

# BD136 BD138/BD140

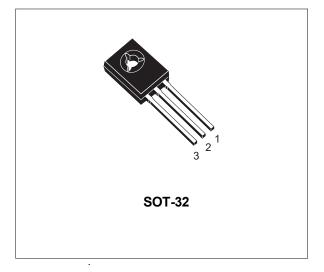
# PNP SILICON TRANSISTORS

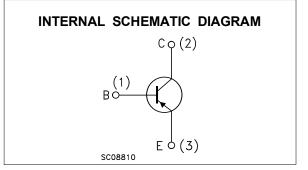
Туре	Marking
BD136	BD136
BD136-10	BD136-10
BD136-16	BD136-16
BD138	BD138
BD140	BD140
BD140-10	BD140-10
BD140-16	BD140-16

- 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		
		BD136	BD138	BD140	
Vсво	Collector-Base Voltage (I <sub>E</sub> = 0)	-45	-60	-80	V
VCEO	Collector-Emitter Voltage (I <sub>B</sub> = 0)	-45	-60	-80	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)		-5		V
Ιc	Collector Current	-1.5		A	
Ісм	Collector Peak Current		-3		Α
Ι <sub>Β</sub>	Base Current		-0.5		Α
P <sub>tot</sub>	Total Dissipation at $T_c \le 25$ °C	12.5			W
P <sub>tot</sub>	Total Dissipation at $T_{amb} \le 25 \ ^{\circ}C$	1.25		W	
T <sub>stg</sub>	Storage Temperature	-65 to 150		°C	
Tj	Max. Operating Junction Temperature	150		°C	

### THERMAL DATA

R <sub>thj-case</sub> Thermal Resistance Junction-case	Max	10	°C/W
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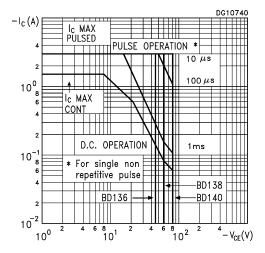
## **ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = -30 V V <sub>CB</sub> = -30 V T <sub>C</sub> = 125 °C			-0.1 -10	μΑ μΑ
I <sub>EBO</sub>	Emitter Cut-off Current $(I_C = 0)$	V <sub>EB</sub> = -5 V			-10	μA
$V_{CEO(sus)^*}$	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = -30 mA for <b>BD136</b> for <b>BD138</b> for <b>BD140</b>	-45 -60 -80			V V V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -0.5 A I <sub>B</sub> = -0.05 A			-0.5	V
$V_{BE}*$	Base-Emitter Voltage	I <sub>C</sub> = -0.5 A V <sub>CE</sub> = -2 V			-1	V
h <sub>FE</sub> *	DC Current Gain		25 40 25		250	
h <sub>FE</sub>	h <sub>FE</sub> Groups	I <sub>C</sub> = -150 mA V <sub>CE</sub> = -2 V for <b>BD136/BD140</b> group-10 for <b>BD136/BD140</b> group-16	63 100		160 250	

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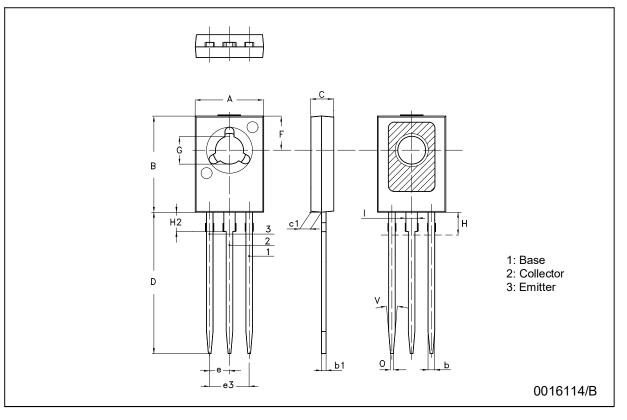
\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

### Safe Operating Areas



DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	7.4		7.8	0.291		0.307
В	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
С	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
е		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
Н			2.54			0.100
H2		2.15			0.084	
1		1.27			0.05	
0		0.3			0.011	
V		10 <sup>°</sup>			10°	





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