

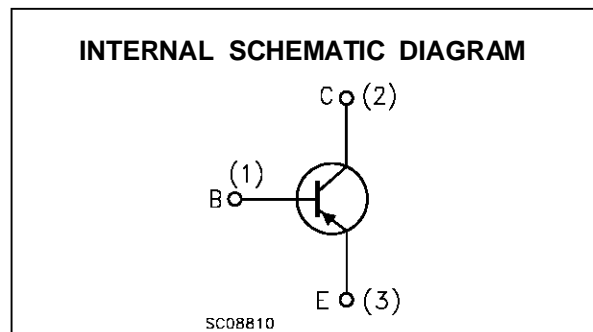
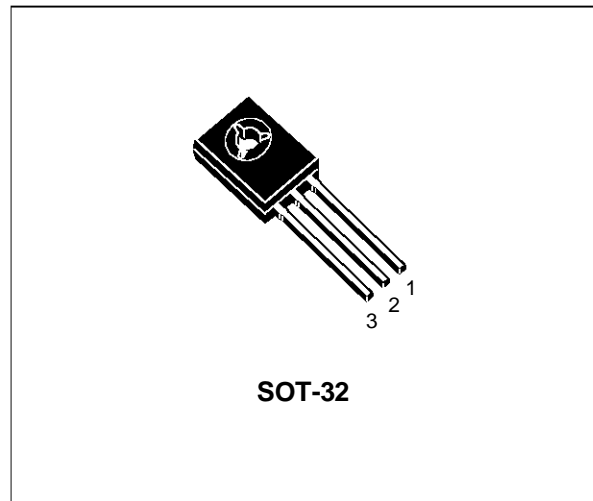
## PNP SILICON TRANSISTOR

### ■ SGS-THOMSON PREFERRED SALESTYPES

#### 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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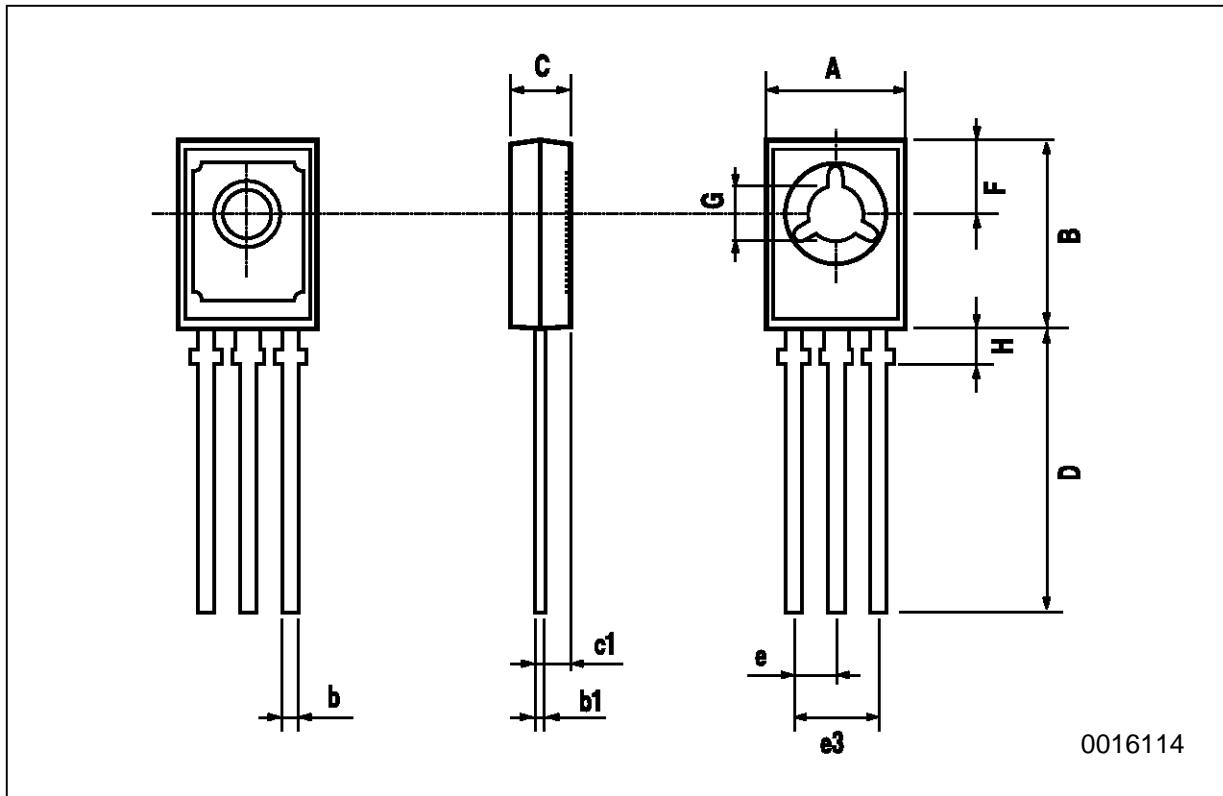
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

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	$\mu A$ $\mu A$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -5 V$			-10	$\mu A$
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage	$I_C = -30 mA$ for <b>BD136</b> for <b>BD138</b> for <b>BD140</b>	-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  $\mu s$ , duty cycle 1.5 %

## SOT-32 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	0.04		0.106
c1		1.2			0.047	
D		15.7			0.618	
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100



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