

BD376/378/380

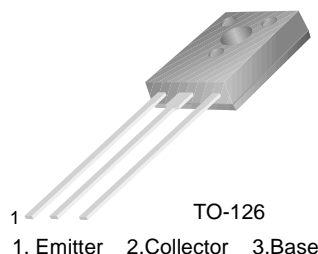
Medium Power Linear and Switching Applications

- Complement to BD375, BD377 and BD379 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 : BD376	- 50	V
	: BD378	- 75	V
	: BD380	- 100	V
V_{CEO}	Collector-Emitter Voltage : BD376	- 45	V
	: BD378	- 60	V
	: BD380	- 80	V
V_{EBO}	Emitter-Base Voltage	- 5	V
I_C	Collector Current (DC)	- 2	A
I_{CP}	*Collector Current (Pulse)	- 3	A
I_B	Base Current	- 1	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	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	$I_C = -100\text{mA}, I_B = 0$	- 45 - 60 - 80			V
	: BD376					
	: BD378					
	: BD380					
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = -100\mu\text{A}, I_E = 0$	- 50 - 75 - 100			V
	: BD376					
	: BD378					
	: BD380					
I_{CBO}	Collector Cut-off Current	$V_{CB} = -45\text{V}, I_E = 0$ $V_{CB} = -60\text{V}, I_E = 0$ $V_{CB} = -80\text{V}, I_E = 0$			- 2 - 2 - 2	μA
	: BD376					
	: BD378					
	: BD380					
I_{EBO}	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$			- 100	μA
h_{FE1}	*DC Current Gain	$V_{CE} = -2\text{V}, I_C = -0.15\text{A}$	40		375	
h_{FE2}		$V_{CE} = -2\text{V}, I_C = -1\text{A}$	20			
$V_{CE(sat)}$	*Collector-Emitter Saturation Voltage	$I_C = -1\text{A}, I_B = -0.1\text{A}$			- 1	V
$V_{BE(on)}$	*Base-Emitter ON Voltage	$V_{CE} = -2\text{V}, I_C = -1\text{A}$			- 1.5	V
t_{ON}	Turn ON Time	$V_{CC} = -30\text{V}, I_C = -0.5\text{A}$		50		ns
t_{OFF}	Turn OFF Time	$I_{B1} = -I_{B2} = -0.05\text{A}$ $R_L = 60\Omega$		500		ns

* Pulse Test: $PW=350\mu\text{s}$, duty Cycle=2% Pulsed

h_{FE} Classification

Classification	6	10	16	25
h_{FE1}	40 ~ 100	63 ~ 160	100 ~ 250	150 ~ 375

Typical Characteristics

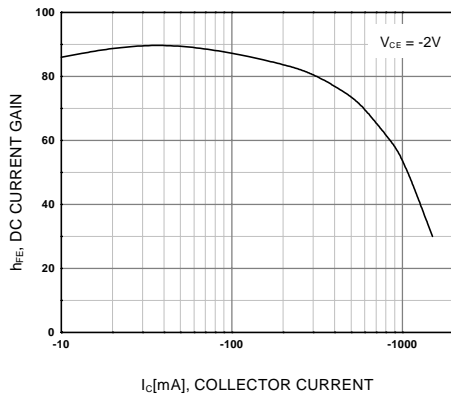


Figure 1. DC current Gain

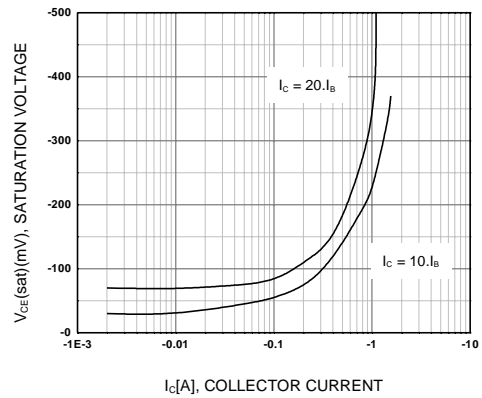


Figure 2. Collector-Emitter Saturation Voltage

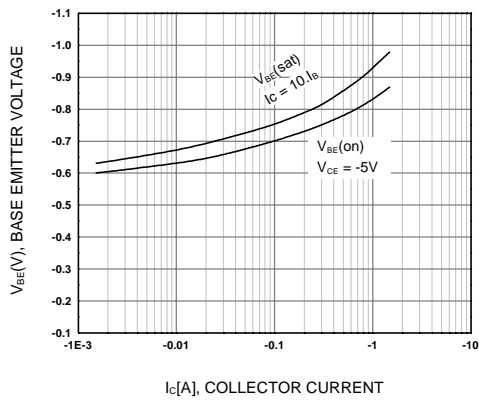


Figure 3. Base-Emitter Voltage

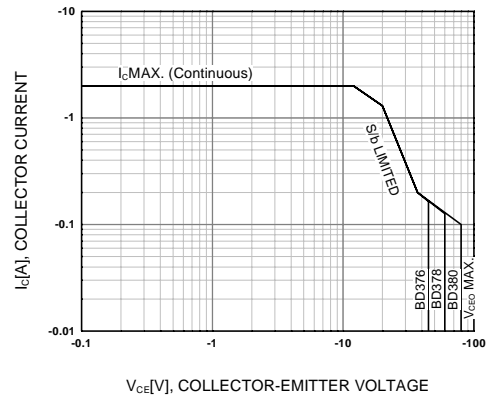


Figure 4. Safe Operating Area

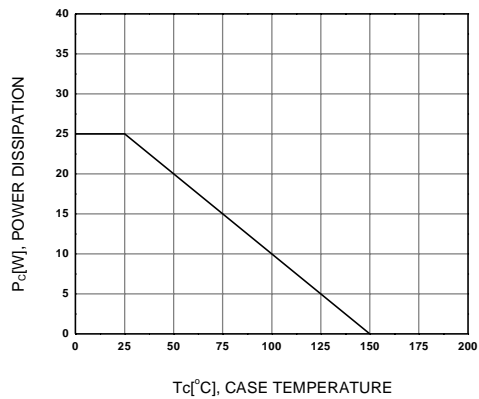


Figure 5. Power Derating

BD376/378/380

Technical drawing of a 10-pin D-sub connector. The drawing includes a top view, a side view, and a detail view of the pin contacts.

Top View Dimensions:

- Width: 8.00 ± 0.30
- Height: 14.20 MAX
- Pin Contact Width: 0.75 ± 0.10
- Pin Contact Height: 1.60 ± 0.10
- Pin Contact Material: 2.28 TYP [2.28 ± 0.20]

Side View Dimensions:

- Height: 11.00 ± 0.20
- Pin Contact Height: 1.75 ± 0.20
- Pin Contact Width: 0.75 ± 0.10
- Pin Contact Material: 2.28 TYP [2.28 ± 0.20]

Detail View Dimensions:

- Pin Contact Width: 0.75 ± 0.10
- Pin Contact Height: 1.60 ± 0.10
- Pin Contact Material: 2.28 TYP [2.28 ± 0.20]

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Rev. A, February 2000

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