

## PNP power transistors

### FEATURES

- High current (max. 1.5 A)
- Low voltage (max. 80 V).

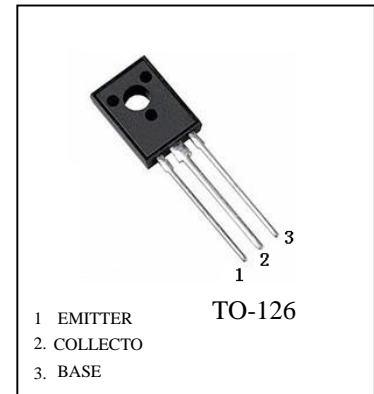
### APPLICATIONS

- General purpose power applications, e.g. driver stages in hi-fi amplifiers and television circuits.

### DESCRIPTION

PNP power transistor in a TO-126; SOT32 plastic package. NPN complements: BD135, BD137 and BD139.

## BD136;BD138;BD140



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BD136		–	–45	V
	BD138		–	–60	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BD136		–	–45	V
	BD138		–	–60	V
	BD140		–	–80	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–5	V
I <sub>C</sub>	collector current (DC)		–	–1.5	A
I <sub>CM</sub>	peak collector current		–	–2	A
I <sub>BM</sub>	peak base current		–	–1	A
P <sub>tot</sub>	total power dissipation	T <sub>mb</sub> ≤ 70 °C	–	8	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

## BD136;BD138;BD140

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	100	K/W
$R_{th\ j-mb}$	thermal resistance from junction to mounting base		10	K/W

#### Note

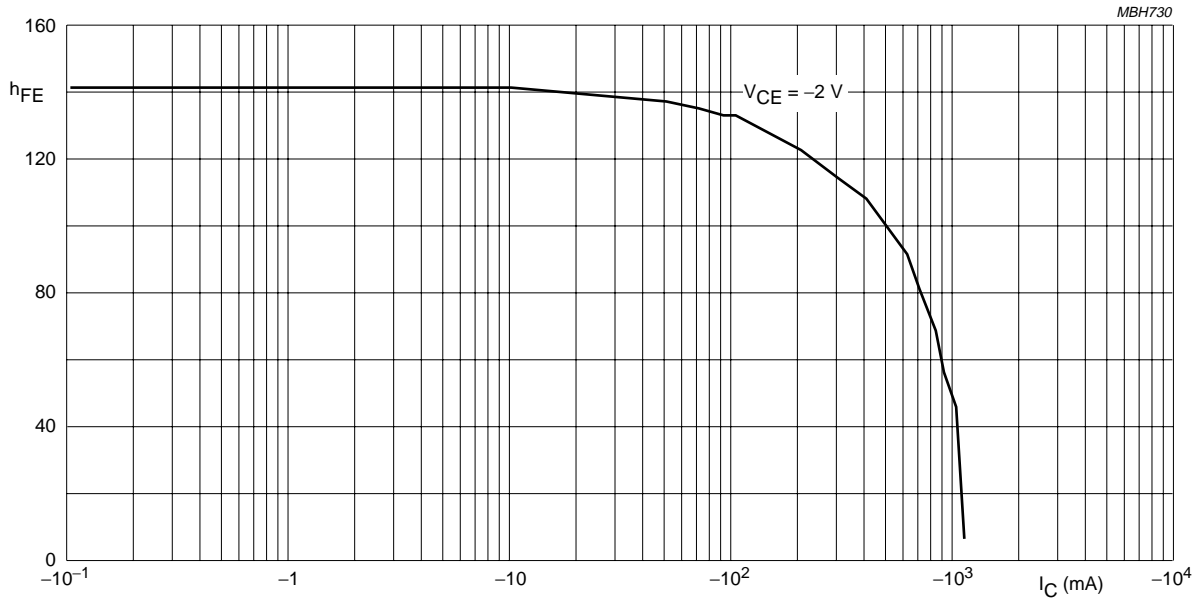
1. Refer to TO-126 (SOT32) standard mounting conditions.

### CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = -30\text{ V}$	–	–	–100	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 125\text{ }^\circ\text{C}$	–	–	–10	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–	–100	nA
$h_{FE}$	DC current gain	$V_{CE} = -2\text{ V};$ (see Fig.2)				
		$I_C = -5\text{ mA}$	40	–	–	
		$I_C = -150\text{ mA}$	63	–	250	
	$I_C = -500\text{ mA}$	25	–	–		
	DC current gain BD136-10; BD138-10; BD140-10 BD136-16; BD138-16; BD140-16	$I_C = -150\text{ mA}; V_{CE} = -2\text{ V};$ (see Fig.2)	63	–	160	
			100	–	250	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -500\text{ mA}; I_B = -50\text{ mA}$	–	–	–0.5	V
$V_{BE}$	base-emitter voltage	$I_C = -500\text{ mA}; V_{CE} = -2\text{ V}$	–	–	–1	V
$f_T$	transition frequency	$I_C = -50\text{ mA}; V_{CE} = -5\text{ V};$ $f = 100\text{ MHz}$	–	160	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$ I_C  = 150\text{ mA};  V_{CE}  = 2\text{ V}$	–	1.3	1.6	

## BD136;BD138;BD140



DC current gain; typical values.