

# BD140

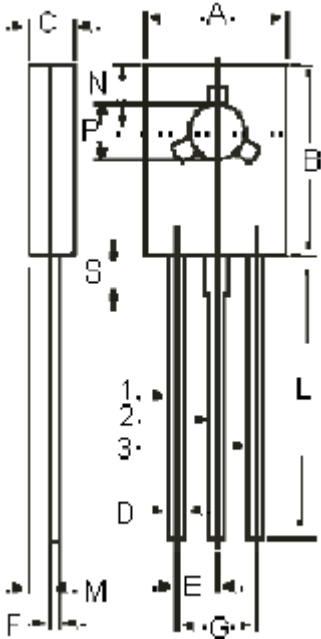
## TO-126 PNP Transistors



### Features:

- PNP Plastic Power Transistors.
- Medium Power Linear and Switching Applications.

### TO-126 Plastic Package

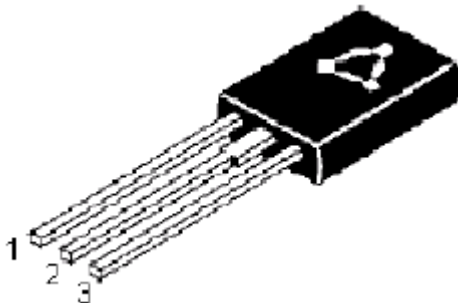


Dimensions	Minimum	Maximum
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 (Typical)	
F	0.49	0.75
G	4.5 (Typical)	
L	15.7 (Typical)	
M	1.27 (Typical)	
N	3.75 (Typical)	
P	3.0	3.2
S	2.5 (Typical)	

Dimensions : Millimetres

### Pin Configuration:

1. Emitter
2. Collector
3. Base



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### Absolute Maximum Ratings

-	Symbol	-	BD140	Unit
Collector-Base Voltage (Open Emitter)	$V_{CBO}$	Maximum	100	V
Collector-Emitter Voltage (Open Base)	$V_{CEO}$		80	
Collector Current	$I_C$		1.5	A
Total Power Dissipation upto $T_C = 25^\circ\text{C}$	$P_{tot}$		12.5	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Collector-Emitter Saturation Voltage $I_C = 0.5\text{A}$ , $I_B = 0.05\text{A}$	$V_{CE(Sat)}$		0.5	V
DC Current Gain $I_C = 0.15\text{A}$ ; $V_{CE} = 2\text{V}$	$h_{FE}$	Minimum Maximum	40 250	-

### Ratings (at $T_a = 25^\circ\text{C}$ unless otherwise specified)

-	Symbol	-	BD140	Unit
Collector-Base Voltage (Open Emitter)	$V_{CBO}$	Maximum	100	V
Collector-Emitter Voltage (Open Base)	$V_{CEO}$		80	
Emitter-Base Voltage (Open Collector)	$V_{EBO}$		5.0	
Collector Current	$I_C$		1.5	A
Base Current	$I_B$		0.5	
Total Power Dissipation up to $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_{tot}$		1.25 10	W $\text{mW}/^\circ\text{C}$
Total Power Dissipation up to $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$		12.5 100		
Junction Temperature	$T_j$	150	$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	-		-65 to +150
<b>Thermal Resistance</b>				
From Junction to Case	$R_{th(j-c)}$	-	10	$^\circ\text{C}/\text{W}$
From Junction to Ambient	$R_{th(j-a)}$	-	100	

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### Characteristics ( $T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

-	Symbol	-	BD140	Unit
Collector Cut off Current $I_E = 0; V_{CB} = 30\text{V}$ $I_E = 0; V_{CB} = 30\text{V}; T_C = 125^{\circ}\text{C}$	$I_{CBO}$	Maximum	0.1 10	$\mu\text{A}$
Emitter Cut off Current $I_C = 0; V_{EB} = 5\text{V}$	$I_{EBO}$		10	
Breakdown Voltages $I_C = 0.03\text{A}; I_B = 0$ $I_C = 1\text{mA}; I_E = 0$ $I_E = 1\text{mA}; I_C = 0$	$V_{CEO (Sus)}^*$ $V_{CBO}$ $V_{EBO}$	Minimum	80 100 5.0	V
Saturation Voltage $I_C = 0.5\text{A}; I_B = 0.05\text{A}$	$V_{CE (sat)}^*$	Maximum	0.5	
Base-Emitter On Voltage $I_C = 0.5\text{A}; V_{CE} = 2\text{V}$	$V_{BE (on)}^*$		1.0	
DC Current Gain $I_C = 0.15\text{A}; V_{CE} = 2\text{V}^{**}$	$h_{FE}^*$	Minimum Maximum	40 250	-

### \*\* $h_{FE}$ Classification:

-6	Minimum	40
	Maximum	100
-10	Minimum	63
	Maximum	160
-16	Minimum	100
	Maximum	250
-25	Minimum	160
	Maximum	400

\* Pulse Test: Pulse Width =  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

### Specifications

$I_C (av)$ Maximum (A)	$V_{CEO}$ Maximum (V)	$h_{FE}$ Minimum at $I_C = 0.15\text{mA}$	$P_{tot}$ at $25^{\circ}\text{C}$ (mW)	Plastic Package	Type	Part Number
1.5	80	40	12.5	TO-126	PNP	BD140



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### Notes:

### International Sales Offices:

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