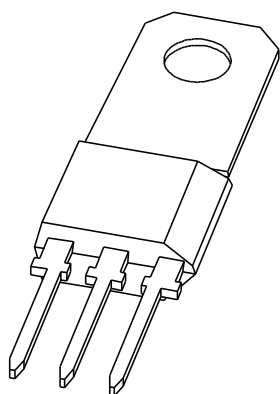


DATA SHEET



BF870; BF872 PNP high-voltage transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1996 Dec 09

PNP high-voltage transistors

BF870; BF872

FEATURES

- Low feedback capacitance.

APPLICATIONS

- For use in class-B video output stages of colour television receivers.

DESCRIPTION

PNP transistors in a TO-202 plastic package.
NPN complements: BF869 and BF871.

PINNING

PIN	DESCRIPTION
1	emitter
2	collector, connected to mounting base
3	base

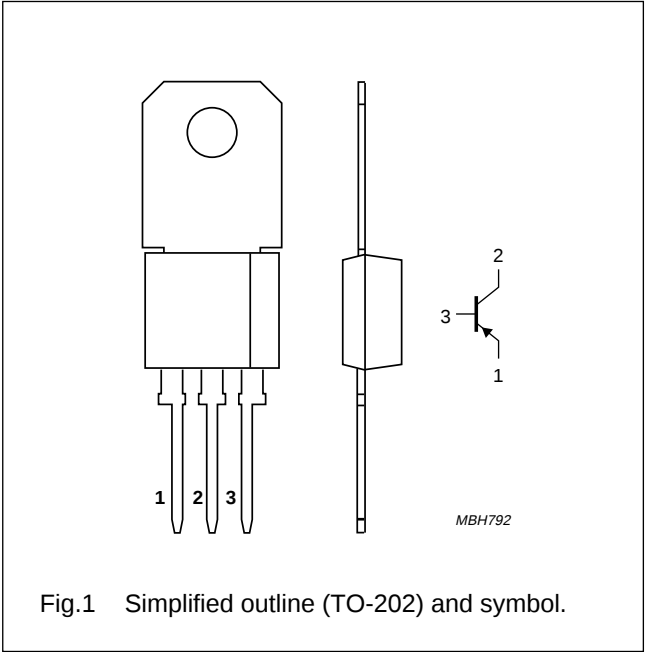


Fig.1 Simplified outline (TO-202) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	—	—250	V
	BF870			—300	V
V_{CEO}	collector-emitter voltage	open base	—	—250	V
	BF870			—300	V
I_{CM}	peak collector current		—	—100	mA
P_{tot}	total power dissipation	$T_{mb} \leq 25\text{ }^{\circ}\text{C}$	—	5	W
h_{FE}	DC current gain	$I_C = -25\text{ mA}; V_{CE} = -20\text{ V}; T_j = 25\text{ }^{\circ}\text{C}$	50	—	
C_{re}	feedback capacitance	$I_C = i_c = 0; V_{CE} = -30\text{ V}; f = 1\text{ MHz}$	—	2.2	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	60	—	MHz

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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage BF870 BF872	open emitter	–	–250	V
			–	–300	V
V_{CEO}	collector-emitter voltage BF870 BF872	open base	–	–250	V
			–	–300	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–50	nA
I_{CM}	peak collector current		–	–100	mA
I_{BM}	peak base current		–	–50	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	1.6	W
		$T_{mb} \leq 25\text{ °C}$	–	5	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	78	K/W
$R_{th\ j-mb}$	thermal resistance from junction to mounting base	25	K/W

CHARACTERISTICS

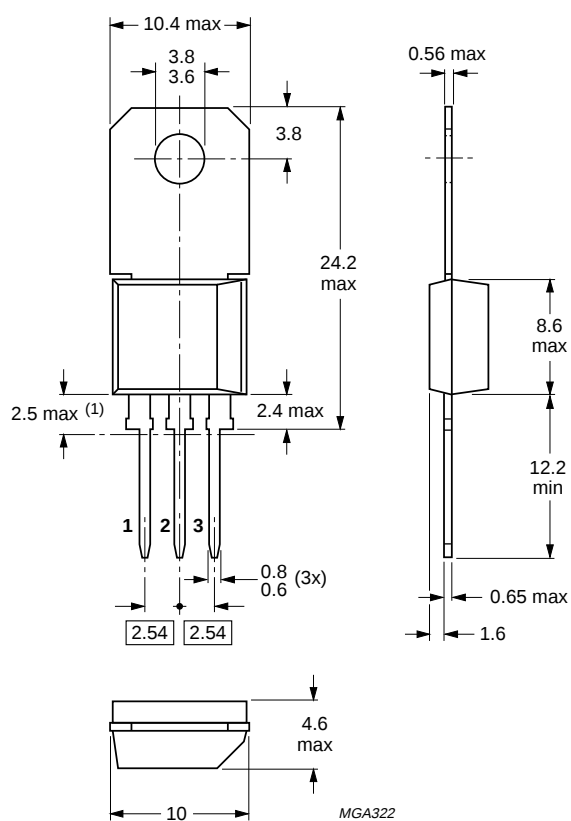
$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -200\text{ V}$	–	–10	nA
		$I_E = 0; V_{CB} = -200\text{ V}; T_j = 150\text{ °C}$	–	–10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–50	nA
h_{FE}	DC current gain	$I_C = -25\text{ mA}; V_{CE} = -20\text{ V}$	50	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -30\text{ mA}; I_B = -5\text{ mA}$	–	–600	mV
C_{re}	feedback capacitance	$I_C = i_c = 0; V_{CE} = -30\text{ V}; f = 1\text{ MHz}$	–	2.2	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	60	–	MHz

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PACKAGE OUTLINE



Dimensions in mm.

(1) Terminal dimensions within this zone are uncontrolled.

Fig.2 TO-202.

PNP high-voltage transistors

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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.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.