

BD139

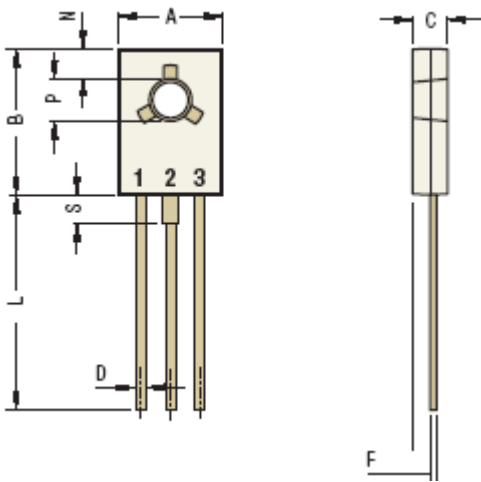


TO-126 NPN Transistors

NPN Epitaxial Silicon Power Transistors

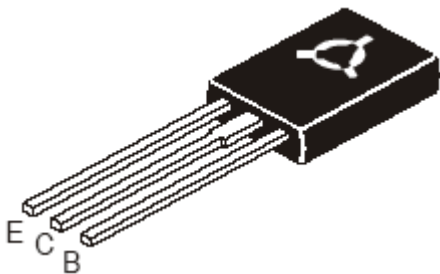


TO126
Plastic Package



Dimensions	Minimum	Maximum
A	7.2	8.38
B	10.16	11.43
C	2.29	3.04
D	0.64	0.88
E	2.040	2.285
F	0.39	0.63
G	4.07	5.08
L	15.00	16.63
M	0.89	1.65
N	3.31	4.44
P	2.54	3.30
S	-	2.54

Dimensions : Millimetres



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings

Description	Symbol	BD139	Unit
Collector-emitter voltage	V_{CEO}	80	V
Collector-emitter voltage ($R_{BE} = 1k\Omega$)	V_{CER}	100	
Collector-base voltage	V_{CBO}		
Emitter base voltage	V_{EBO}	5.0	
Collector current	I_C	1.5	A
Collector peak current	I_{CM}	2.0	
Base current	I_B	0.5	
Power dissipation at $T_a = 25^\circ C$ Derate above $25^\circ C$	P_D	1.25 10	W mW/ $^\circ C$
Power dissipation at $T_c = 25^\circ C$ Derate above $25^\circ C$	P_D	12.5 100	W mW/ $^\circ C$
Power dissipation at $T_c = 70^\circ C$	P_D	8.0	W
Operating and storage junction Temperature range	T_j, T_{stg}	-55 to +150	$^\circ C$

Thermal Characteristics

Junction to ambient in free air	$R_{th(j-a)}$	100	$^\circ C/W$
Junction to case	$R_{th(j-c)}$	10	$^\circ C/W$

Electrical characteristics ($T_c = 25^\circ C$ unless specified otherwise)

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector emitter sustaining voltage	$*V_{CEO(sus)}$	$I_C = 30mA, I_B = 0$ BD139	80		V
Collector cut off current	I_{CBO}	$V_{CB} = 30V, I_E = 0$		0.1	μA
		$V_{CB} = 30V, I_E = 0,$ $T_c = 125^\circ C$		10	
Emitter cut off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			
DC current gain	$*h_{FE}$	$I_C = 0.005A, V_{CE} = 2V$	25	250	-
		$I_C = 0.15A, V_{CE} = 2V$	40		
		$I_C = 0.5A, V_{CE} = 2V$	25		

*Pulse test: -Pulse width=300ms, duty cycle = 2%.

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

Description	Symbol	Test Condition	Minimum	Maximum	Unit
DC Current Gain	* h_{FE} Group	$I_C = 0.15\text{A}, V_{CE} = 2\text{V}$			
		- 6	40	100	-
		- 10	63	160	
		- 16	100	250	
		- 25	160	400	
Collector emitter saturation voltage	* $V_{CE(sat)}$	$I_C = 0.5\text{A}, I_B = 0.05\text{A}$	-	0.5	
Base emitter on voltage	* $V_{BE(on)}$	* $I_C = 0.5\text{A}, V_{CE} = 2\text{V}$	-	1.0	

Part Number Table

Description	Part Number
NPN Epitaxial Silicon Power Transistors	BD139-10

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