



NPN BD239 – A – B – C

MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS.

The BD239, A, B, C are mounted in Jedec TO-220 plastic package.
 They are the silicon epitaxial-base Power Transistors for use in medium power linear and switching applications.
 The PNP complements are BD240, A, B, C.
 Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage	BD239	45	V
		BD239A	60	
		BD239B	80	
		BD239C	100	
V_{CER}	Collector-Emitter Voltage ($R_{BE} = 100 \Omega$)	BD239	55	V
		BD239A	70	
		BD239B	90	
		BD239C	115	
V_{CBO}	Collector-Base Voltage	BD239	45	V
		BD239A	60	
		BD239B	80	
		BD239C	100	
V_{EBO}	Emitter-Base Voltage		5.0	V
I_C	Collector Current	I_C	3	A
		I_{CM}	7	
I_B	Base Current		0.5	A
P_T	Power Dissipation	@ $T_{amb} = 25^\circ C$	30	W
		@ $T_{case} = 25^\circ C$	30	W
T_J	Junction Temperature		150	°C
T_S	Storage Temperature		-65 to +150	

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-amb}$	Thermal Resistance, Junction-ambient	70	°C/W
$R_{thJ-case}$	Thermal Resistance, Junction-case	4.17	°C/W

NPN BD239 – A – B – C

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

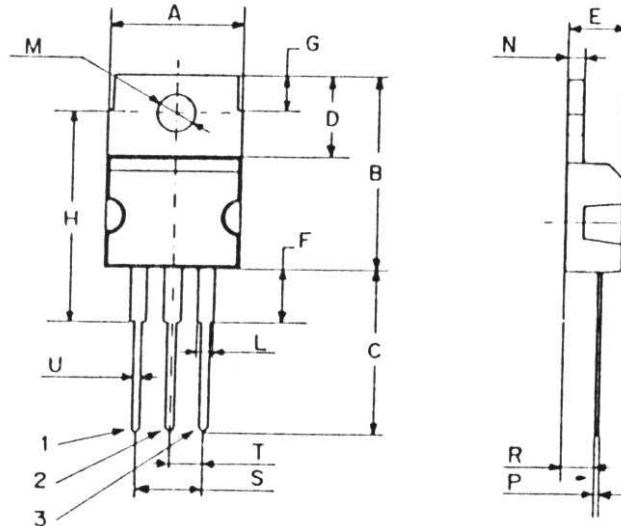
Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{ V}$	BD239	-	-	0.3	mA
		$V_{CE}=30\text{ V}$	BD239A	-	-		
		$V_{CE}=60\text{ V}$	BD239B	-	-		
		$V_{CE}=60\text{ V}$	BD239C	-	-		
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5\text{ V}$	BD239	-	-	1.0	mA
			BD239A	-	-		
			BD239B	-	-		
			BD239C	-	-		
I_{CES}	Collector Cutoff Current ($V_{BE} = 0$)	$V_{CE}=45\text{ V}$	BD239	-	-	0.2	mA
		$V_{CE}=60\text{ V}$	BD239A	-	-		
		$V_{CE}=80\text{ V}$	BD239B	-	-		
		$V_{CE}=100\text{ V}$	BD239C	-	-		
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage ($I_B = 0$) (*)	$I_C = 30\text{mA}$	BD239	45			V
			BD239A	60			
			BD239B	80			
			BD239C	100			
h_{FE}	DC Current Gain (*)	$V_{CE}=4\text{ V}$ $I_C=0.2\text{ A}$	BD239	40	-	-	-
			BD239A				
			BD239B				
			BD239C				
		$V_{CE}=4\text{ V}$ $I_C=1\text{ A}$	BD239	15	-	-	
			BD239A				
			BD239B				
			BD239C				
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=1\text{ A}$ $I_B=200\text{ mA}$	BD239	-	-	0.6	V
			BD239A				
			BD239B				
			BD239C				
$V_{BE(on)}$	Base-Emitter Voltage (*)	$V_{CE}=4\text{ V}$ $I_C=1\text{ A}$	BD239	-	-	1.3	V
			BD239A				
			BD239B				
			BD239C				
h_{fe}	Small Signal Current Gain	$V_{CE}=10\text{ V}$ $I_C=0.2\text{ A}$ $f = 1\text{KHz}$	BD239	20	-	-	-
			BD239A				
			BD239B				
			BD239C				
		$V_{CE}=10\text{ V}$ $I_C=0.2\text{ A}$ $f = 1\text{MHz}$	BD239	3	-	-	
			BD239A				
			BD239B				
			BD239C				
f_T	Transistor frequency	$V_{CE}=10\text{ V}, I_C=0.2\text{ A}, f = 1\text{MHz}$		3	-	-	MHz

(*) Pulse Width $\approx 300\ \mu\text{s}$, Duty Cycle $\angle 2.0\%$

NPN BD239 – A – B – C

MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Base
Pin 2 :	Collector
Pin 3 :	Emitter
Case :	Collector

Revised September 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.