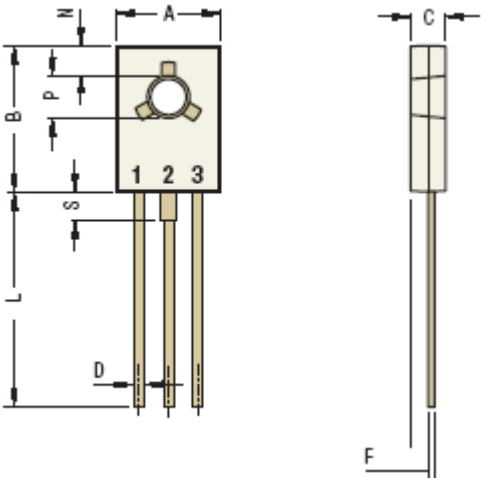
BD139

TO-126 NPN Transistors

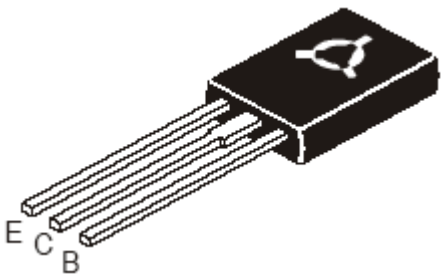
NPN Epitaxial Silicon Power Transistors

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

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Absolute Maximum Ratings

Description	Symbol	BD139	Unit
Collector-emitter voltage	V_{CEO}	80	V
Collector-emitter voltage (R_{BE} = 1kΩ)	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°C Derate above 25°C	P_D	1.25 10	W mW/ºC
Power dissipation at T_c = 25°C Derate above 25°C	P_D	12.5 100	W mW/ºC
Power dissipation at T_c = 70ºC	P_D	8.0	W
Operating and storage junction Temperature range	T_j, T_{stg}	-55 to +150	°C

Thermal Characteristics

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

Electrical characteristics (T_c = 25°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 = 125ºC		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 I_C = 0.15A, V_{CE} = 2V I_C = 0.5A, V_{CE} = 2V	25 40 25	250	-

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

Electrical Characteristics (T_c = 25°C unless specified otherwise)

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

Part Number Table

Description	Part Number
NPN Epitaxial Silicon Power Transistors	BD139-10