



PNP SILICON TRANSISTORS

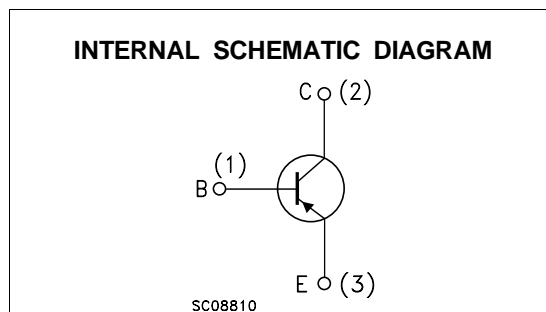
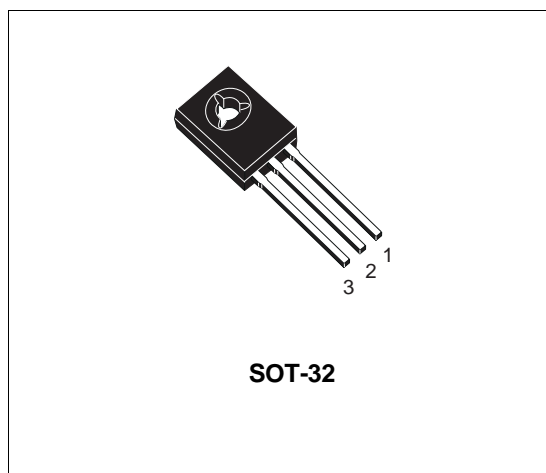
Type	Marking
BD136	BD136
BD136-10	BD136-10
BD136-16	BD136-16
BD138	BD138
BD140	BD140
BD140-10	BD140-10
BD140-16	BD140-16

- STMicroelectronics PREFERRED SALESTYPES
- PNP TRANSISTOR

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.



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 $T_c \leq 25\text{ }^\circ\text{C}$	12.5			W
P_{tot}	Total Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$	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

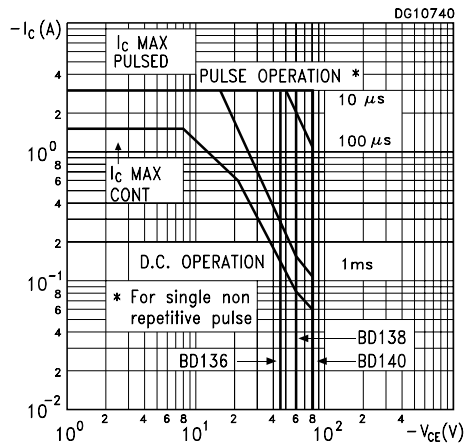
$R_{thj-case}$	Thermal Resistance Junction-case	Max	10	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = -30 V$ $V_{CB} = -30 V$ $T_C = 125^{\circ}C$			-0.1 -10	μA μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = -5 V$			-10	μA
$V_{CE(sus)}^*$	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	

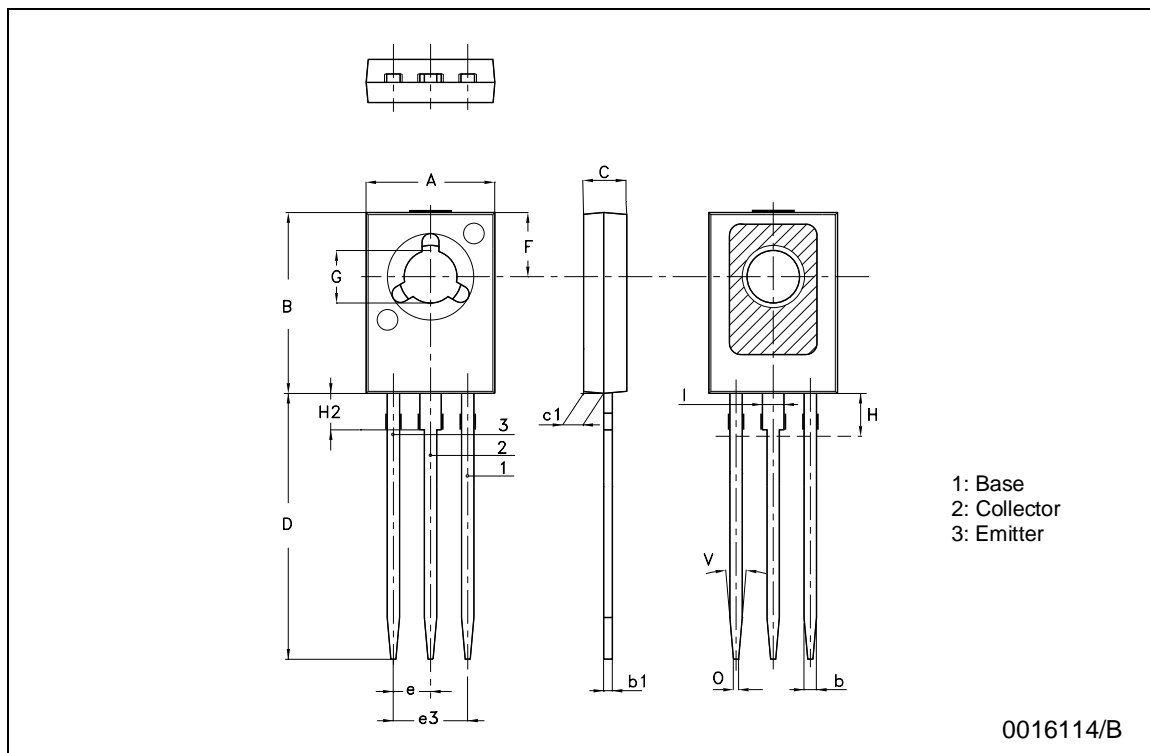
* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

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°			10°	



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