

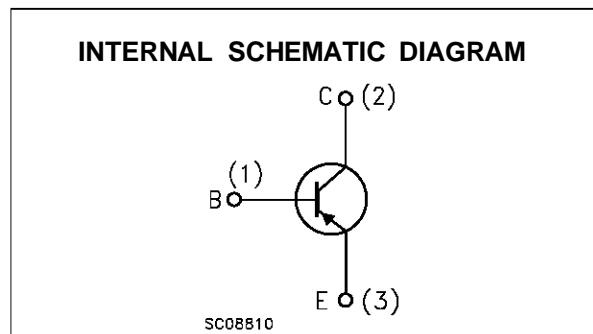
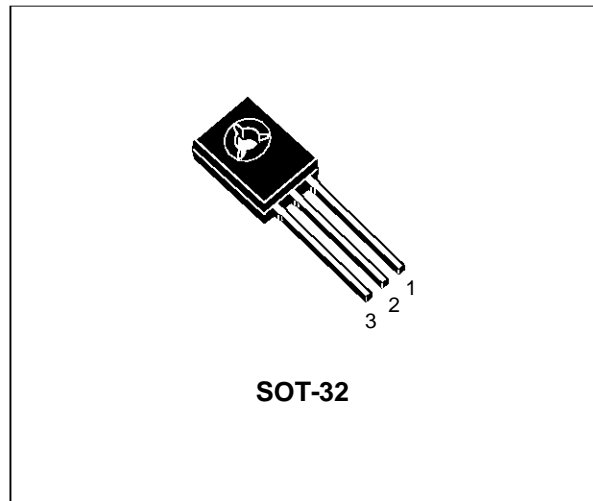
PNP SILICON TRANSISTORS

- 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.



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

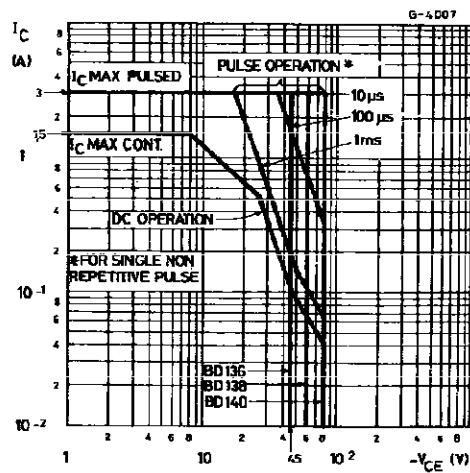
$R_{thj-case}$	Thermal Resistance Junction-case	Max	10	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = -30 V$ $V_{CB} = -30 V \quad T_C = 125^{\circ}C$			-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	$I_C = -0.5 A \quad I_B = -0.05 A$			-0.5	V
V_{BE}^*	Base-Emitter Voltage	$I_C = -0.5 A \quad V_{CE} = -2 V$			-1	V
h_{FE}^*	DC Current Gain	$I_C = -5 mA \quad V_{CE} = -2 V$ $I_C = -0.5 A \quad V_{CE} = -2 V$ $I_C = -150 mA \quad V_{CE} = -2 V$	25 25 40		250	
h_{FE}	h_{FE} Groups	$I_C = -150 mA \quad V_{CE} = -2 V$ for BD140 group 10	63		160	

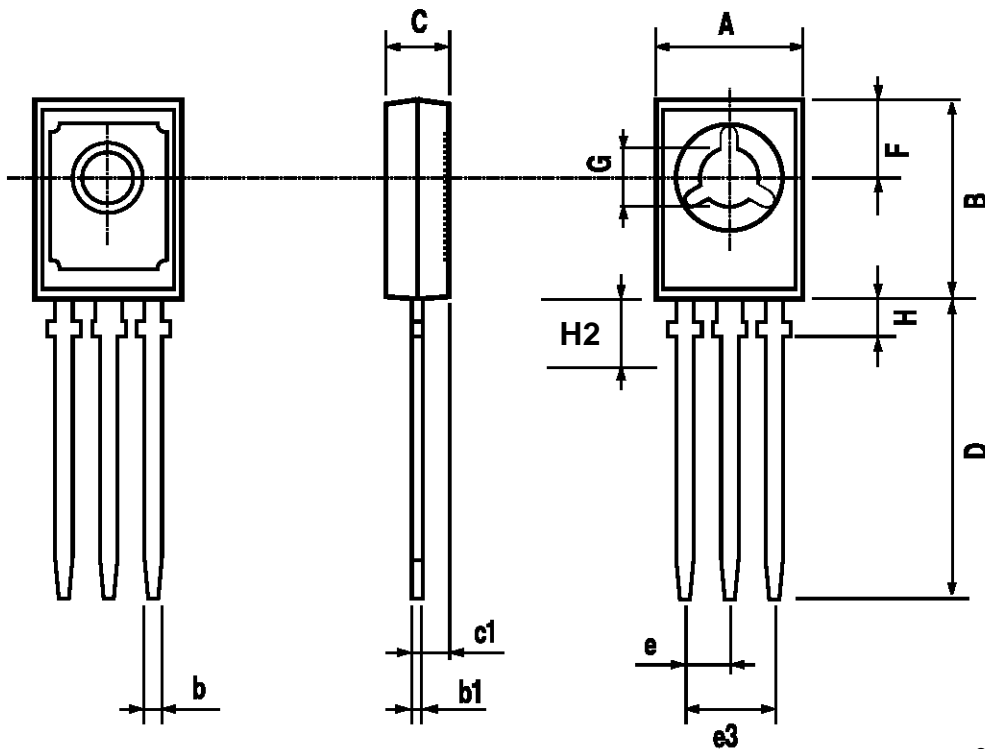
* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

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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