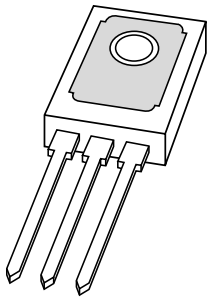


DATA SHEET



BD230 NPN power transistor

Product specification
Supersedes data of 1997 Mar 06

1999 Apr 21

NPN power transistor

BD230

FEATURES

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

APPLICATIONS

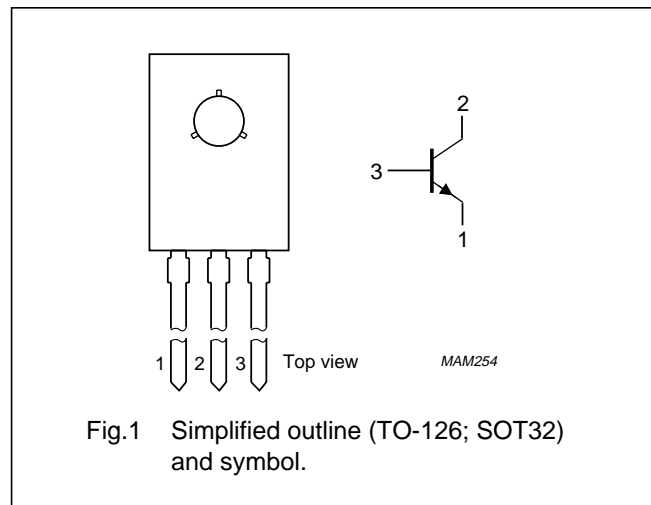
- Driver stages in television circuits.

DESCRIPTION

NPN power transistor in a TO-126; SOT32 plastic package. PNP complement: BD231.

PINNING

PIN	DESCRIPTION
1	emitter
2	collector, connected to metal part of mounting surface
3	base



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	100	V
V_{CEO}	collector-emitter voltage	open base	–	80	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	1.5	A
I_{CM}	peak collector current		–	3	A
I_{BM}	peak base current		–	1	A
P_{tot}	total power dissipation	$T_{mb} \leq 62\text{ °C}$	–	12.5	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

NPN power transistor

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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		7	K/W

Note

1. Refer to TO-126; SOT32 standard mounting conditions.

CHARACTERISTICS

$T_j = 25\text{ °C}$ 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
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 125\text{ °C}$	–	–	10	μA
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	–	–	
		$I_C = 150\text{ mA}$	40	–	250	
		$I_C = 1\text{ A}$	25	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 1\text{ A}; I_B = 0.1\text{ A}$	–	–	0.8	V
V_{BEsat}	base-emitter saturation voltage	$I_C = 1\text{ A}; I_B = 0.1\text{ A}$	–	–	1.2	V
V_{BE}	base-emitter voltage	$I_C = 1\text{ A}; V_{CE} = 2\text{ V};$ note 1	–	–	1.3	V
f_T	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	–	125	–	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	

Note

1. V_{BE} decreases by about 2.3 mV/K with increasing temperature.

NPN power transistor

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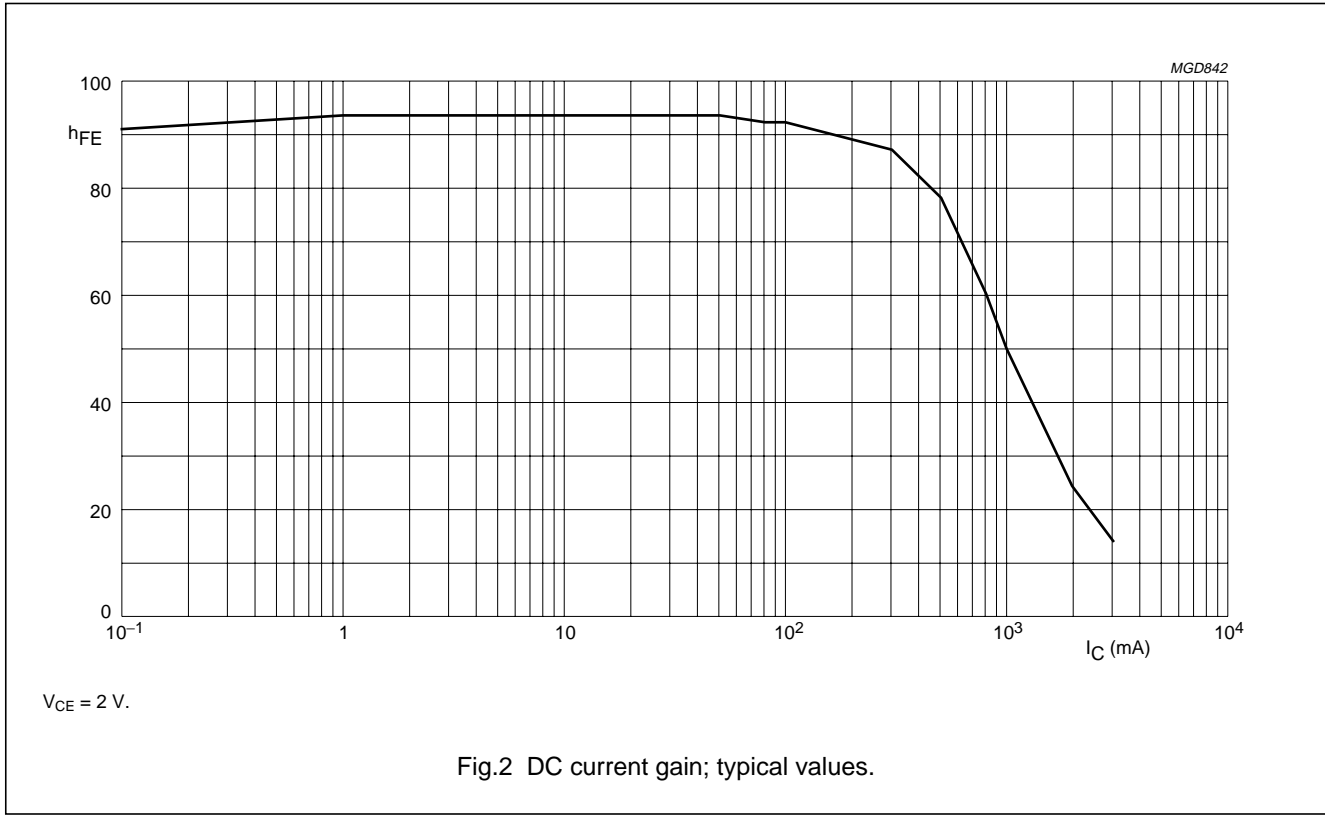


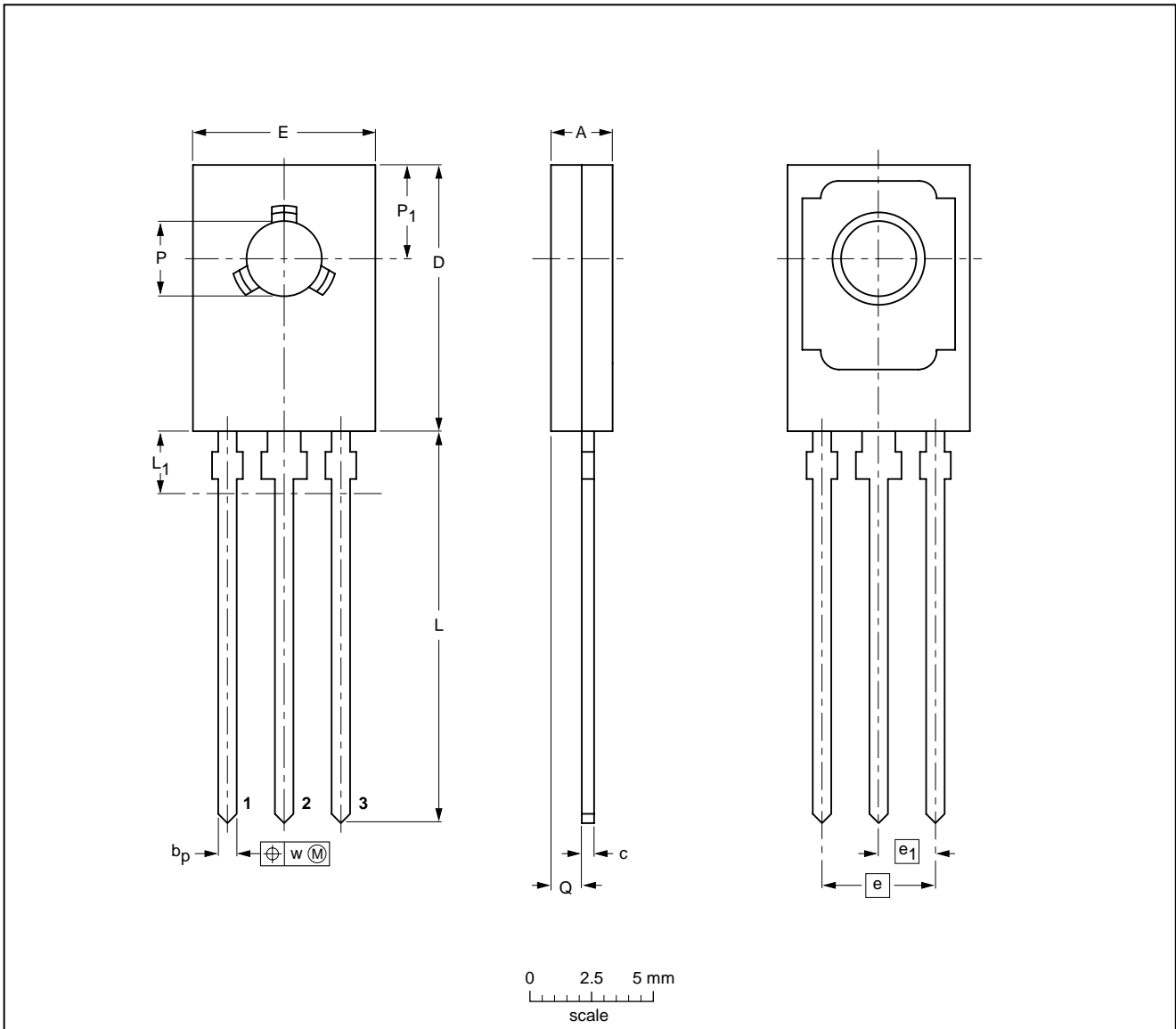
Fig.2 DC current gain; typical values.

NPN power transistor

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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; mountable to heatsink, 1 mounting hole; 3 leads SOT32



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	L	$L_1^{(1)}$ max	Q	P	P_1	w
mm	2.7 2.3	0.88 0.65	0.60 0.45	11.1 10.5	7.8 7.2	4.58	2.29	16.5 15.3	2.54	1.5 0.9	3.2 3.0	3.9 3.6	0.254

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT32		TO-126			97-03-04

NPN power transistor

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DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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NPN power transistor

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