

**BD136-6/10/16**  
**BD138-6/10/16**  
**BD140-6/10/16**

**Power Transistors**  
**PNP Silicon**  
**45,60,80 Volts**

## Features

- Halogen free available upon request by adding suffix "-HF"
- Complement with BD135,BD137,BD139
- 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

## Maximum Ratings

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	BD136 BD138 BD140	-45 -60 -80	Vdc
Collector-Base Voltage	BD136 BD138 BD140	-45 -60 -80	Vdc
Emitter-Base Voltage	$V_{EBO}$	-5.0	Vdc
Collector Current	$I_C$	-1.5	Adc
Base Current	$I_B$	-0.5	Adc
Total Device Dissipation @ $T_A=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.25 10	Watt mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.25 100	Watt mW/ $^\circ\text{C}$
Operating & Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case	$R_{thJC}$	10	$^\circ\text{C/W}$
Maximum Thermal Resistance Junction to Ambient Air	$R_{thJA}$	100	$^\circ\text{C/W}$

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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### OFF CHARACTERISTICS

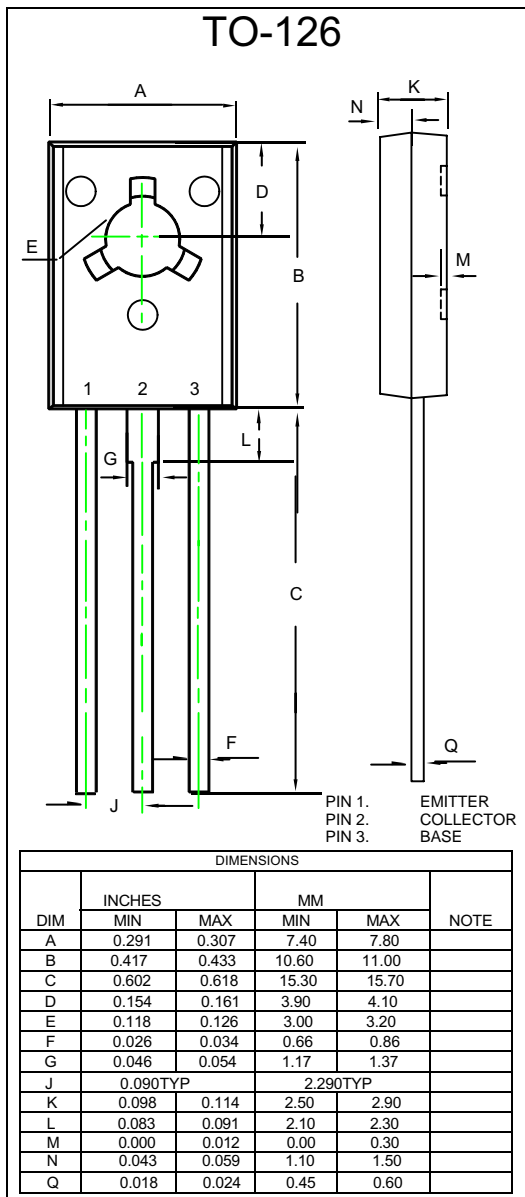
$BV_{CEO}$	Collector-Emitter Sustaining Voltage $I_C=-30\text{mA}, I_B=0$	BD136 BD138 BD140	-45 -60 -80	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=-30\text{Vdc}, I_E=0$ ) ( $V_{CB}=-30\text{Vdc}, I_E=0, T_C=125^\circ\text{C}$ )		-0.1 -10	$\mu\text{Adc}$
$I_{EBO}$	Emitter Cutoff Current ( $V_{BE}=-5.0\text{Vdc}, I_C=0$ )		-10	$\mu\text{Adc}$
$h_{FE}$	DC Current Gain* ( $I_C=-5\text{mAdc}, V_{CE}=-2\text{Vdc}$ ) ( $I_C=-0.5\text{Adc}, V_{CE}=-2\text{Vdc}$ ) ( $I_C=-150\text{mAdc}, V_{CE}=-2\text{Vdc}$ )		25 25 40	250
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_B=-500\text{mAdc}, I_C=-50\text{mAdc}$ )		-0.5	Vdc
$V_{BE(ON)}$	Base-Emitter ON Voltage ( $V_{CE}=-2\text{Vdc}, I_C=-0.5\text{Adc}$ )		-1	Vdc

\*Pulse test: Pulse width 300 usec, Duty cycle 2%

### Classification of $h_{FE(3)}$

Rank	6	10	16
Range	40-100	63-160	100-250

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



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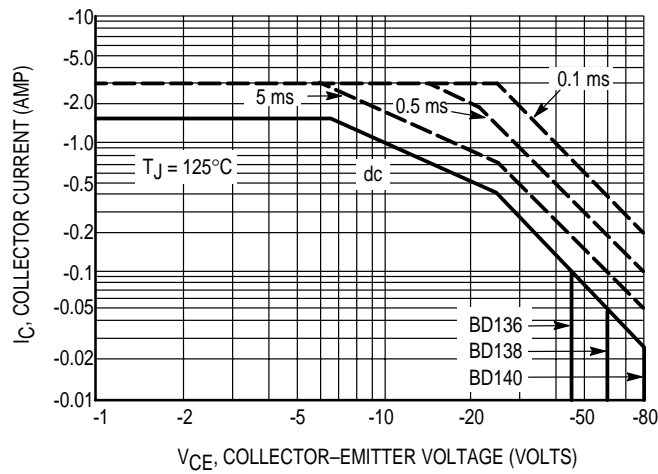


Figure 1. Active-Region Safe Operating Area



**Ordering Information :**

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

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

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