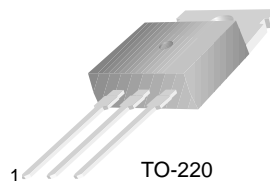


## BD239/A/B/C

### 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	$V_{CE} = 45\text{V}, V_{BE} = 0$ $V_{CE} = 60\text{V}, V_{BE} = 0$ $V_{CE} = 80\text{V}, V_{BE} = 0$ $V_{CE} = 100\text{V}, V_{BE} = 0$			0.2	mA
	: BD239A				0.2	mA
	: BD239B				0.2	mA
	: BD239C				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™	
FACT Quiet Series™	QS™	
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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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