BD135
BD137/BD139

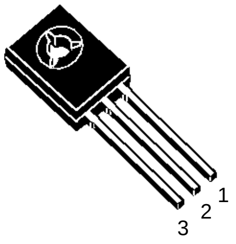
NPN SILICON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

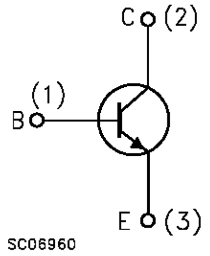
The BD135, BD137 and BD139 are silicon epitaxial planar NPN transistors in Jedec SOT-32 plastic package, designed for audio amplifiers and drivers utilizing complementary or quasi compementary circuits.

The complementary PNP types are the BD136 BD138 and BD140.



SOT-32

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BD135	BD137	BD139	
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 $T_c \leq 25$ °C	12.5			W
P_{tot}	Total Dissipation at $T_{amb} \leq 25$ °C	1.25			W
T_{stg}	Storage Temperature	-65 to 150			°C
T_j	Max. Operating Junction Temperature	150			°C

THERMAL DATA

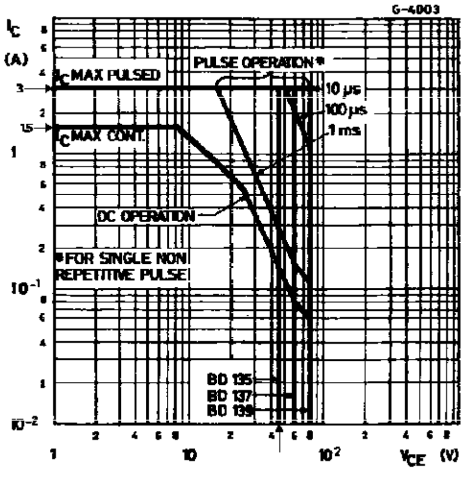
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	10	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC 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 ^oC			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 **BD135** for **BD137** for **BD139**	 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 BD139 group 10	 63		 160	

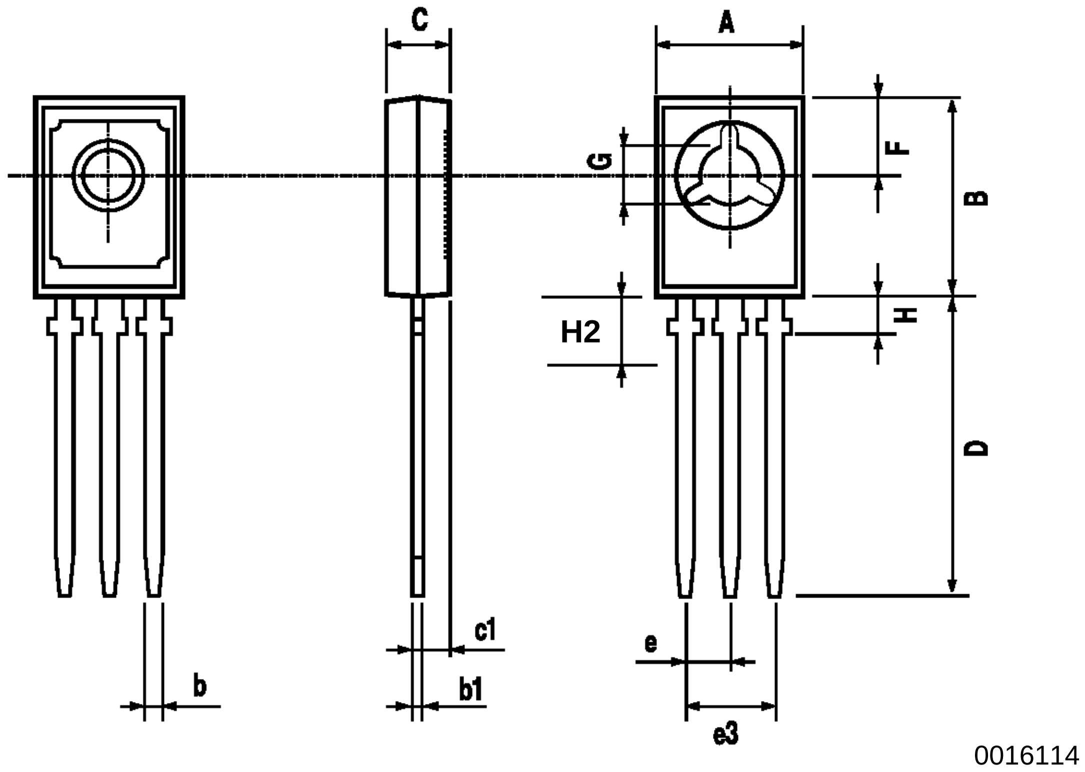
∗ Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %

Safe Operating Area



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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