

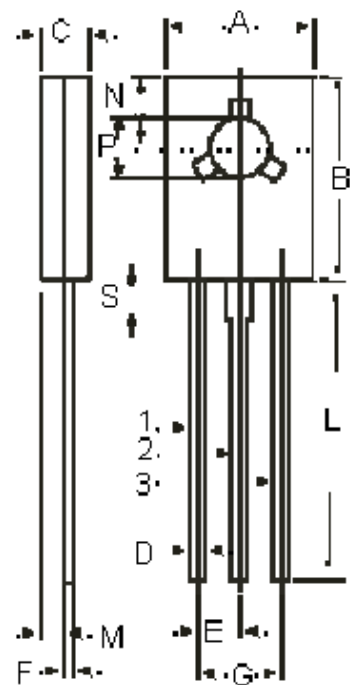
TO-126 NPN Transistors



Features:

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

TO-126 Plastic Package

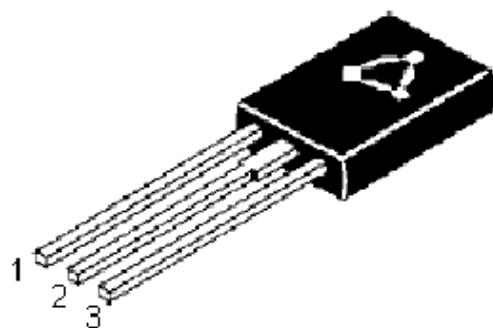


Dimensions	Minimum	Maximum
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 (Typical)	
F	0.49	0.75
G	4.5 (Typical)	
L	15.7 (Typical)	
M	1.27 (Typical)	
N	3.75 (Typical)	
P	3.0	3.2
S	2.5 (Typical)	

Dimensions : Millimetres

Pin Configuration:

1. Emitter
2. Collector
3. Base



Absolute Maximum Ratings

-	Symbol	-	TBD135	TBD139	Unit
Collector-Base Voltage (Open Emitter)	V_{CBO}	maximum	45	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	-	TBD135	TBD139	Unit
Collector-Base Voltage (Open Emitter)	V _{CBO}	maximum	45	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°C Derate above 25°C	P _{tot}		1.25 10		W mW/°C
Total Power Dissipation up to T _C = 25°C Derate above 25°C			12.5 100		
Junction Temperature	T _j		150		°C
Storage Temperature	T _{stg}	-	-65 to +150		
Thermal Resistance					
From Junction to Case	R _{th (j-c)}	-	-	10	°C/W
From Junction to Ambient	R _{th (j-a)}	-	-	100	

TBD135, 139



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

-	Symbol	-	TBD135	TBD139	Unit
Collector Cut off Current $I_E = 0; V_{CB} = 30V$ $I_E = 0; V_{CB} = 30V; T_C = 125^{\circ}C$	I_{CBO}	maximum	0.1 10		μA
Emitter Cut off Current $I_C = 0; V_{EB} = 5V$	I_{EBO}		10		
Breakdown Voltages $I_C = 0.03A; I_B = 0$ $I_C = 1mA; I_E = 0$ $I_E = 1mA; I_C = 0$	$V_{CEO(sus)}^*$ V_{CBO} V_{EBO}	minimum	45 45 5.0	40 100 5.0	V
Saturation Voltage $I_C = 0.5A; I_B = 0.05A$	$V_{CE(sat)}^*$	maximum	0.5		
Base-Emitter On Voltage $I_C = 0.5A; V_{CE} = 2V$	$V_{BE(on)}^*$		1.0		
DC Current Gain $I_C = 0.15A; V_{CE} = 2V^*$ $I_C = 0.15A; V_{CE} = 2V^{**}$ $I_C = 0.15A; V_{CE} = 2V^*$	h_{FE}^*	minimum	25		-
		minimum	40		
		maximum	250		
		minimum	25		

** 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°C (mW)	Plastic Package	Type	Part Number
1	45	40	12.5	TO-126	NPN	TBD135
1.5	80					TBD139



Notes:

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