

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

Features

- DC Current Gain - $h_{FE} = 40$ (Min) @ $I_C = 150\text{mAdc}$
- Complementary 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°C	P_D	1.25 10	Watt mW/°C
Total Device Dissipation @ $T_C=25^\circ\text{C}$ Derate above 25°C	P_D	12.5 100	Watt mW/°C
Operating & Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	10	°C/W
Maximum Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	100	°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	μAdc
I_{EBO}	Emitter Cutoff Current ($V_{BE}=5.0\text{Vdc}, I_C=0$)		10	μAdc
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 ($I_C=500\text{mAdc}, I_B=50\text{mAdc}$)		0.5	Vdc
$V_{BE(on)}$	Base-Emitter ON Voltage ($V_{CE}=2\text{V}, I_C=0.5\text{A}$)		1	Vdc

*Pulse test: Pulse width 300 μsec , 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.

Power Transistors

PNP Silicon

45,60,80 Volts

