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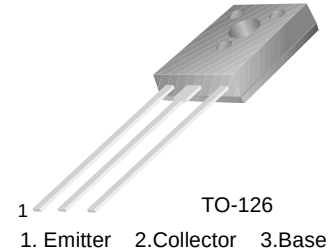
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BD175/177/179

Medium Power Linear and Switching Applications

- Complement to BD 176/178/180 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 : BD175	45	V
	: BD177	60	V
	: BD179	80	V
V_{CEO}	Collector-Emitter Voltage : BD175	45	V
	: BD177	60	V
	: BD179	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	3	A
I_{CP}	*Collector Current (Pulse)	7	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	30	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 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 : BD175	$I_C = 100\text{mA}, I_B = 0$	45			V
	: BD177		60			V
	: BD179		80			V
I_{CBO}	Collector Cut-off Current : BD175	$V_{CB} = 45\text{V}, I_E = 0$			100	μA
	: BD177	$V_{CB} = 60\text{V}, I_E = 0$			100	μA
	: BD179	$V_{CB} = 80\text{V}, I_E = 0$			100	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			1	mA
h_{FE1} h_{FE2}	* DC Current Gain	$V_{CE} = 2\text{V}, I_C = 150\text{mA}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$	40 15		250	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 0.1\text{A}$			0.8	V
$V_{BE(on)}$	* Base-Emitter On Voltage	$V_{CE} = 2\text{V}, I_C = 1\text{A}$			1.3	V
f_T	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 250\text{mA}$	3			MHz

* Pulse Test: PW=300 μs , duty Cycle=1.5% Pulsed

h_{FE} Classification

Classification	6	10	16
h_{FE1}	40 ~ 100	63 ~ 160	100 ~ 250

* Classification 16: Only BD175

Typical Characteristics

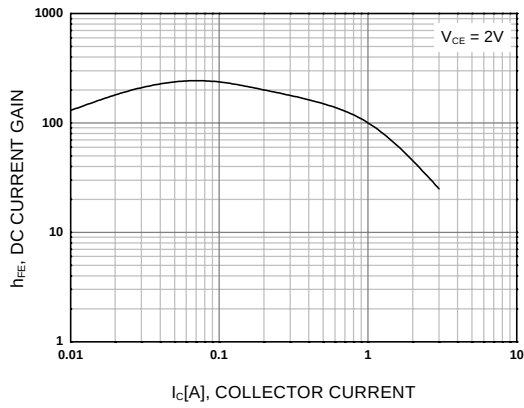


Figure 1. DC current Gain

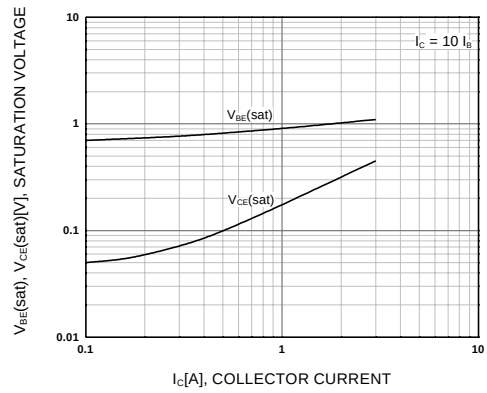


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

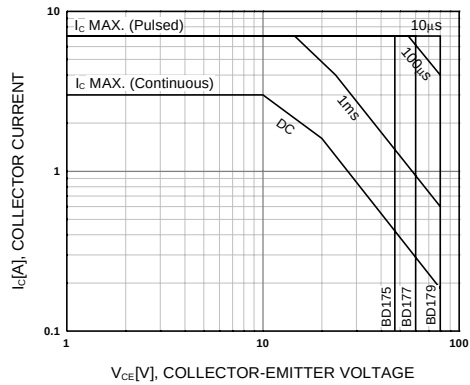


Figure 3. Safe Operating Area

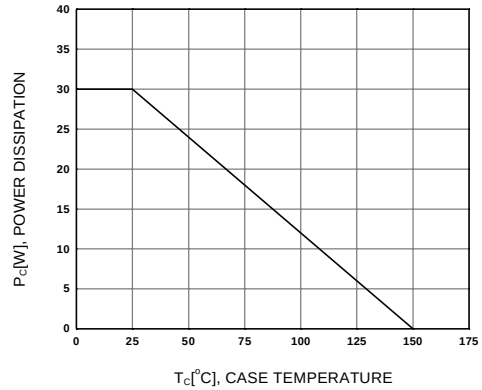


Figure 4. Power Derating

BD175/177/179

Technical drawing of a mechanical part, showing front, side, and top views with dimensions.

Front View (Left):

- Overall width: 8.00 ± 0.30
- Overall height: 14.20 MAX
- Top flange height: 3.90 ± 0.10
- Central hole diameter: $\varnothing 3.20 \pm 0.10$
- Bottom flange height: 13.06 ± 0.30
- Bottom flange width segments: 0.75 ± 0.10 , 1.60 ± 0.10 , 0.75 ± 0.10
- Bottom flange total width: 2.28 TYP [2.28 ± 0.20]
- Feature #1 is indicated on the bottom flange.

Side View (Right):

- Overall height: 16.10 ± 0.20
- Top flange width: 3.25 ± 0.20
- Top flange height: 11.00 ± 0.20
- Internal feature width: 1.75 ± 0.20
- Internal feature height: $0.50^{+0.10}_{-0.05}$
- Internal feature offset: 1.00 (from top flange centerline) and 0.50 (from internal feature centerline).

Top View (Bottom):

- Shows the top flange with three rectangular features.

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