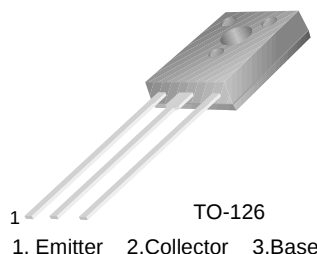


BD676A/678A/680A/682

Medium Power Linear and Switching Applications

- Medium Power Darlington TR
- Complement to BD675A, BD677A, BD679A and BD681 respectively



PNP Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : BD676A	- 45	V
	: BD678A	- 60	V
	: BD680A	- 80	V
	: BD682	- 100	V
V_{CEO}	Collector-Emitter Voltage : BD676A	- 45	V
	: BD678A	- 60	V
	: BD680A	- 80	V
	: BD682	- 100	V
V_{EBO}	Emitter-Base Voltage	- 5	V
I_C	Collector Current (DC)	- 4	A
I_{CP}	*Collector Current (Pulse)	- 6	A
I_B	Base Current	- 100	mA
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	14	W
$R_{\theta ja}$	Thermal Resistance (Junction to Ambient)	88	$^\circ\text{C/W}$
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 : BD676A : BD678A : BD680A : BD682	$I_C = - 50\text{mA}$, $I_B = 0$	- 45 - 60 - 80 - 100			
I_{CBO}	Collector-Base Voltage : BD676A : BD678A : BD680A : BD682	$V_{CB} = - 45\text{V}$, $I_E = 0$ $V_{CB} = - 60\text{V}$, $I_E = 0$ $V_{CB} = - 80\text{V}$, $I_E = 0$ $V_{CB} = - 100\text{V}$, $V_{BE} = 0$			- 200 - 200 - 200 - 200	μA μA μA μA
I_{CEO}	Collector Cut-off Current : BD676A : BD678A : BD680A : BD682	$V_{CE} = - 45\text{V}$, $V_{BE} = 0$ $V_{CE} = - 60\text{V}$, $V_{BE} = 0$ $V_{CE} = - 80\text{V}$, $V_{BE} = 0$ $V_{CE} = - 100\text{V}$, $V_{BE} = 0$			- 500 - 500 - 500 - 500	μA μA μA μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = - 5\text{V}$, $I_C = 0$			- 2	mA
h_{FE}	* DC Current Gain : BD676A/678A/680A : BD682	$V_{CE} = - 3\text{V}$, $I_C = - 2\text{A}$ $V_{CE} = - 3\text{V}$, $I_C = - 1.5\text{A}$	750 750			
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage : BD676A/678A/680A : BD682	$I_C = - 2\text{A}$, $I_B = - 40\text{mA}$ $I_C = - 1.5\text{A}$, $I_B = - 30\text{mA}$			- 2.8 - 2.5	V V
$V_{BE(on)}$	* Base-Emitter On Voltage : BD676A/678A/680A : BD682	$V_{CE} = - 3\text{V}$, $I_C = - 2\text{A}$ $V_{CE} = - 3\text{V}$, $I_C = - 1.5\text{A}$			- 2.5 - 2.5	V V

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

Typical Characteristics

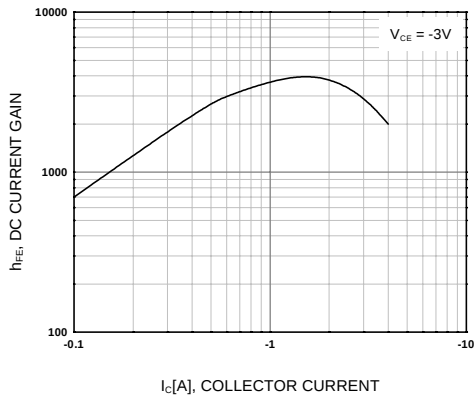


Figure 1. DC current Gain

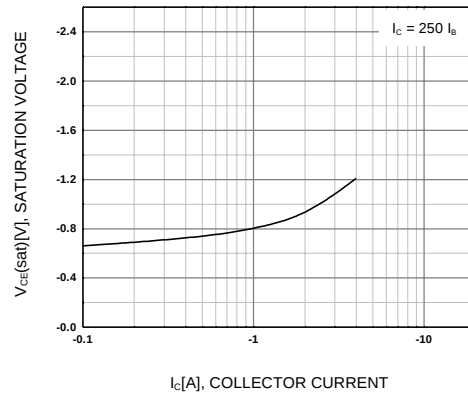


Figure 2. Collector-Emitter Saturation Voltage

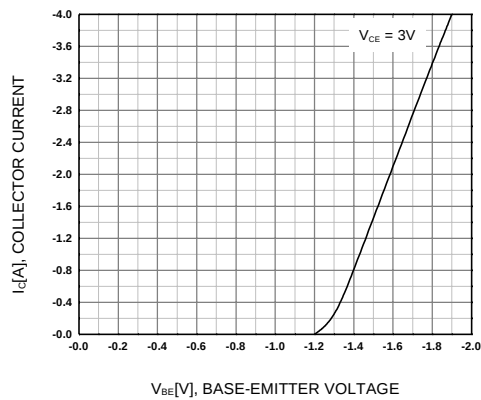


Figure 3. Base-Emitter On Voltage

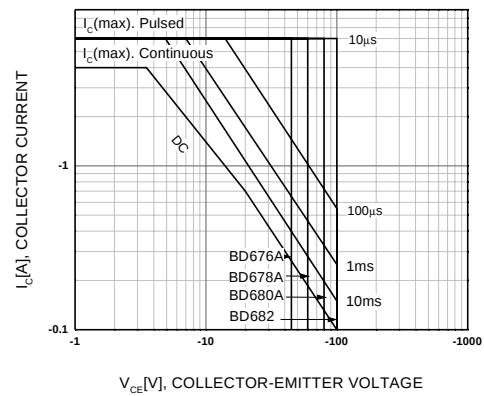


Figure 4. Safe Operating Area

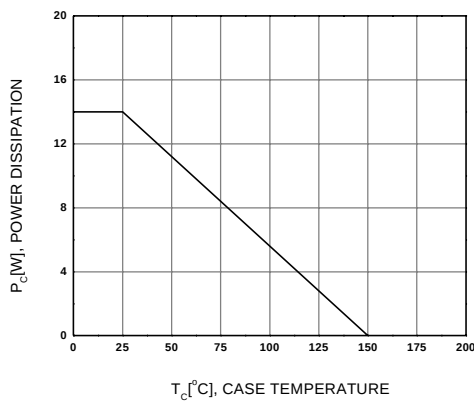


Figure 5. Power Derating

BD676A/678A/680A/682

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 thickness: 3.90 ± 0.10
- Central hole diameter: $\varnothing 3.20 \pm 0.10$
- Bottom flange thickness: 13.06 ± 0.30
- Internal features (from top):
 - 0.75 ± 0.10
 - 1.60 ± 0.10
 - 0.75 ± 0.10
- Bottom flange width: 2.28 TYP [2.28 ± 0.20]
- Bottom flange 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
- Internal features (from top):
 - 11.00 ± 0.20
 - (1.00)
 - (0.50)
 - 1.75 ± 0.20
- Bottom flange width: $0.50^{+0.10}_{-0.05}$

Top View (Bottom):

- Shows the top surface of the part with three rectangular features.

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Rev. B, September 2002

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