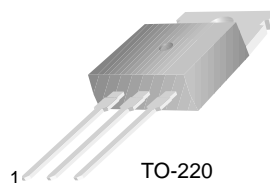


## BD533/535/537

### Medium Power Linear and Switching Applications

- Low Saturation Voltage
- Complement to BD534, BD536 and BD538 respectively



TO-220  
1.Base 2.Collector 3.Emitter

### 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 : BD533	45	V
	: BD535	60	V
	: BD537	80	V
$V_{CES}$	Collector-Emitter Voltage : BD533	45	V
	: BD535	60	V
	: BD537	80	V
$V_{CEO}$	Collector-Emitter Voltage : BD533	45	V
	: BD535	60	V
	: BD537	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	8	A
$I_B$	Base Current	1	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	50	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
$I_{CBO}$	Collector Cut-off Current : BD533 : BD535 : BD537	$V_{CB} = 45\text{V}, I_E = 0$			100	$\mu\text{A}$
		$V_{CB} = 60\text{V}, I_E = 0$			100	$\mu\text{A}$
		$V_{CB} = 80\text{V}, I_E = 0$			100	$\mu\text{A}$
$I_{CES}$	Collector Cut-off Current : BD533 : BD535 : BD537	$V_{CE} = 45\text{V}, V_{BE} = 0$			100	$\mu\text{A}$
		$V_{CE} = 60\text{V}, V_{BE} = 0$			100	$\mu\text{A}$
		$V_{CE} = 80\text{V}, V_{BE} = 0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			1	mA
$h_{FE}$	* DC Current Gain : BD533/535 : BD537 : ALL DEVICE : BD533/535 : BD537	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	20			
		$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	15			
		$V_{CE} = 2\text{V}, I_C = 2\text{A}$	40			
		$V_{CE} = 2\text{V}, I_C = 2\text{A}$	25			
$h_{FE}$	* $h_{FE}$ Groups J : ALL DEVICE K : ALL DEVICE	$V_{CE} = 2\text{V}, I_C = 2\text{A}$	30		75	
		$V_{CE} = 2\text{V}, I_C = 3\text{A}$	15			
		$V_{CE} = 2\text{V}, I_C = 2\text{A}$	40		100	
		$V_{CE} = 2\text{V}, I_C = 3\text{A}$	20			
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 2\text{A}, I_B = 0.2\text{A}$			0.8	V
		$I_C = 6\text{A}, I_B = 0.6\text{A}$		0.8		V
$V_{BE(on)}$	* Base-Emitter ON Voltage	$V_{CE} = 2\text{V}, I_C = 2\text{A}$			1.5	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	3	12		MHz

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

# Typical characteristics

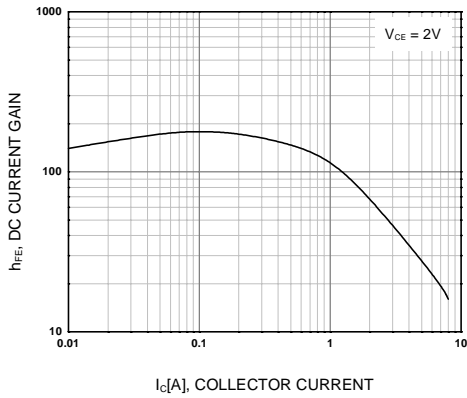


Figure 1. DC current Gain

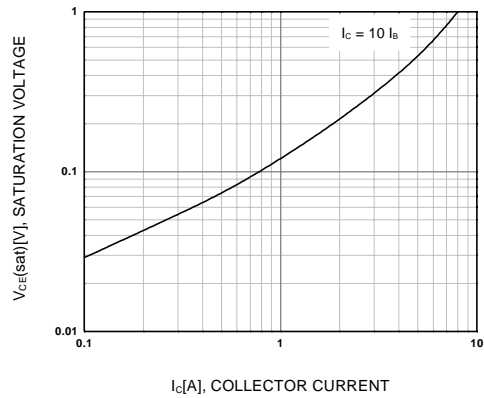


Figure 2. Collector-Emitter Saturation Voltage

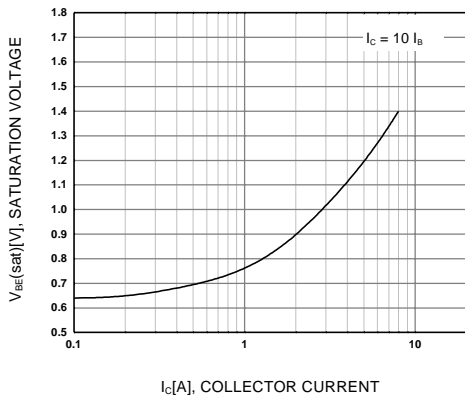


Figure 3. Base-Emitter Saturation Voltage

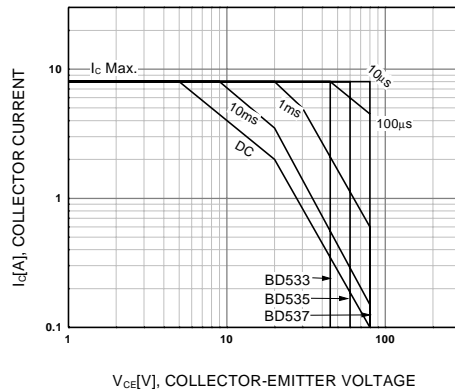


Figure 4. Safe Operating Area

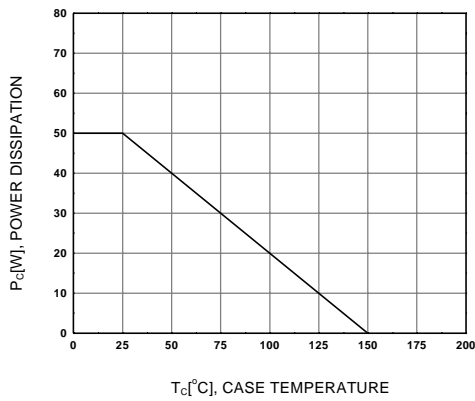


Figure 5. Power Derating

# Package Dimensions

## TO-220

BD533/535/537



Dimensions in Millimeters

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CROSSVOLT™	POP™	UHC™
E <sup>2</sup> CMOS™	PowerTrench®	VCX™
FACT™	QFET™	
FACT Quiet Series™	QS™	
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