



## BD439 – BD441

### SILICON NPN POWER TRANSISTORS.

The BD439-BD441 are NPN Transistors mounted in Jedec TO-126 plastic package. They are recommended for use in medium power linear and switching applications. PNP complements are BD440-BD442. Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	BD439	60	V
		BD441	80	
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	BD439	60	V
		BD441	80	
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	5	V	
$I_C$	Collector Current	4	A	
$I_{CM}$	Collector Current Peak	7		
$I_B$	Base Current	1	A	
$P_C$	Total power Dissipation	$T_C = 25^\circ\text{C}$	36	W
$T_J$	Junction Temperature		150	$^\circ\text{C}$
$T_{Stg}$	Storage Temperature		-65 to +150	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-c}$	Thermal Resistance, Junction-Case	3.5	$^\circ\text{C/W}$
$R_{thJ-a}$	Thermal Resistance, Junction-ambient in free air	100	$^\circ\text{C/W}$

**BD439 – BD441**
**ELECTRICAL CHARACTERISTICS**

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit		
$I_{CBO}$	Collector cut-off current	$I_E = 0, V_{CB} = 60\text{ V}$	BD439	-	-	100	$\mu\text{A}$	
		$I_E = 0, V_{CB} = 80\text{ V}$	BD441					
$I_{CES}$	Collector cut-off current	$V_{BE} = 0, V_{CE} = 60\text{ V}$	BD439	-	-	100		$\mu\text{A}$
		$V_{BE} = 0, V_{CE} = 80\text{ V}$	BD441					
$I_{EBO}$	Emitter cut-off current	$I_C = 0$	BD439	-	-	1	mA	
		$V_{EB} = 5\text{ V}$	BD441					
$V_{CEO(SUS)}$	Collector-Emitter sustaining Voltage (*)	$I_B = 0$	BD439	60	-	-		V
		$I_C = 100\text{ mA}$	BD441	80	-	-		
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 2\text{ A}$	BD439	-	-	0.8	V	
		$I_B = 200\text{ mA}$	BD441					
$V_{BE}$	Base-Emitter Voltage(*)	$I_C = 10\text{ mA}$	BD439	-	0.58	-		V
		$V_{CE} = 5\text{ V}$	BD441					
		$I_C = 2\text{ A}$	BD439	-	-	1.5	V	
		$V_{CE} = 1\text{ V}$	BD441					
$h_{FE}$	DC Current Gain (*)	$I_C = 10\text{ mA}$	BD439	20	-	130		-
		$V_{CE} = 5\text{ V}$	BD441	15	-	130		
		$I_C = 500\text{ mA}$	BD439	40	-	140		
		$V_{CE} = 1\text{ V}$	BD441					
		$I_C = 2\text{ A}$	BD439	25	-	-		
		$V_{CE} = 1\text{ V}$	BD441	15	-	-		
$f_T$	Transition frequency	$I_C = 250\text{ mA}$	BD439	3	-	-	MHz	
		$V_{CE} = 1\text{ V}$	BD441					

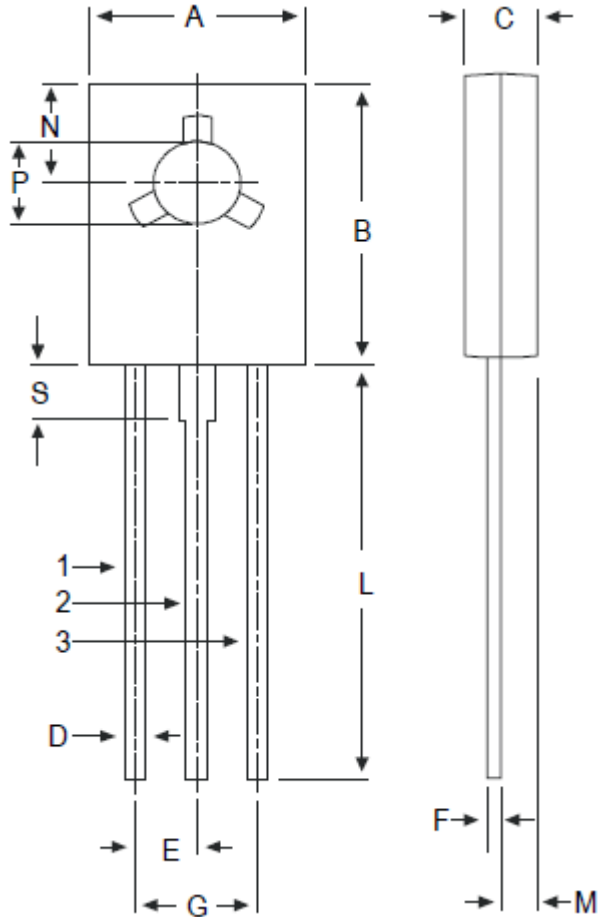
 (\*) Measured under pulse conditions :  $t_p < 300\mu\text{s}$ ,  $\delta < 1.5\%$

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**MECHANICAL DATA CASE TO-126**

	DIMENSIONS	
	min	max
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 typ.	
F	0.49	0.75
G	4.4 typ.	
L	15.7 typ.	
M	1.27 typ.	
N	3.75 typ.	
P	3.0	3.2
S	2.54 typ.	

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



Revised August 2012

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