



Micro Commercial Components

Micro Commercial Components
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BD233
BD235
BD237

Features

- Halogen free available upon request by adding suffix "-HF"
- Power Dissipation: $P_{CM}=1.25W$, $T_a=25^{\circ}C$
- Collector Current : $I_C=2A$
- Complement to BD234/236/238 respectively
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: Type Number

Maximum Ratings*

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	BD233	45
		BD235	60
		BD237	80
V_{CBO}	Collector-Base Voltage	BD233	45
		BD235	60
		BD237	100
V_{CER}	Collector-Emitter Voltage	BD233	45
		BD235	60
		BD237	100
V_{EBO}	Emitter-Base Voltage		5
I_C	Collector Current (DC)		2
I_{CP}	Collector Current (Pulse)		6
P_C	Collector Dissipation ($T_C=25^{\circ}C$)		25
T_J	Operating Junction Temperature		150
T_{STG}	Storage Temperature		-65 to +150

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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OFF CHARACTERISTICS

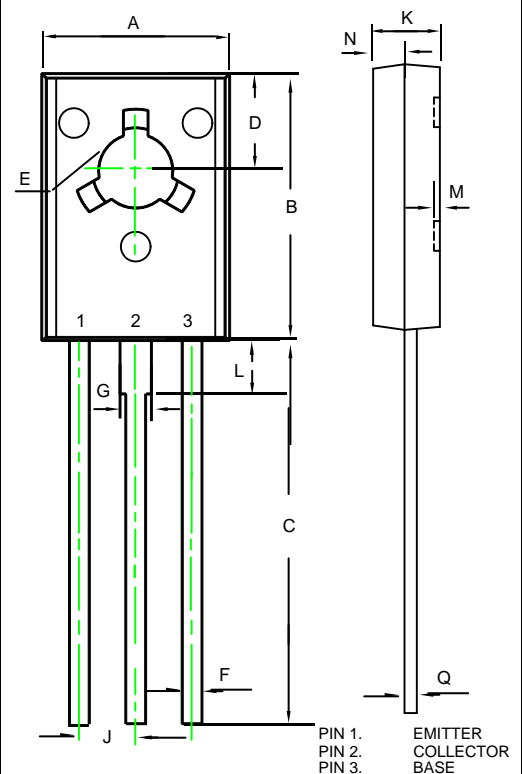
$V_{CEO(sus)}$	Collector-Emitter Breakdown Voltage			
	BD233 ($I_C=0.1A_{dc}$, $I_B=0$)	45	---	V
	BD235 ($I_C=0.1A_{dc}$, $I_B=0$)	60	---	V
I_{CBO}	Collector Cutoff Current			
	BD233 ($V_{CB}=45V_{dc}$, $I_E=0$)	---	100	μA
	BD235 ($V_{CB}=60V_{dc}$, $I_E=0$)	---	100	μA
I_{EBO}	Emitter Cutoff Current			
	($V_{BE}=5.0V_{dc}$, $I_C=0$)	---	1.0	mA
h_{FE}	DC Current Gain			
	($V_{CE}=2V$, $I_C=150mA$) ($V_{CE}=2V$, $I_C=1A$)	40	---	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage			
	($I_C=1A$, $I_B=0.1A$)	---	0.6	V
$V_{BE(on)}$	Base-Emitter ON Voltage			
	($V_{CE}=2V$, $I_C=1A$)	---	1.3	V
f_T	Current Gain Bandwidth Product			
	($V_{CE}=10V$, $I_C=0.25A$)	3	---	MHz

*Pulse Test: $PW=300\mu s$, Duty Cycle=1.5% Pulsed

Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex Notes 7.

NPN Plastic-Encapsulate Transistors

TO-18



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.291	0.307	7.40	7.80	
B	0.417	0.433	10.60	11.00	
C	0.602	0.618	15.30	15.70	
D	0.154	0.161	3.90	4.10	
E	0.118	0.126	3.00	3.20	
F	0.026	0.034	0.66	0.86	
G	0.046	0.054	1.17	1.37	
J	0.090TYP		2.290TYP		
K	0.098	0.114	2.50	2.90	
L	0.083	0.091	2.10	2.30	
M	0.000	0.012	0.00	0.30	
N	0.043	0.059	1.10	1.50	
Q	0.018	0.024	0.45	0.60	

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BD233/235/237



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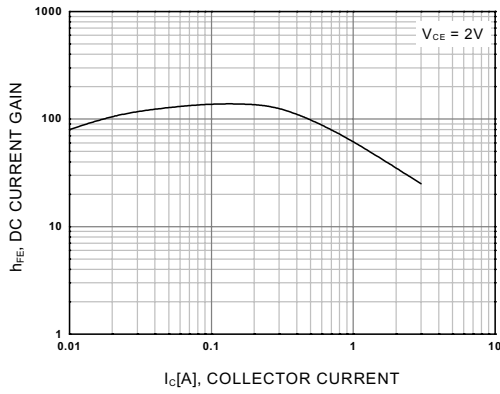


Figure 1. DC current Gain

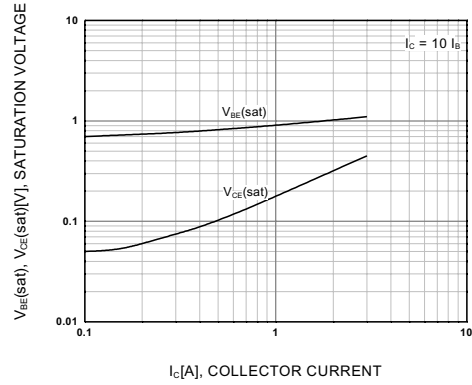


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

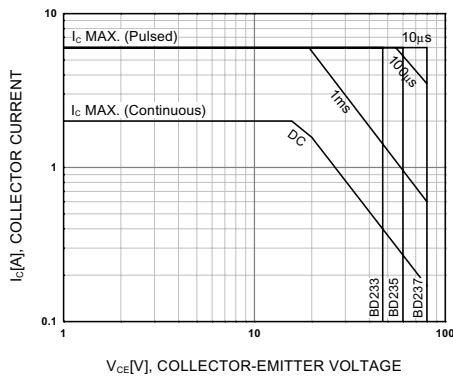


Figure 3. Safe Operating Area

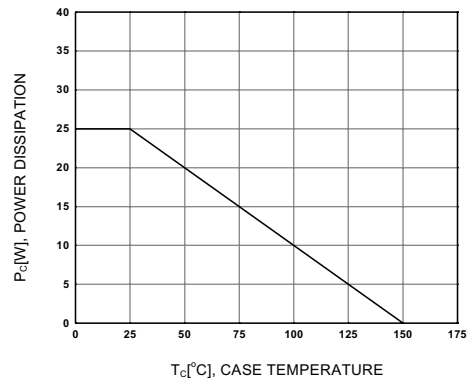


Figure 4. Power Derating



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Ordering Information :

Device	Packing
Part Number-BP	Bulk; 1Kpcs/Box

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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