

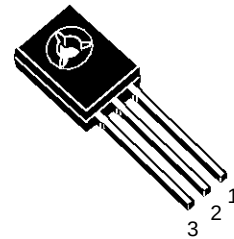
PNP SILICON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- PNP TRANSISTOR

DESCRIPTION

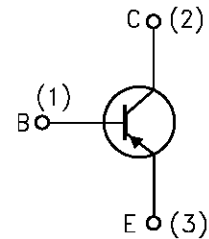
The BD136, BD138 and BD140 are silicon epitaxial planar PNP transistors in Jedec SOT-32 plastic package, designed for audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

The complementary NPN types are the BD135, BD137 and BD139.



SOT-32

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BD136	BD138	BD140	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	-45	-60	-80	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	-45	-60	-80	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	-5			V
I_C	Collector Current	-1.5			A
I_{CM}	Collector Peak Current	-3			A
I_B	Base Current	-0.5			A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ\text{C}$	12.5			W
P_{tot}	Total Dissipation at $T_{amb} \leq 25^\circ\text{C}$	1.25			W
T_{stg}	Storage Temperature	-65 to 150			$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	150			$^\circ\text{C}$

BD136/BD138/BD140

THERMAL DATA

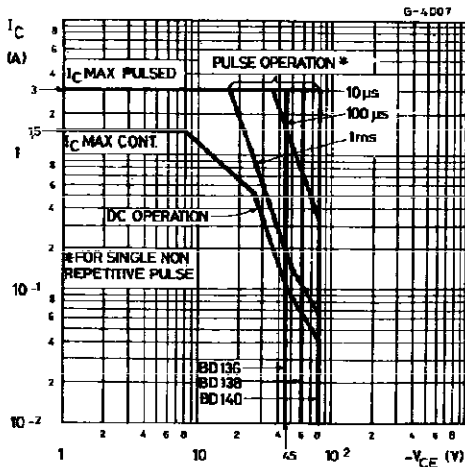
R _{thj-case}	Thermal Resistance Junction-case	Max	10	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CB} = -30 V V _{CB} = -30 V T _C = 125 °C			-0.1 -10	μA μA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = -5 V			-10	μA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage	I _C = -30 mA for BD136 for BD138 for BD140	-45 -60 -80			V V V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = -0.5 A I _B = -0.05 A			-0.5	V
V _{BE*}	Base-Emitter Voltage	I _C = -0.5 A V _{CE} = -2 V			-1	V
h _{FE*}	DC Current Gain	I _C = -5 mA V _{CE} = -2 V I _C = -0.5 A V _{CE} = -2 V I _C = -150 mA V _{CE} = -2 V	25 25 40		250	
h _{FE}	h _{FE} Groups	I _C = -150 mA V _{CE} = -2 V for BD140 group 10	63		160	

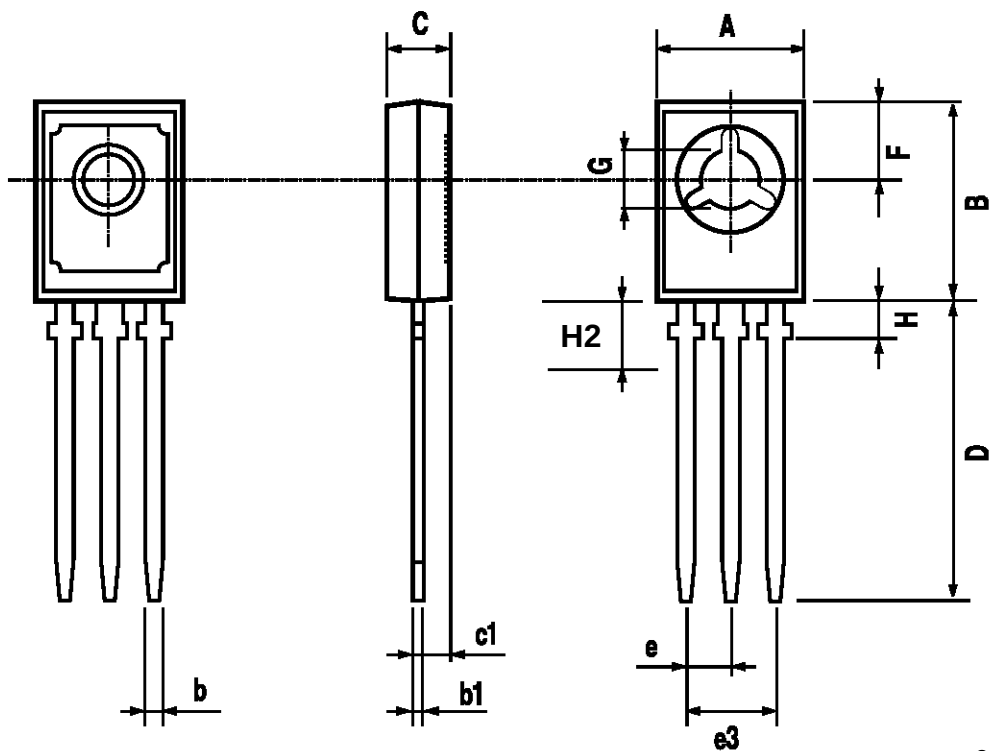
* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

Safe Operating Areas



SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.445
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.040		0.106
c1	1.0		1.3	0.039		0.050
D	15.4		16.0	0.606		0.629
e		2.2			0.087	
e3	4.15		4.65	0.163		0.183
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084	



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