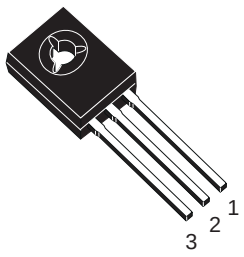
BD136
BD138/BD140

PNP SILICON TRANSISTORS

Type	Marking
BD136	BD136
BD136-10	BD136-10
BD136-16	BD136-16
BD138	BD138
BD140	BD140
BD140-10	BD140-10
BD140-16	BD140-16

- STMicroelectronics PREFERRED SALESTYPES
- PNP TRANSISTOR



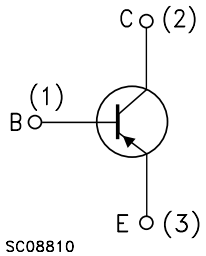
SOT-32

DESCRIPTION

The BD136, BD138 and BD140 are silicon Epitaxial Planar PNP transistors mounted 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.

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 $T_c \leq 25\ ^oC$	12.5			W
P_{tot}	Total Dissipation at $T_{amb} \leq 25\ ^oC$	1.25			W
T_{stg}	Storage Temperature	-65 to 150			^oC
T_j	Max. Operating Junction Temperature	150			^oC

THERMAL DATA

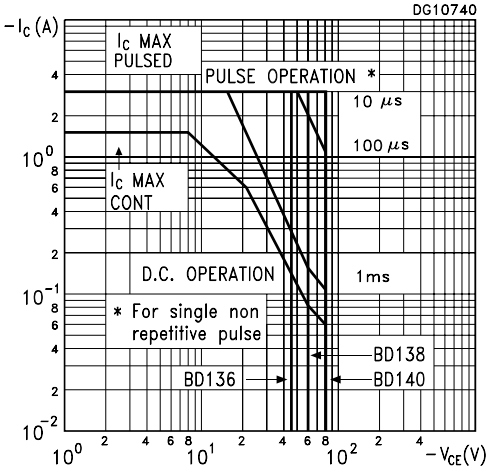
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	10	$^oC/W$

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_B = 0)	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 = -150 mA V_{CE} = -2 V I_C = -0.5 A V_{CE} = -2 V	25 40 25		 250	
h_{FE}	h_{FE} Groups	I_C = -150 mA V_{CE} = -2 V for **BD136/BD140** group-10 for **BD136/BD140** group-16	 63 100		 160 250	

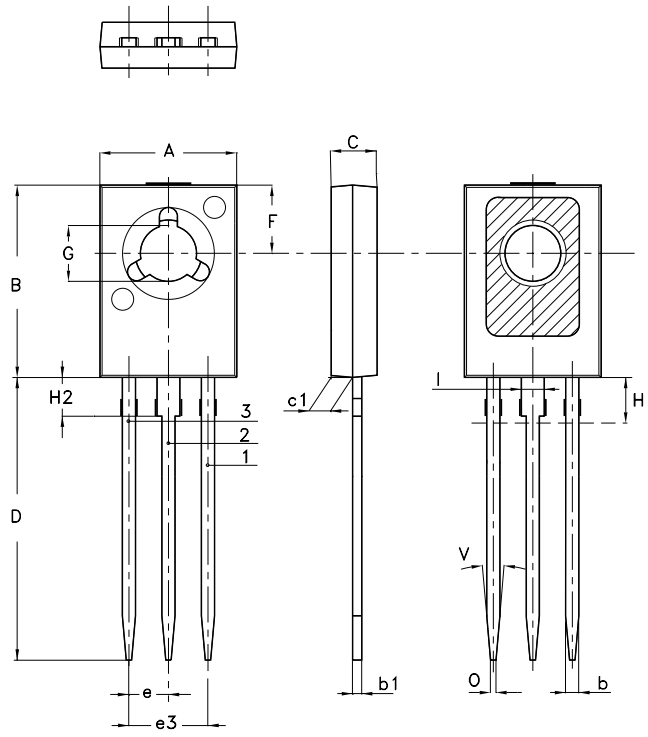
* Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %

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		0.425
b	0.7		0.9	0.028		0.035
b1	0.40		0.65	0.015		0.025
C	2.4		2.7	0.094		0.106
c1	1.0		1.3	0.039		0.051
D	15.4		16.0	0.606		0.630
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
H2		2.15			0.084	
I		1.27			0.05	
O		0.3			0.011	
V		10^o			10^o	



1: Base
2: Collector
3: Emitter

0016114/B

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BD138