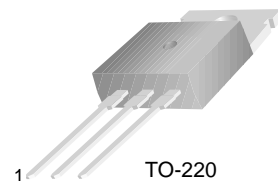


## BD239/A/B/C

### Medium Power Linear and Switching Applications

- Complement to BD240/A/B/C 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
$V_{CEO}$	Collector-Emitter Voltage		
	: BD239	45	V
	: BD239A	60	V
	: BD239B	80	V
	: BD239C	100	V
$V_{CER}$	Collector-Emitter Voltage		
	: BD239	55	V
	: BD239A	70	V
	: BD239B	90	V
	: BD239C	115	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	2	A
$I_{CP}$	*Collector Current (Pulse)	4	A
$I_B$	Base Current	0.6	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					
	: BD239	$I_C = 30\text{mA}, I_B = 0$	45			V
	: BD239A		60			V
	: BD239B		80			V
	: BD239C		100			V
$I_{CEO}$	Collector Cut-off Current					
	: BD239/A : BD239B/C	$V_{CE} = 30\text{V}, I_B = 0$ $V_{CE} = 60\text{V}, I_B = 0$			0.3 0.3	mA mA
$I_{CES}$	Collector Cut-off Current					
	: BD239	$V_{CE} = 45\text{V}, V_{BE} = 0$			0.2	mA
	: BD239A	$V_{CE} = 60\text{V}, V_{BE} = 0$			0.2	mA
	: BD239B	$V_{CE} = 80\text{V}, V_{BE} = 0$			0.2	mA
	: BD239C	$V_{CE} = 100\text{V}, V_{BE} = 0$			0.2	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			1	mA
$h_{FE}$	*DC Current Gain	$V_{CE} = 4\text{V}, I_C = 0.2\text{A}$ $V_{CE} = 4\text{V}, I_C = 1\text{A}$	40 15			
$V_{CE(sat)}$	*Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 0.2\text{A}$			0.7	V
$V_{BE(on)}$	*Base-Emitter ON Voltage	$V_{CE} = 4\text{V}, I_C = 1\text{A}$			1.3	V

\* Pulse Test: PW=350 $\mu\text{s}$ , duty Cycles $\leq$ 2.0% Pulsed

# Package Dimensions

BD239/A/B/C

## TO-220



Dimensions in Millimeters

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