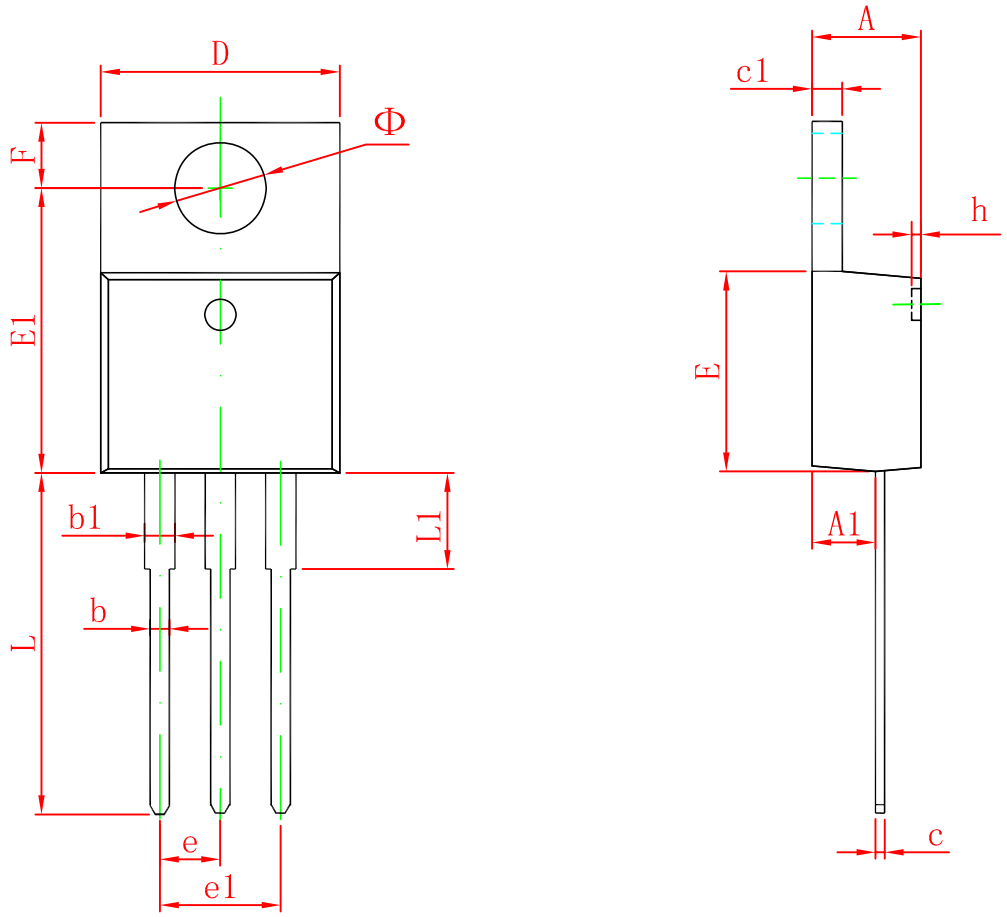








TO-220-3L Package Outline Dimensions



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