

BD376/378/380

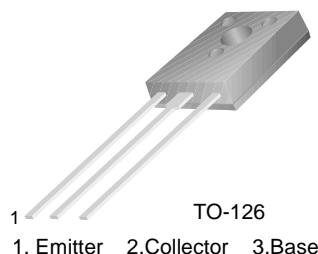
Medium Power Linear and Switching Applications

- 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 : BD376	$I_C = - 100\text{mA}, I_B = 0$	- 45			V
	: BD378		- 60			V
	: BD380		- 80			V
BV_{CBO}	Collector-Base Breakdown Voltage : BD376	$I_C = - 100\mu\text{A}, I_E = 0$	- 50			V
	: BD378		- 75			V
	: BD380		- 100			V
I_{CBO}	Collector Cut-off Current : BD376	$V_{CB} = - 45\text{V}, I_E = 0$			- 2	μA
	: BD378	$V_{CB} = - 60\text{V}, I_E = 0$			- 2	μA
	: BD380	$V_{CB} = - 80\text{V}, I_E = 0$			- 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	$V_{CC} = - 30\text{V}, I_C = - 0.5\text{A}$		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

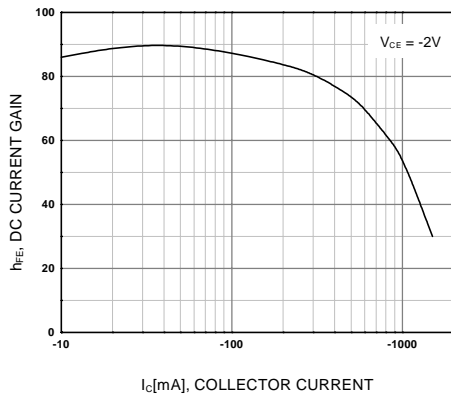


Figure 1. DC current Gain

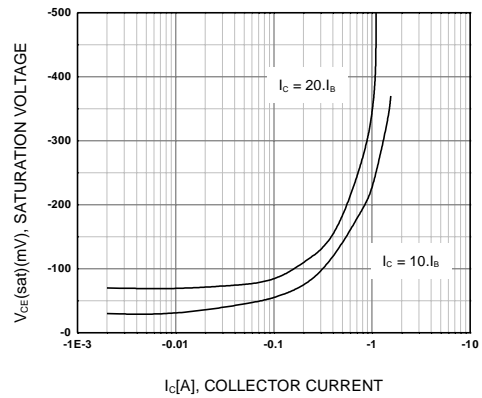


Figure 2. Collector-Emitter Saturation Voltage

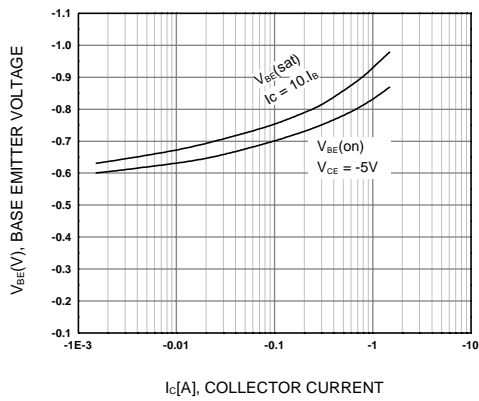


Figure 3. Base-Emitter Voltage

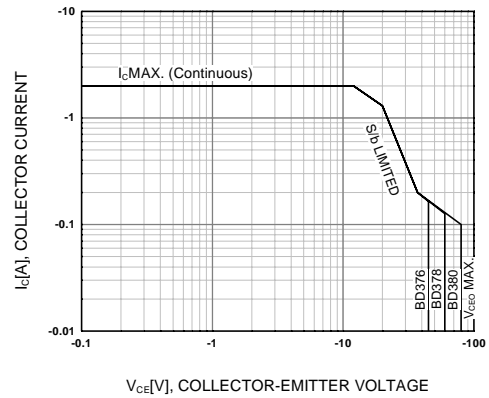


Figure 4. Safe Operating Area

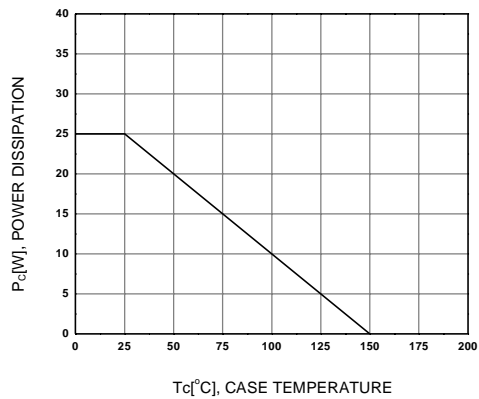
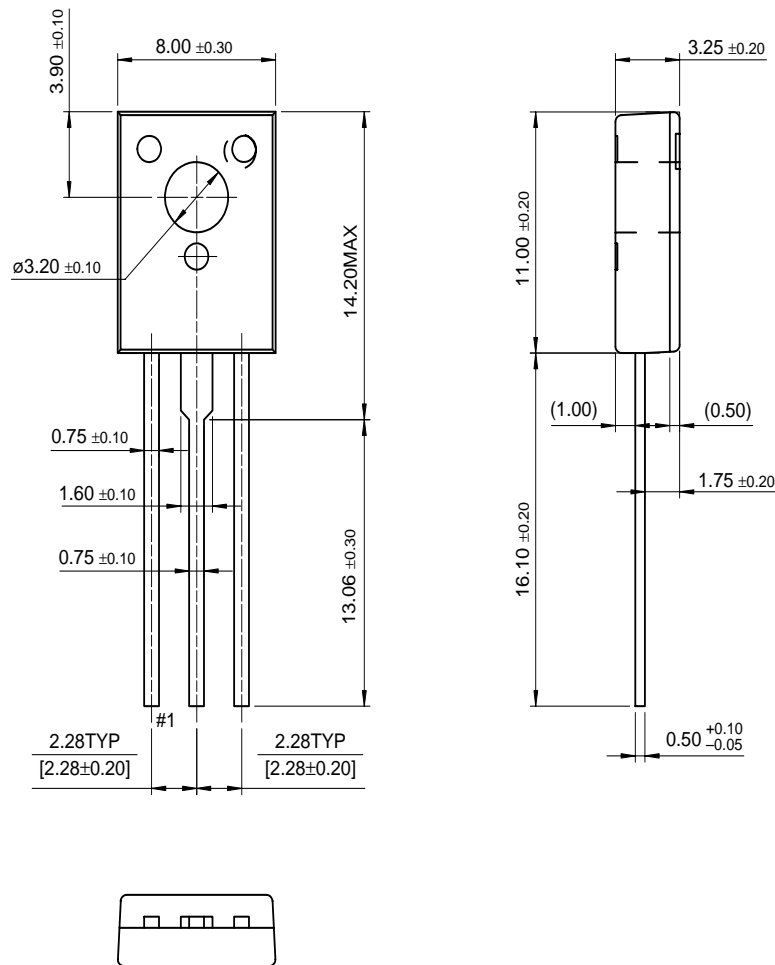


Figure 5. Power Derating

Package Dimensions

TO-126

BD376/378/380



Dimensions in Millimeters

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