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 Ω)	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°C	30	W
		@ T_{case} = 25°C	30	W
T_J	Junction Temperature		150	℃
T_S	Storage Temperature		-65 to +150	

THERMAL CHARACTERISTICS

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

NPN BD239 – A – B – C

ELECTRICAL CHARACTERISTICS

TC=25℃ unless otherwise noted

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

(*) Pulse Width ≈ 300 μs, Duty Cycle ∠ 2.0%

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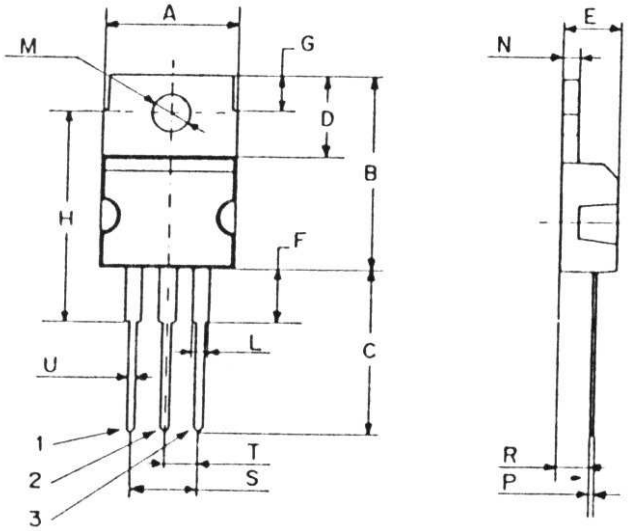
MECHANICAL DATA CASE TO-220

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

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