

BD375/377/379

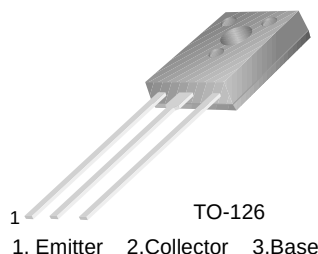
Medium Power Linear and Switching Applications

- Complement to BD376, BD378 and BD380 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 : BD375	50	V
	: BD377	75	V
	: BD379	100	V
V_{CEO}	Collector-Emitter Voltage : BD375	45	V
	: BD377	60	V
	: BD379	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	$I_C = 100\text{mA}, I_B = 0$				
	: BD375		45			V
	: BD377		60			V
	: BD379		80			V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	50			V
	: BD377		75			V
	: BD379		100			V
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	μA
	: BD375				2	μA
	: BD377				2	μA
	: BD379				2	μA
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	$V_{CC} = 30\text{V}, I_C = 0.5\text{A}$ $I_{B1} = - I_{B2} = 0.05\text{A}$ $R_L = 60\Omega$		50		ns
t_{OFF}	Turn OFF Time			500		ns

* Pulse Test: PW=350 μs , duty Cycle=2% Pulsed

h_{FE} Classification

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

Typical Characteristics

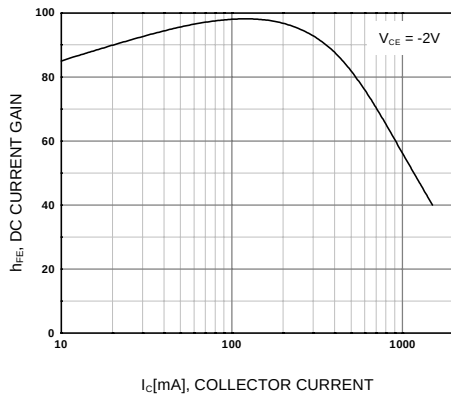


Figure 1. DC current Gain

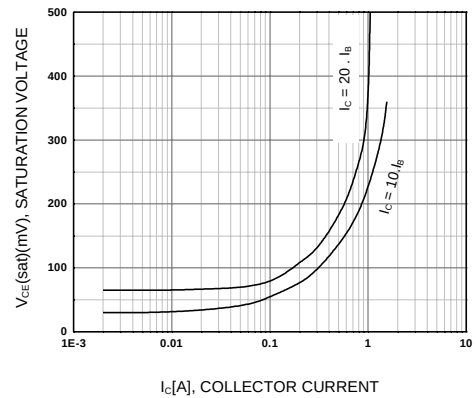


Figure 2. Collector-Emitter Saturation Voltage

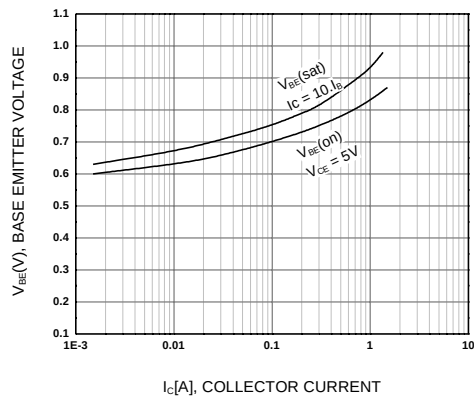


Figure 3. Base-Emitter Voltage

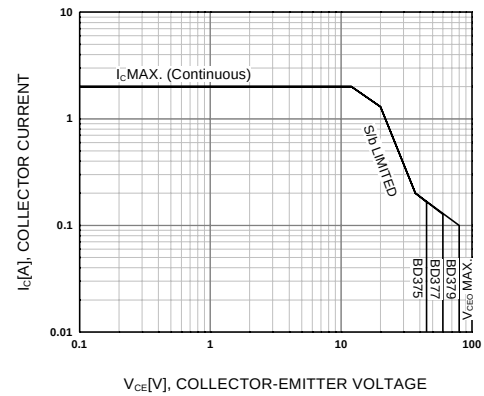


Figure 4. Safe Operating Area

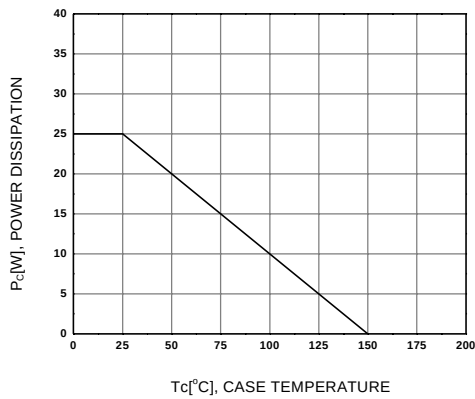


Figure 5. Power Derating

Technical drawing of a 10-pin D-sub connector, showing front and side views with dimensions.

Front View Dimensions:

- Top Flange Height: 3.90 ± 0.10
- Width: 8.00 ± 0.30
- Central Feature Diameter: $\varnothing 3.20 \pm 0.10$
- Overall Height: 14.20 MAX
- Pin 1 Position: 13.06 ± 0.30
- Pin 1 Width: 0.75 ± 0.10
- Pin 1 Spacing: 1.60 ± 0.10
- Pin 1 to Pin 2 Distance: 0.75 ± 0.10
- Pin 1 Label: #1
- Pin 1 Position Tolerance: 2.28 TYP [2.28 ± 0.20]

Side View Dimensions:

- Top Flange Height: 11.00 ± 0.20
- Overall Height: 16.10 ± 0.20
- Pin 1 Width: 1.00 (nominal)
- Pin 1 Spacing: 0.50 (nominal)
- Pin 1 to Pin 2 Distance: 1.75 ± 0.20
- Pin 1 Position Tolerance: $0.50^{+0.10}_{-0.05}$

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