

BD139

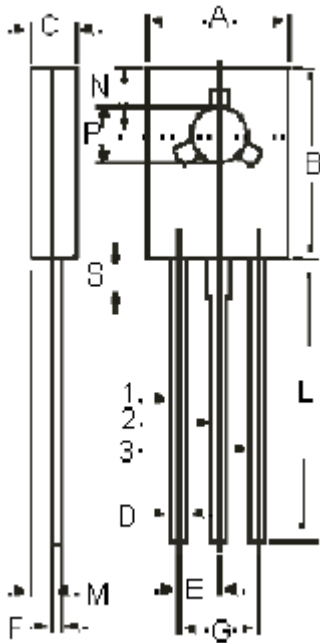
TO-126 NPN Transistors



Features:

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

TO-126 Plastic Package

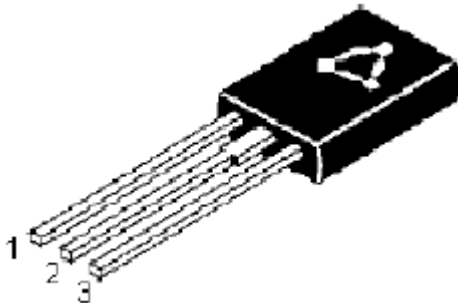


Dimensions	Minimum	Maximum
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 (Typical)	
F	0.49	0.75
G	4.5 (Typical)	
L	15.7 (Typical)	
M	1.27 (Typical)	
N	3.75 (Typical)	
P	3.0	3.2
S	2.5 (Typical)	

Dimensions : Millimetres

Pin Configuration:

1. Emitter
2. Collector
3. Base



Absolute Maximum Ratings

-	Symbol	-	BD139	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 $I_C = 0.5\text{A}$, $I_B = 0.05\text{A}$	$V_{CE}(\text{Sat})$		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	-	BD139	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°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	

BD139

TO-126 NPN Transistors



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

-	Symbol	-	BD139	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	μA
Emitter Cut off Current $I_C = 0; V_{EB} = 5\text{V}$	I_{EBO}		10	
Breakdown Voltages $I_C = 0.03\text{A}; I_B = 0$ $I_C = 1\text{mA}; I_E = 0$ $I_E = 1\text{mA}; I_C = 0$	$V_{CEO} (\text{Sus})^*$ V_{CBO} V_{EBO}	Minimum	40 100 5.0	V
Saturation Voltage $I_C = 0.5\text{A}; I_B = 0.05\text{A}$	$V_{CE} (\text{sat})^*$	Maximum	0.5	
Base-Emitter On Voltage $I_C = 0.5\text{A}; V_{CE} = 2\text{V}$	$V_{BE} (\text{on})^*$		1.0	
DC Current Gain $I_C = 0.15\text{A}; V_{CE} = 2\text{V}^*$ $I_C = 0.15\text{A}; V_{CE} = 2\text{V}^{**}$ $I_C = 0.15\text{A}; V_{CE} = 2\text{V}^*$	h_{FE}^*	Minimum	25	-
		Minimum Maximum	40 250	
		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
1.5	80	40	12.5	TO-126	NPN	BD139



BD139

TO-126 NPN Transistors



Notes:

International Sales Offices:



AUSTRALIA – Farnell

Tel No: ++61 1300 361 005
Fax No: ++61 1300 361 225



FINLAND – Farnell

Tel No: ++358 9 560 7780
Fax No: ++358 9 345 5411



ITALY – Farnell

Tel No: ++39 02 93 995 200
Fax No: ++39 02 93 995 300



SPAIN – Farnell

Tel No: 901 20 20 80
Fax No: 901 20 20 90



AUSTRIA – Farnell

Tel No: ++43 662 2180 680
Fax No: ++43 662 2180 670



FRANCE – Farnell

Tel No: ++33 474 68 99 99
Fax No: ++33 474 68 99 90



MALAYSIA – Farnell-Newark

Tel No: ++60 3 7873 8000
Fax No: ++60 3 7873 7000



SWEDEN – Farnell

Tel No: ++46 8 730 50 00
Fax No: ++46 8 83 52 62



BELGIUM – Farnell

Tel No: ++32 3 475 2810
Fax No: ++32 3 227 3648



GERMANY – Farnell

Tel No: ++49 89 61 39 39 39
Fax No: ++49 89 613 59 01



NETHERLANDS – Farnell

Tel No: ++31 30 241 7373
Fax No: ++31 30 241 7333



SWITZERLAND – Farnell

Tel No: ++44 204 64 64
Fax No: ++44 204 64 54



BRAZIL – Farnell-Newark

Tel No: ++55 11 4066 9400
Fax No: ++55 11 4066 9410



HONG KONG – Farnell-Newark

Tel No: ++852 2268 9888
Fax No: ++852 2268 9899



NEW ZEALAND – Farnell

Tel No: 0800 90 80 80
Fax No: 0800 90 80 81



UK – Farnell

Tel No: ++44 8701 200 200
Fax No: ++44 8701 200 201



CHINA – Farnell-Newark

Tel No: ++86 10 6238 5152
Fax No: ++86 10 6238 5022



HUNGARY – Farnell

Tel No: ++44 870 1200 208
Fax No: ++44 870 1200 209



NORWAY – Farnell

Tel No: 800 146 70
Fax No: 800 146 76



UK – CPC

++44 8701 202 530
++44 8701 202 531



CZECH REPUBLIC – Farnell

Tel No: ++44 870 1200 208
Fax No: ++44 870 1200 209



INDIA – Farnell

Tel No: ++44 870 1200 208
Fax No: ++44 870 1200 209



PORTUGAL – Farnell

Tel No: ++34 93 475 8804
Fax No: ++34 93 474 5288



USA – Newark

Tel No: 800 463 9275



DENMARK – Farnell

Tel No: ++45 44 53 66 44
Fax No: ++45 44 53 66 06



IRELAND – Farnell

Tel No: ++353 1 830 9277
Fax No: ++353 1 830 9016



RUSSIA – Farnell

Tel No: ++44 870 1200 208
Fax No: ++44 870 1200 209



EXPORT – Farnell

Tel No: ++44 8701 200 208
Fax No: ++44 8701 200 209

For enquiries from all other markets



ESTONIA – Farnell

Tel No: ++358 9 560 7780
Fax No: ++358 9 345 5411



ISRAEL – Farnell

Tel No: ++180 937 0015
Fax No: ++180 937 0014



SINGAPORE – Farnell-Newark

Tel No: ++65 6788 0200
Fax No: ++65 6788 0300

<http://www.farnell.com>
<http://www.newark.com>
<http://www.cpc.co.uk>

Disclaimer This data sheet and its contents (the "Information") belong to the Premier Farnell Group (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. SPC Multicomp is the registered trademark of the Group. © Premier Farnell plc 2008.

