

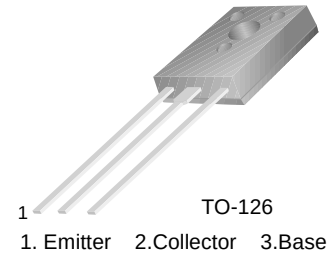


THE DATASHEET OF BD13910S

BD135/137/139

Medium Power Linear and Switching Applications

- Complement to BD136, BD138 and BD140 respectively



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : BD135	45	V
	: BD137	60	V
	: BD139	80	V
V_{CEO}	Collector-Emitter Voltage : BD135	45	V
	: BD137	60	V
	: BD139	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	1.5	A
I_{CP}	Collector Current (Pulse)	3.0	A
I_B	Base Current	0.5	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	12.5	W
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	1.25	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V _{CEO(sus)}	Collector-Emitter Sustaining Voltage : BD135 : BD137 : BD139	I _C = 30mA, I _B = 0	45 60 80			V V V
I _{CBO}	Collector Cut-off Current	V _{CB} = 30V, I _E = 0			0.1	μA
I _{EBO}	Emitter Cut-off Current	V _{EB} = 5V, I _C = 0			10	μA
h _{FE1} h _{FE2} h _{FE3}	DC Current Gain : ALL DEVICE : ALL DEVICE : BD135 : BD137, BD139	V _{CE} = 2V, I _C = 5mA V _{CE} = 2V, I _C = 0.5A V _{CE} = 2V, I _C = 150mA	25 25 40 40		250 160	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 500mA, I _B = 50mA			0.5	V
V _{BE(on)}	Base-Emitter ON Voltage	V _{CE} = 2V, I _C = 0.5A			1	V

h_{FE} Classification

Classification	6	10	16
h_{FE3}	40 ~ 100	63 ~ 160	100 ~ 250

Typical Characteristics

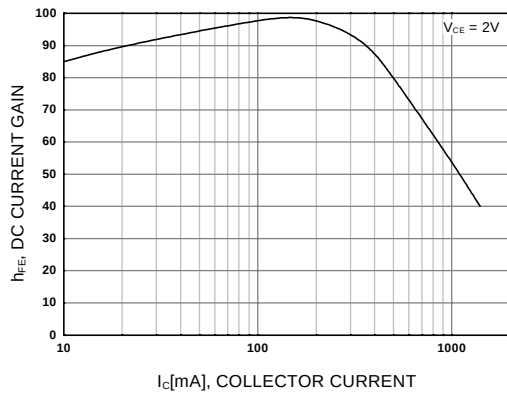


Figure 1. DC current Gain

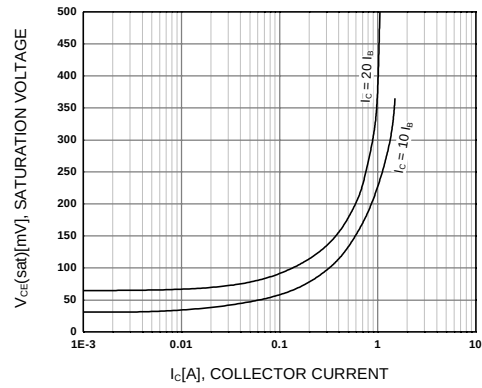


Figure 2. Collector-Emitter Saturation Voltage

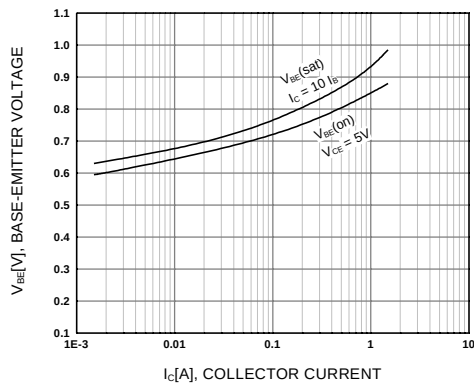


Figure 3. Base-Emitter Voltage

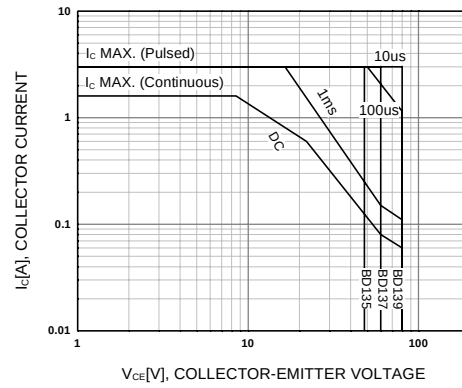


Figure 4. Safe Operating Area

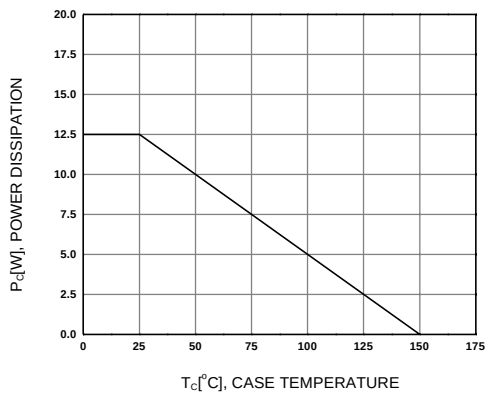
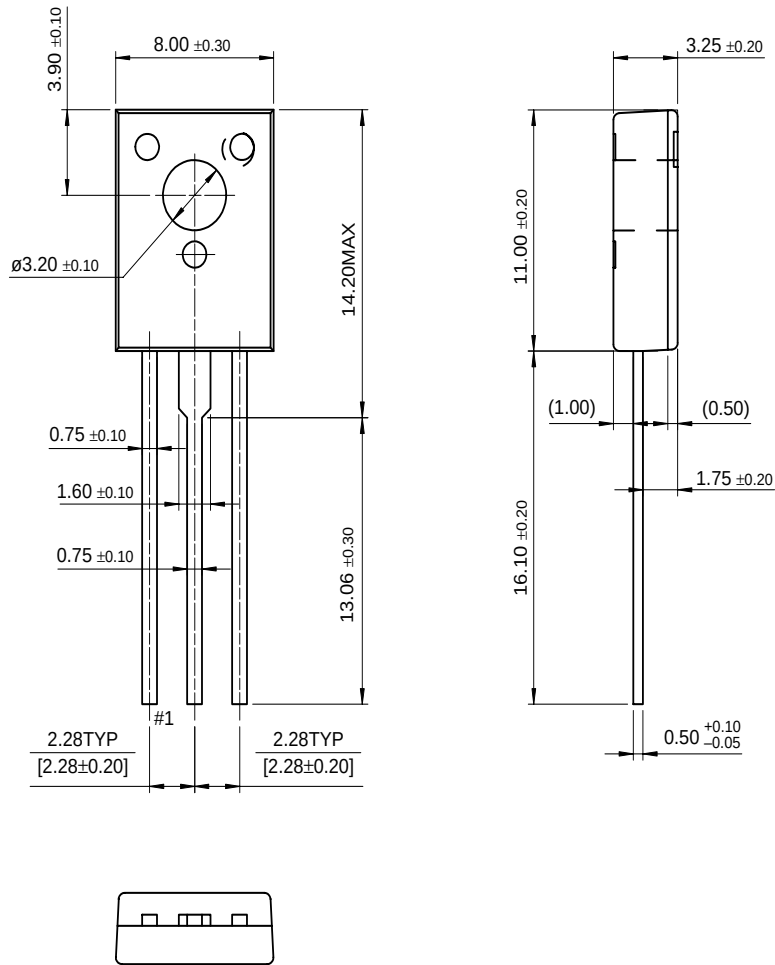


Figure 5. Power Derating

Package Dimensions

TO-126



Dimensions in Millimeters

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