

## BD175/177/179

### Medium Power Linear and Switching Applications

- Complement to BD 176/178/180 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 : BD175	45	V
	: BD177	60	V
	: BD179	80	V
$V_{CEO}$	Collector-Emitter Voltage : BD175	45	V
	: BD177	60	V
	: BD179	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	3	A
$I_{CP}$	*Collector Current (Pulse)	7	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	30	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 : BD175	$I_C = 100\text{mA}, I_B = 0$	45			V
	: BD177		60			V
	: BD179		80			V
$I_{CBO}$	Collector Cut-off Current : BD175	$V_{CB} = 45\text{V}, I_E = 0$			100	$\mu\text{A}$
	: BD177	$V_{CB} = 60\text{V}, I_E = 0$			100	$\mu\text{A}$
	: BD179	$V_{CB} = 80\text{V}, I_E = 0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			1	mA
$h_{FE1}$ $h_{FE2}$	* DC Current Gain	$V_{CE} = 2\text{V}, I_C = 150\text{mA}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$	40 15		250	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 0.1\text{A}$			0.8	V
$V_{BE(on)}$	* Base-Emitter On Voltage	$V_{CE} = 2\text{V}, I_C = 1\text{A}$			1.3	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 250\text{mA}$	3			MHz

\* Pulse Test: PW=300 $\mu\text{s}$ , duty Cycle=1.5% Pulsed

#### $h_{FE}$ Classification

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

\* Classification 16: Only BD175

# Typical Characteristics

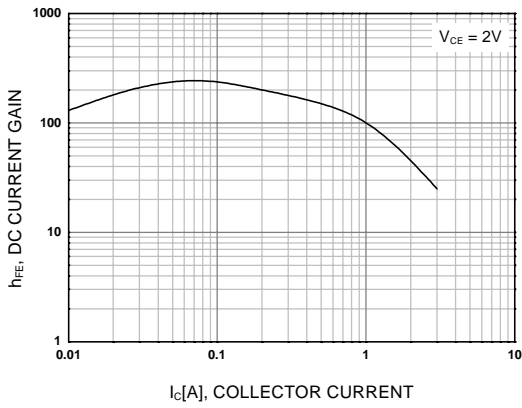


Figure 1. DC current Gain

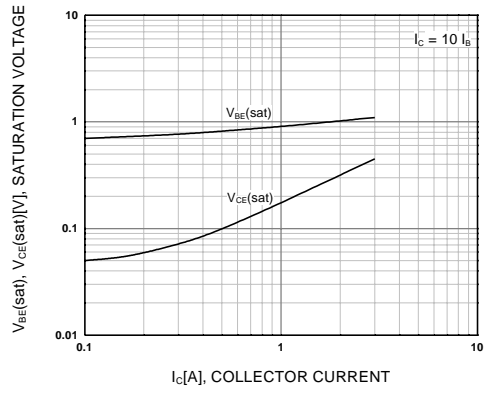


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

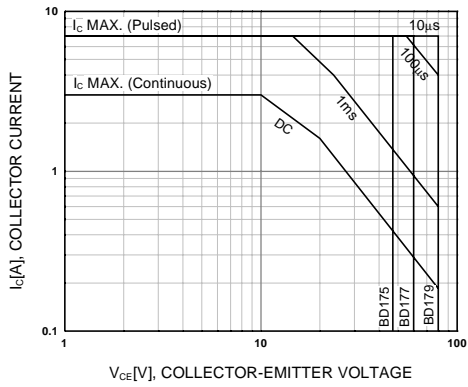


Figure 3. Safe Operating Area

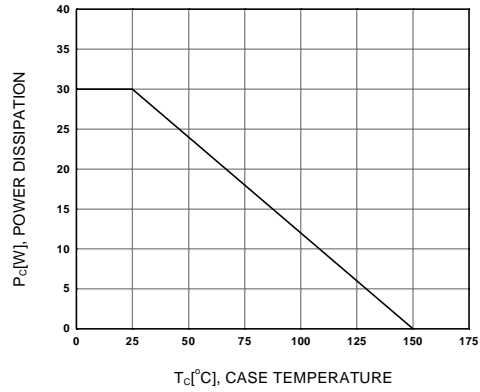


Figure 4. Power Derating

# Package Dimensions

## TO-126

BD175/177/179



Dimensions in Millimeters

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