

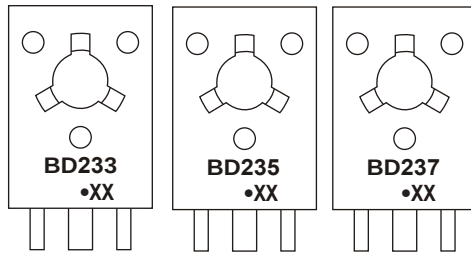
TO-126 Plastic-Encapsulate Transistors

BD233 / BD235 / BD237 TRANSISTOR (NPN)

FEATURES

- Complement to BD234/BD236/BD238 respectively

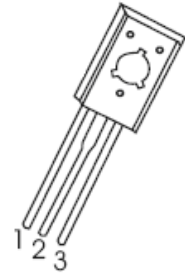
MARKING



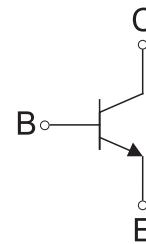
BD233, BD235, BD237 = Device code
Solid dot = Green molding compound device, if none, the normal device
XX = Code

TO-126

1. EMITTER
2. COLLECTOR
3. BASE



Equivalent Circuit



ORDERING INFORMATION

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

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

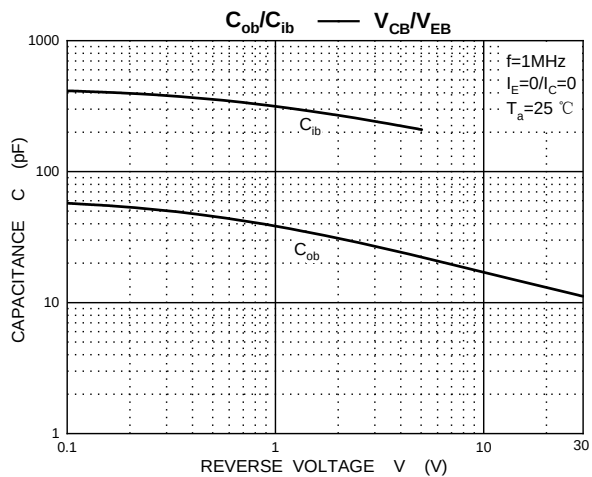
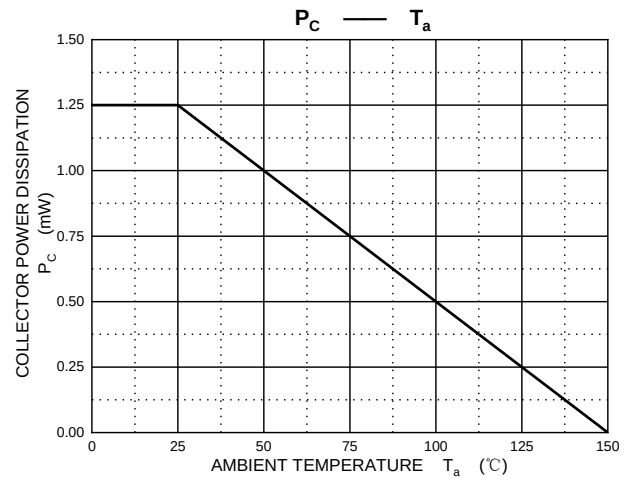
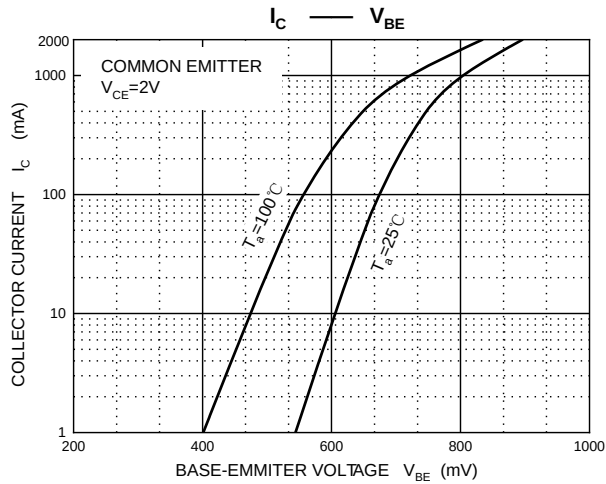
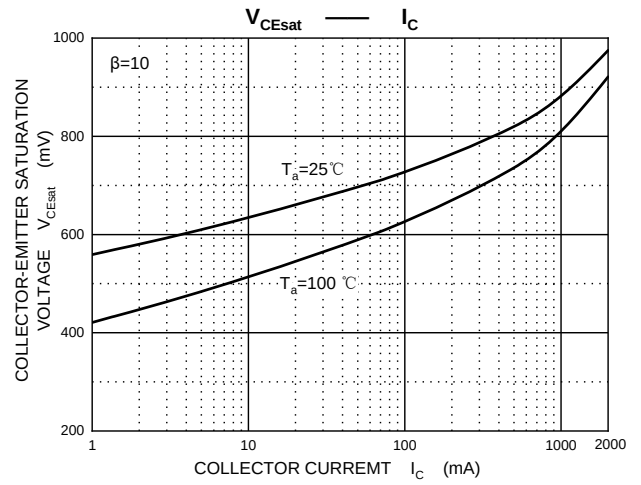
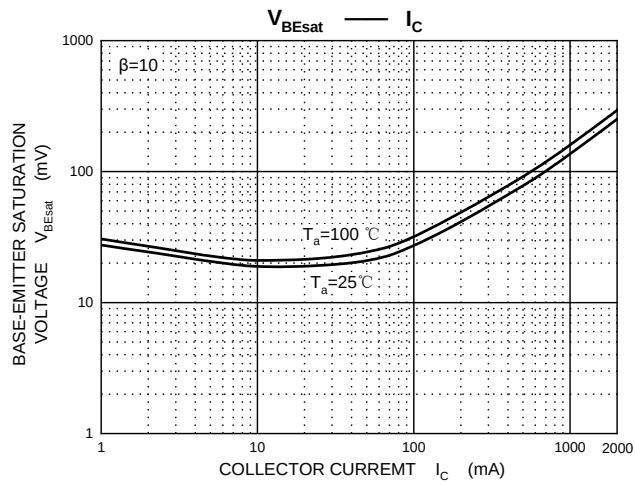
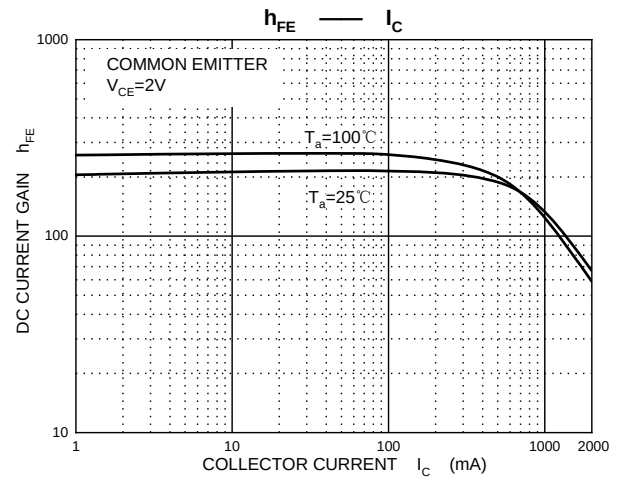
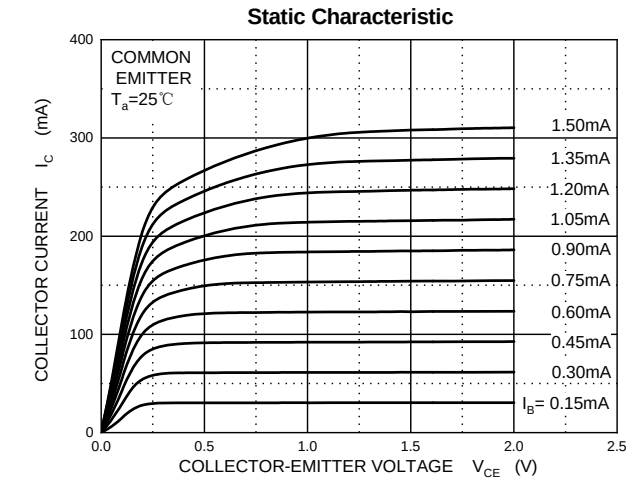
Symbol	Parameter		Value	Unit
V _{CBO}	Collector-Base Voltage	BD233	45	V
		BD235	60	
		BD237	100	
V _{CEO}	Collector-Emitter Voltage	BD233	45	V
		BD235	60	
		BD237	80	
V _{EBO}	Emitter-Base Voltage		5	V
I _C	Collector Current –Continuous		2	A
P _C	Collector Dissipation		1.5	W
P _C	Collector Dissipation (T _c =25°C)		25	W
R _{θJA}	Thermal Resistance from Junction to Ambient		83	°C/W
R _{θJC}	Thermal Resistance from Junction to Case		5	°C/W
T _J , T _{stg}	Operation Junction and Storage Temperature Range		-55~+150	°C

ELECTRICAL CHARACTERISTICS

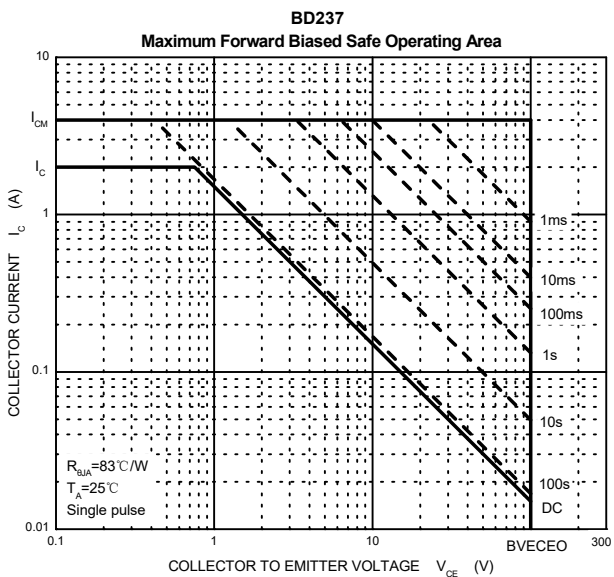
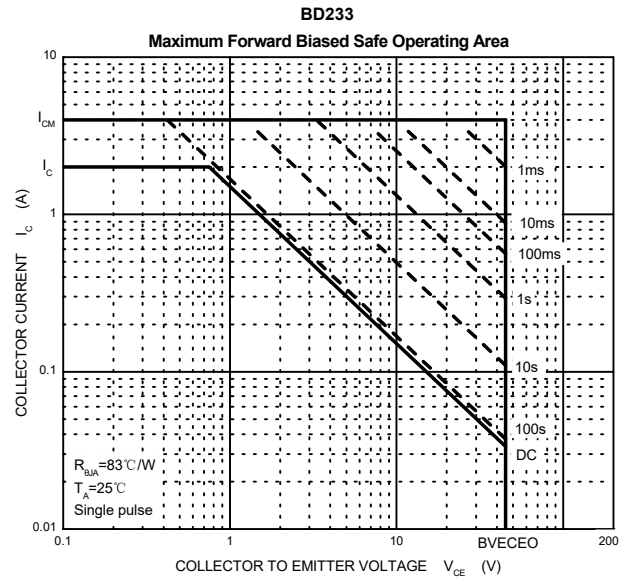
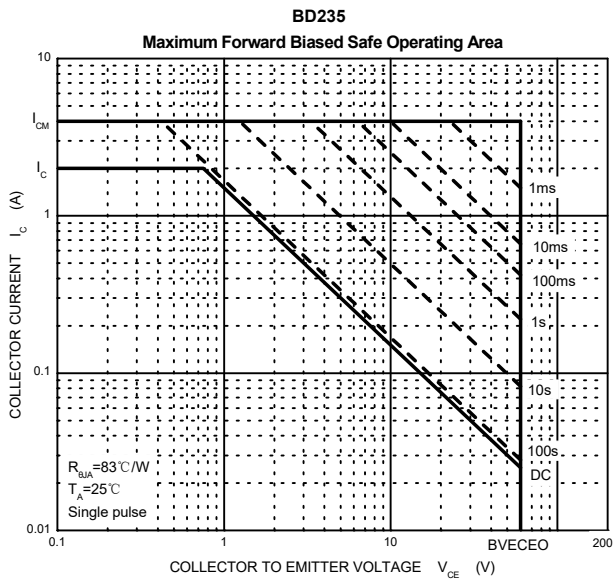
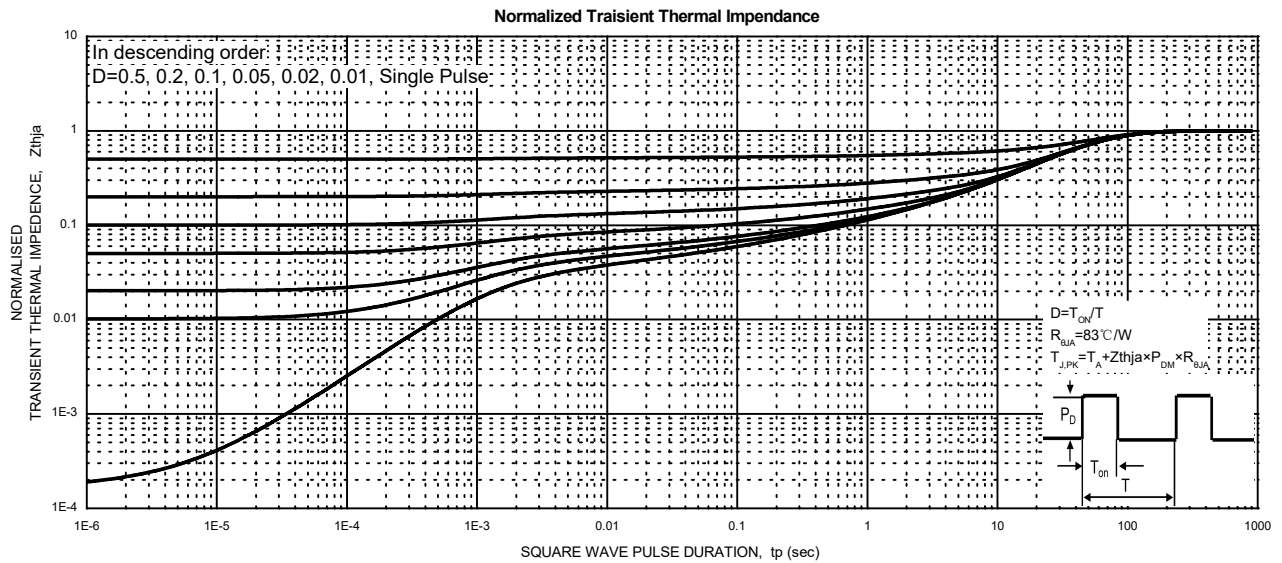
$T_a=25^{\circ}\text{C}$ unless otherwise specified

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

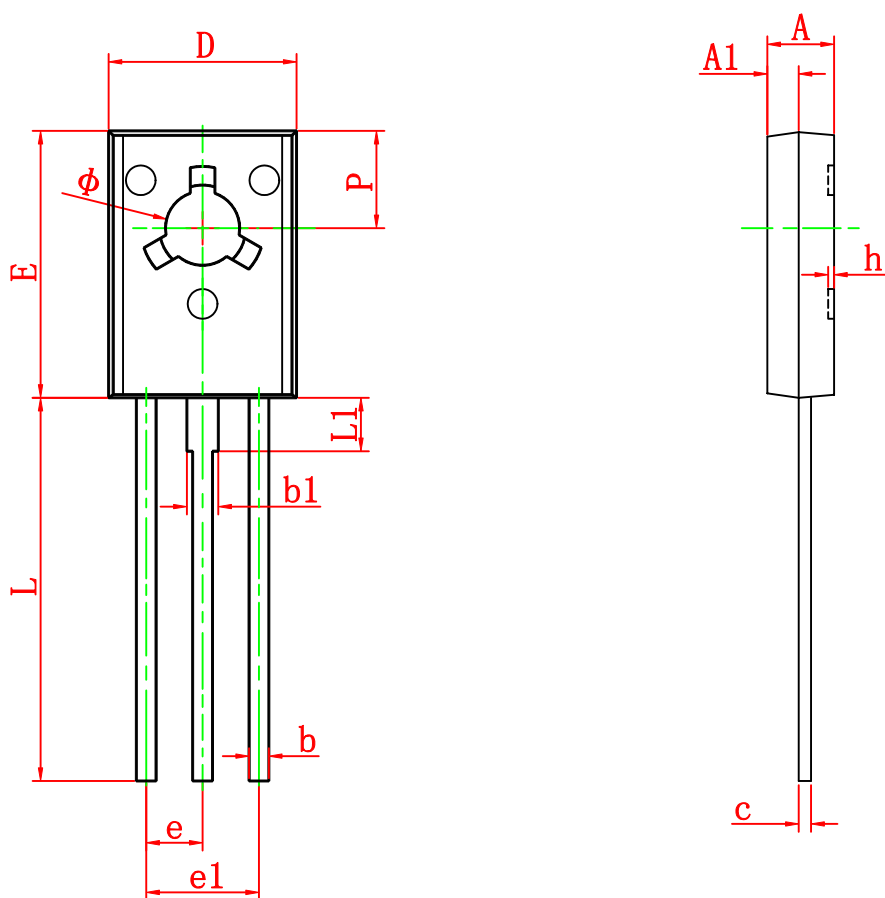
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



TO-126 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	0.450	0.600	0.018	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