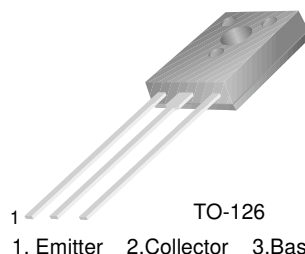


## BD376/378/380

### Medium Power Linear and Switching Applications

- Complement to BD375, BD377 and BD379 respectively



TO-126  
1. Emitter 2. Collector 3. Base

### 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			V
	: BD376		- 60			V
	: BD378		- 80			V
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = -100\mu\text{A}, I_E = 0$	- 50			V
	: BD376		- 75			V
	: BD378		- 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	$\mu\text{A}$
	: BD376				- 2	$\mu\text{A}$
	: BD378				- 2	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$			- 100	$\mu\text{A}$
$h_{FE1}$ $h_{FE2}$	*DC Current Gain	$V_{CE} = -2\text{V}, I_C = -0.15\text{A}$ $V_{CE} = -2\text{V}, I_C = -1\text{A}$	40 20		375	
$V_{CE(sat)}$	*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 $\mu\text{s}$ , duty Cycle=2% Pulsed

#### $h_{FE}$ Classification

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

# Typical Characteristics

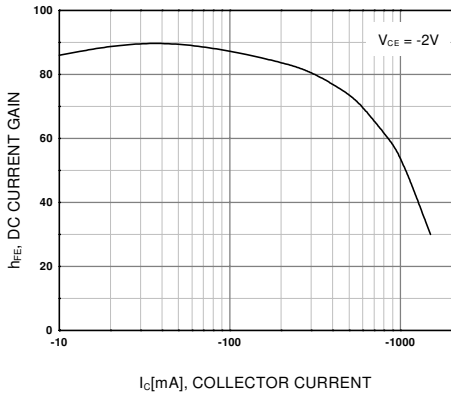


Figure 1. DC current Gain

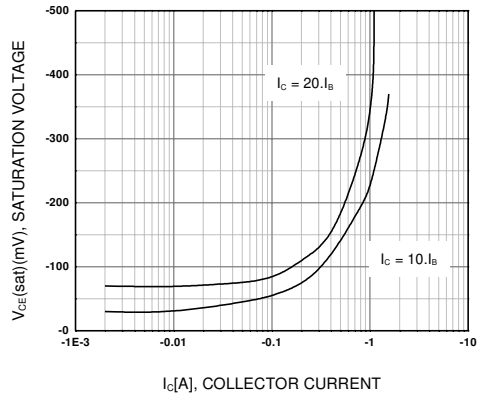


Figure 2. Collector-Emitter Saturation Voltage

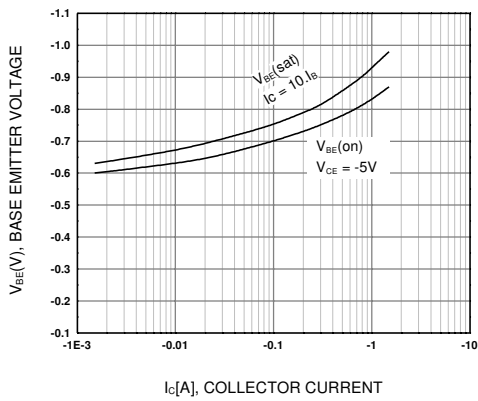


Figure 3. Base-Emitter Voltage

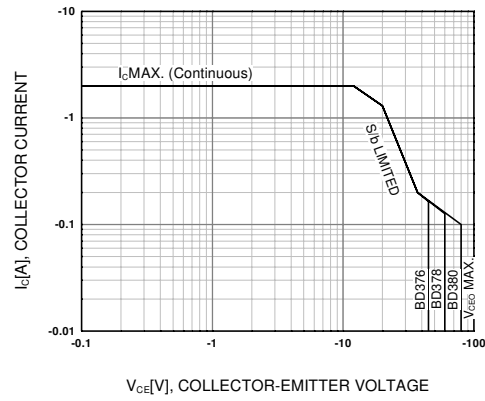


Figure 4. Safe Operating Area

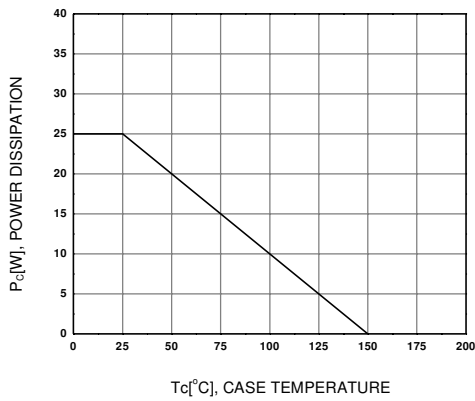
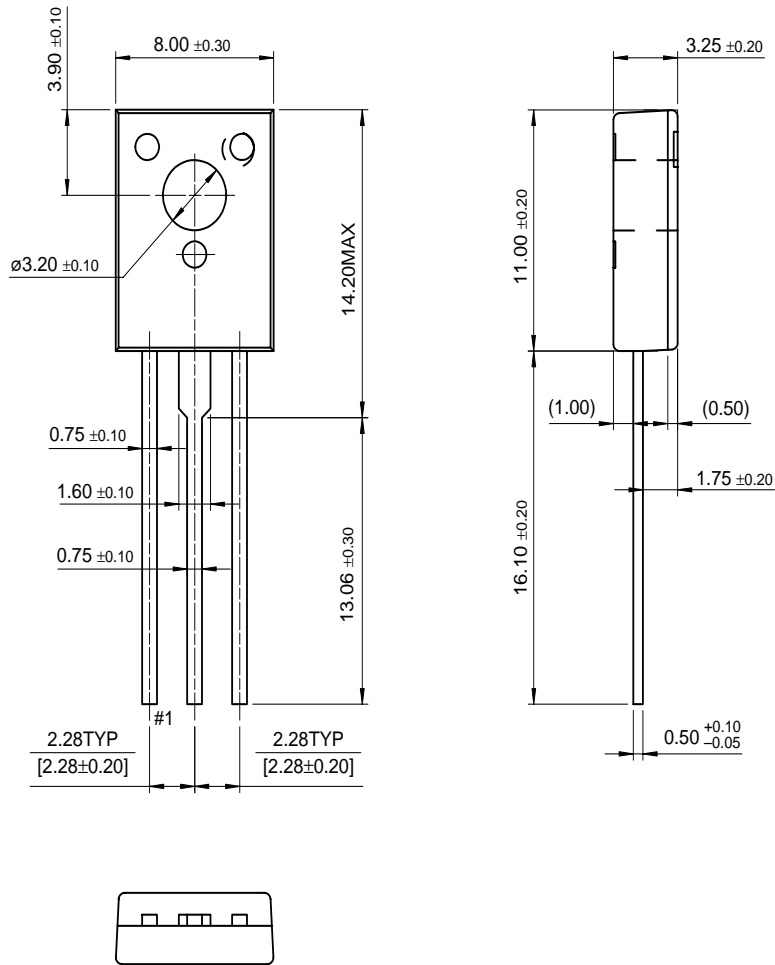


Figure 5. Power Derating

# Package Dimensions

BD376/378/380

## TO-126



Dimensions in Millimeters

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E <sup>2</sup> CMOS™	PowerTrench®	VCX™
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