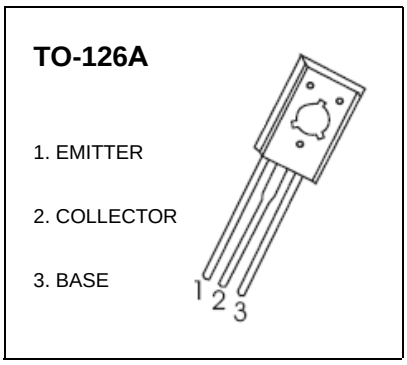
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

TO-126A Plastic-Encapsulate Transistors

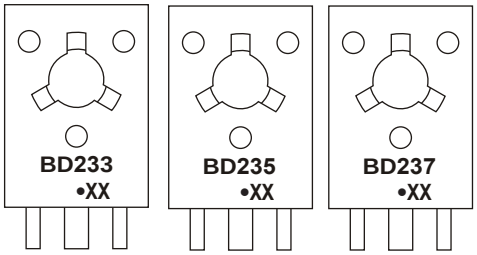
BD233 / BD235 / BD237 TRANSISTOR (NPN)



FEATURES

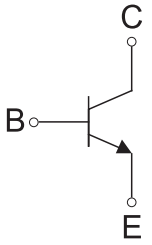
- Complement to BD234/BD236/BD238 respectively

MARKING



BD233,BD235,BD237=Device code
Solid dot= Green molding compound device, if none, the normal device
XX=Code

Equivalent Circuit



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
BD233	TO-126A	Bulk	200pcs/Bag
BD235	TO-126A	Bulk	200pcs/Bag
BD237	TO-126A	Bulk	200pcs/Bag
BD233-TU	TO-126A	Tube	60pcs/Tube
BD235-TU	TO-126A	Tube	60pcs/Tube
BD237-TU	TO-126A	Tube	60pcs/Tube

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BD233	45	V
		BD235	60	
		BD237	100	
V_{CEO}	Collector-Emitter Voltage	BD233	45	V
		BD235	60	
		BD237	80	
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current –Continuous		2	A
P_C	Collector Dissipation		1.5	W
P_C	Collector Dissipation (Tc=25℃)		25	W
$R_{\Theta JA}$	Thermal Resistance from Junction to Ambient		83	℃/W
$R_{\Theta JC}$	Thermal Resistance from Junction to Case		5	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range		-55~+150	℃

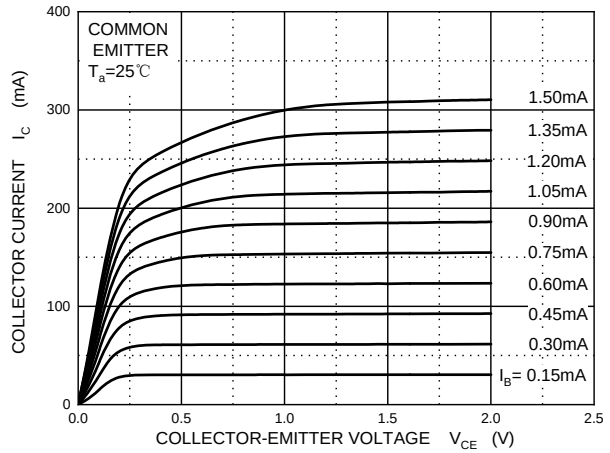
ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

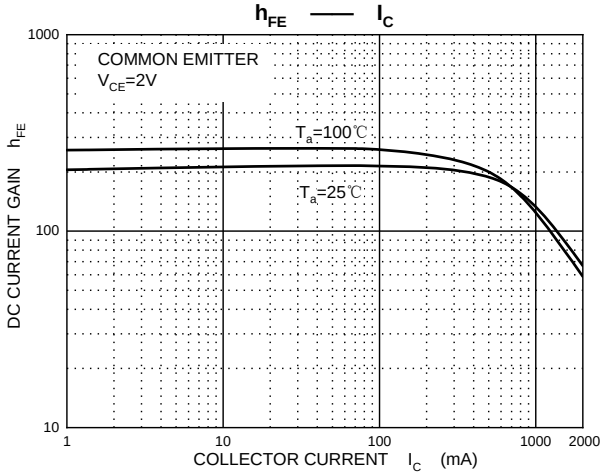
Parameter		Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	**BD233**	$V_{(BR)CBO}$	I_C= 1mA, I_E=0	45		V
	BD235			60		
	BD237			100		
Collector-emitter breakdown voltage	**BD233**	$V_{(BR)CEO}$	I_C= 100mA, I_B=0	45		V
	BD235			60		
	BD237			80		
Emitter-base breakdown voltage		$V_{(BR)EBO}$	I_E= 1mA, I_C=0	5		V
Collector cut-off current	**BD233**	I_{CBO}	V_{CB}= 45V, I_E=0		100	μA
	BD235		V_{CB}= 60V, I_E=0			
	BD237		V_{CB}= 100V, I_E=0			
Emitter cut-off current		I_{EBO}	V_{EB}= 5V, I_C=0		1	mA
DC current gain		$H_{FE(1)}$	V_{CE}= 2V, I_C=150mA	40		
		$H_{FE(2)}$	V_{CE}=2V, I_C= 1A	25		
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=1A, I_B= 100m A		0.6	V
Transition frequency		f_T	V_{CE}=10V, Ic=250mA f =10MHz	3		MHz

TYPICAL CHARACTERISTICS

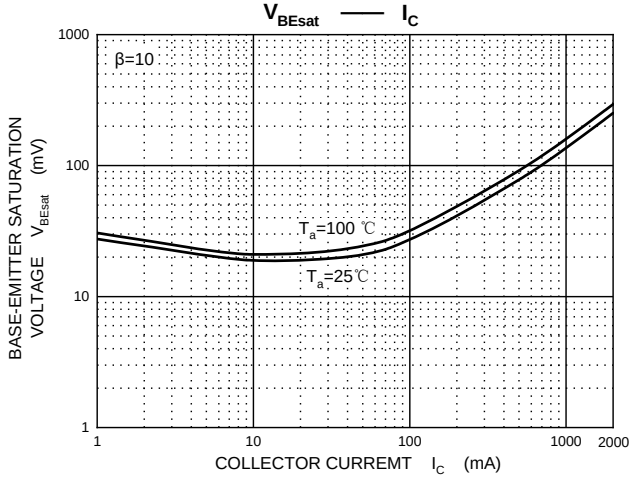
Static Characteristic



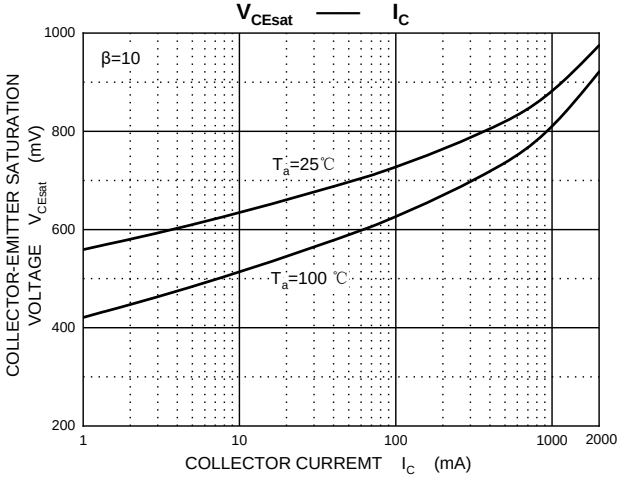
h_{FE} —— I_C



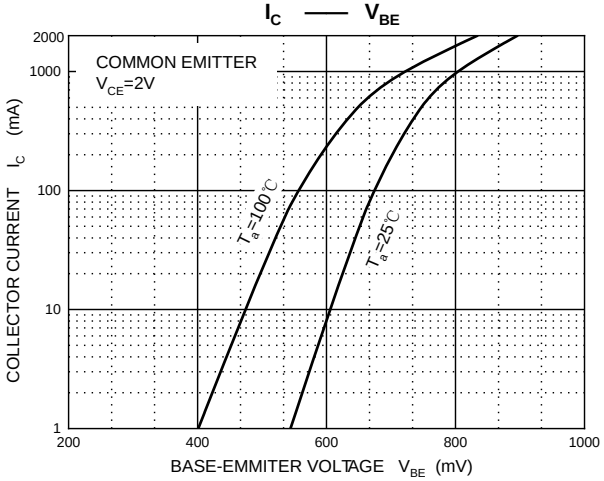
V_{BEsat} —— I_C



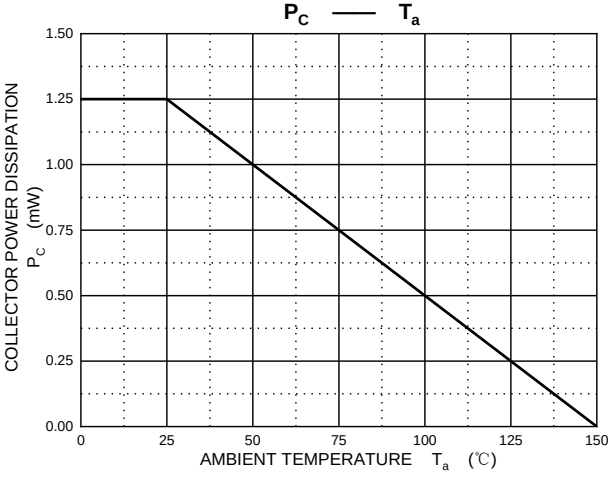
V_{CEsat} —— I_C



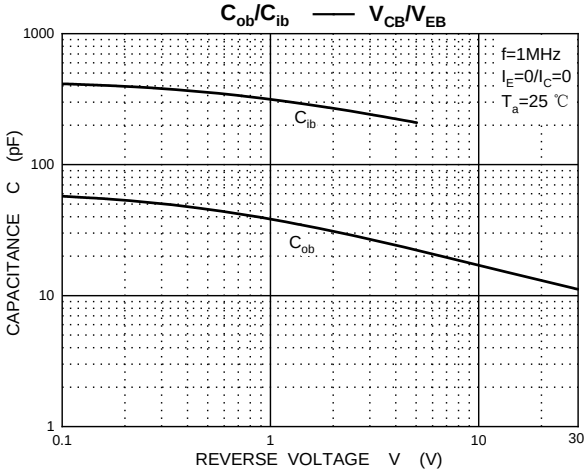
I_C —— V_{BE}



P_C —— T_a

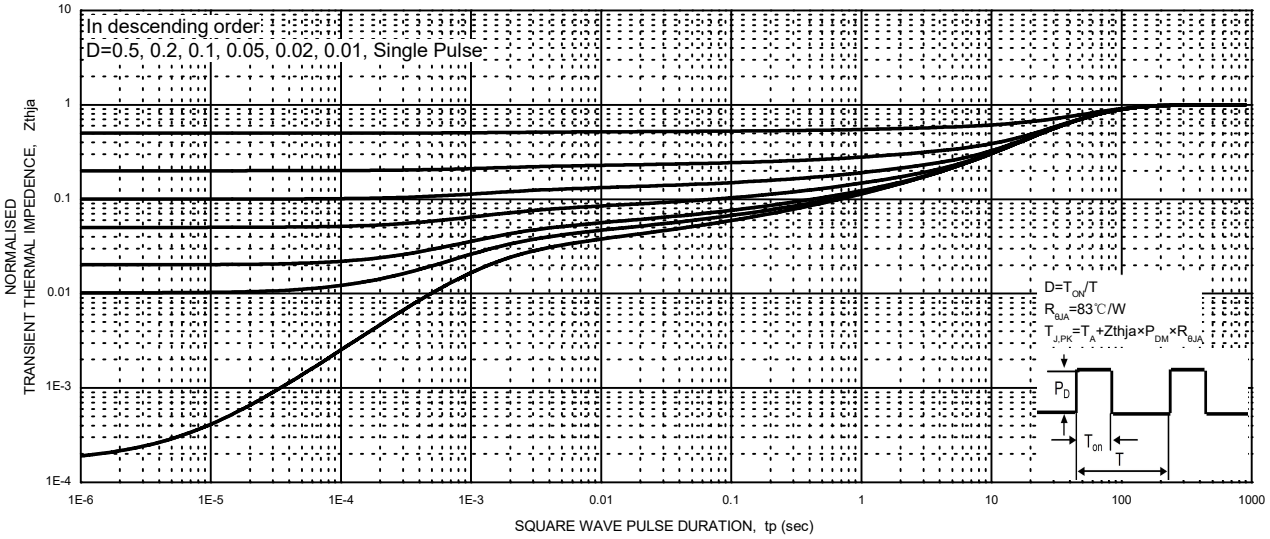


C_{ob}/C_{ib} —— V_{CB}/V_{EB}



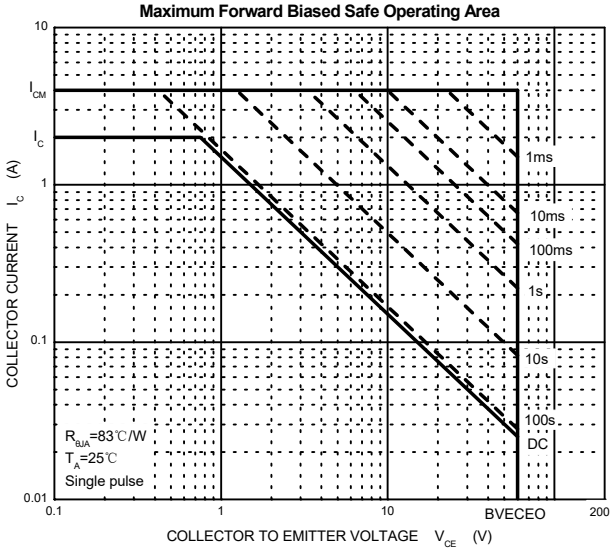
TYPICAL CHARACTERISTICS

Normalized Traisient Thermal Impendance



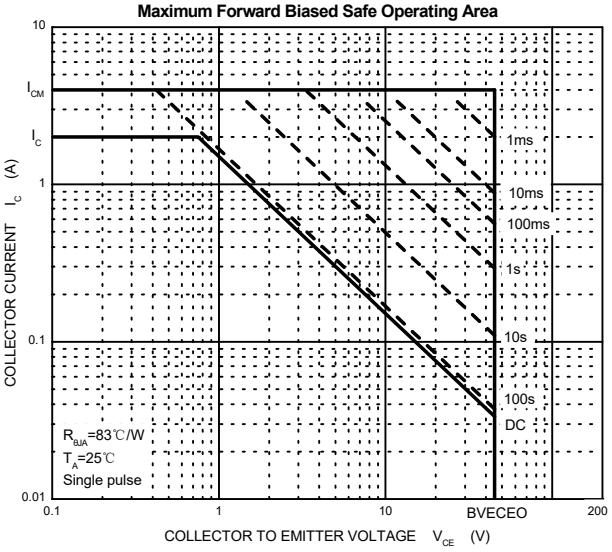
BD235

Maximum Forward Biased Safe Operating Area



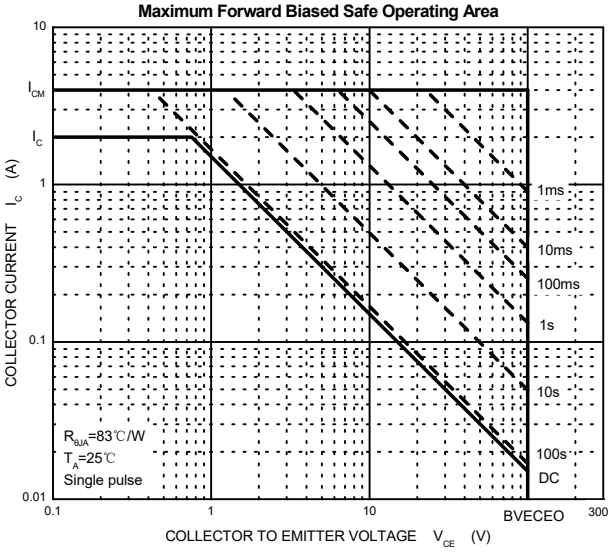
BD233

Maximum Forward Biased Safe Operating Area

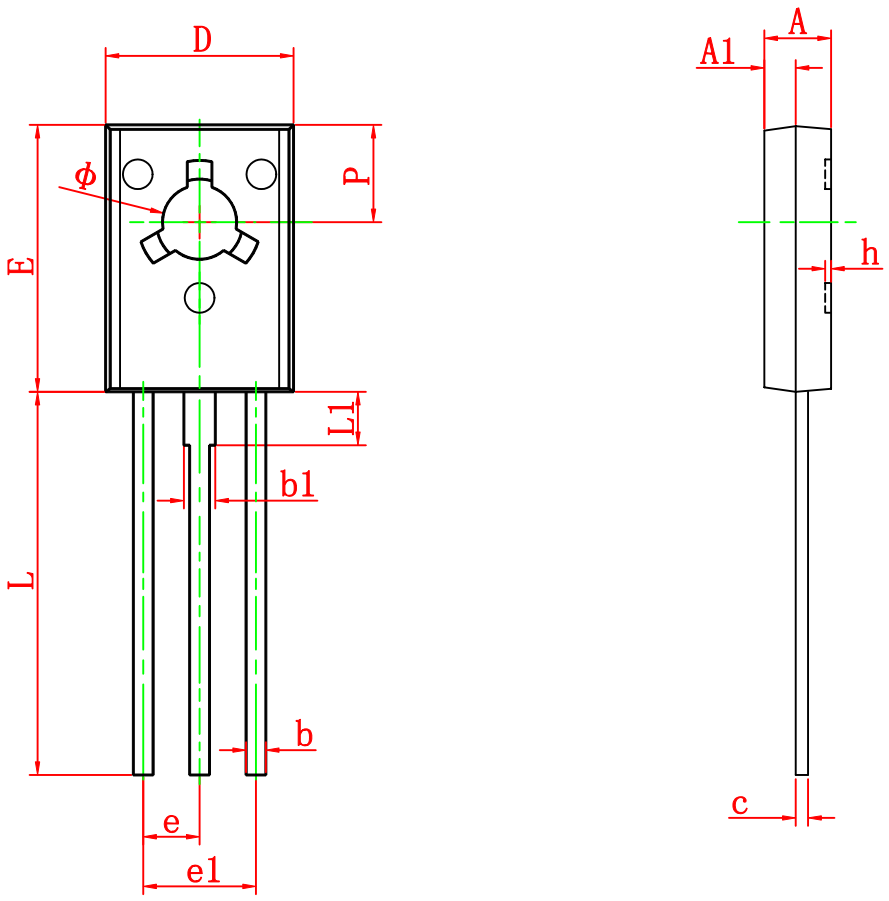


BD237

Maximum Forward Biased Safe Operating Area



TO-126A Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.500	2.900	0.098	0.114
A1	1.100	1.500	0.043	0.059
b	0.660	0.860	0.026	0.034
b1	1.170	1.370	0.046	0.054
c	0.300	0.600	0.012	0.024
D	7.400	7.800	0.291	0.307
E	10.600	11.000	0.417	0.433
e	2.290 TYP		0.090 TYP	
e1	4.480	4.680	0.176	0.184
h	0.000	0.300	0.000	0.012
L	15.300	15.700	0.602	0.618
L1	2.100	2.300	0.083	0.091
P	3.900	4.100	0.154	0.161
Φ	3.000	3.200	0.118	0.126