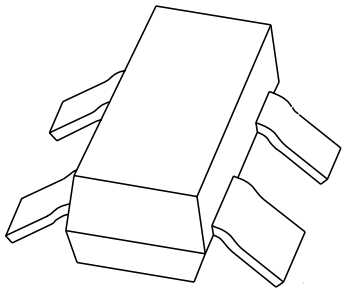
DATA SHEET



BCV62
PNP general purpose double transistor

Product specification
File under Discrete Semiconductors, SC04

1997 Jun 18

Philips Semiconductors

PHILIPS

PNP general purpose double transistor BCV62

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 30 V)
- Matched pair.

APPLICATIONS

- For use in applications where the working point must be independent of temperature
- Current mirrors.

DESCRIPTION

PNP double transistor in a SOT143B plastic package.
NPN complement: BCV61.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BCV62	3Mp	BCV62B	3Kp
BCV62A	3Jp	BCV62C	3Lp

PINNING

PIN	DESCRIPTION
1	collector TR2; base TR1 and TR2
2	collector TR1
3	emitter TR1
4	emitter TR2

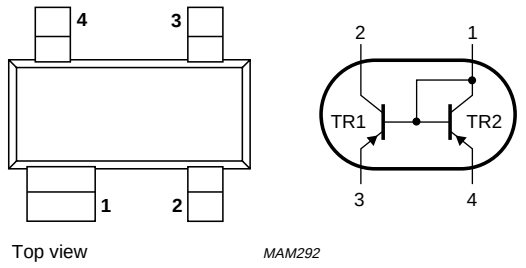


Fig.1 Simplified outline (SOT143B) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage TR1	open emitter	–	–30	V
V_{CEO}	collector-emitter voltage TR1	open base	–	–30	V
I_{CM}	peak collector current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	250	mW
h_{FE}	DC current gain	$I_C = -100$ μA; $V_{CE} = -5$ V	100	–	
f_T	transition frequency	$I_C = -10$ mA; $V_{CE} = -5$ V; f = 100 MHz	100	–	MHz

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage TR1	open emitter	–	–30	V
V_{CEO}	collector-emitter voltage TR1	open base	–	–30	V
V_{EBS}	emitter-base voltage	$V_{CE} = 0$	–	–6	V
I_C	collector current (DC)		–	–100	mA
I_{CM}	peak collector current		–	–200	mA
I_{BM}	peak base current TR1		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Device mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

1. Device mounted on an FR4 printed-circuit board.

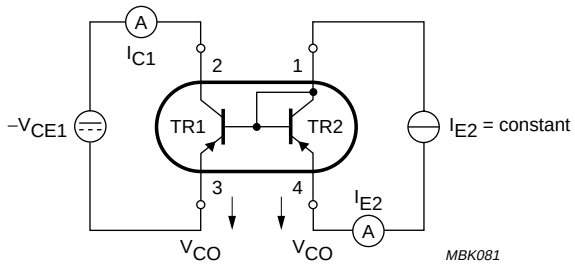
CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Transistor TR1						
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = –30 V	–	–	–15	nA
		I_E = 0; V_{CB} = –30 V; T_j = 150 °C	–	–	–5	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = –5 V	–	–	–100	nA
h_{FE}	DC current gain	I_C = –100 μA; V_{CE} = –5 V	100	–	–	
		I_C = –2 mA; V_{CE} = –5 V	100	–	800	
V_{CEsat}	collector-emitter saturation voltage	I_C = –10 mA; I_B = –0.5 mA	–	–75	–300	mV
		I_C = –100 mA; I_B = –5 mA	–	–250	–650	mV
V_{BEsat}	base-emitter saturation voltage	I_C = –10 mA; I_B =– 0.5 mA; note 1	–	–700	–	mV
		I_C = –100 mA; I_B = –5 mA; note 1	–	–850	–	mV
V_{BE}	base-emitter voltage	I_C = –2 mA; V_{CE} = –5 V; note 2	–600	–650	–750	mV
		I_C = –10 mA; V_{CE} = –5 V; note 2	–	–	–820	mV
C_c	collector capacitance	$I_E = i_e$ = 0; V_{CB} = –10 V	–	4.5	–	pF
f_T	transition frequency	I_C = –10 mA; V_{CE} = –5 V; f = 100 MHz	100	–	–	MHz
F	noise figure	I_C = –200 μA; V_{CE} = –5 V; R_S = 2 kΩ; f = 1 kHz; B = 200 Hz	–	–	10	dB
Transistor TR2						
V_{EBS}	base-emitter forward voltage	I_E = 250 mA; V_{CB} = 0	–	–	1.5	V
		I_E = 10 μA; V_{CB} = 0	400	–	–	mV
h_{FE}	DC current gain	I_C = –2 mA; V_{CE} = –5 V				
	BCV62A		125	–	250	
	BCV62B		220	–	475	
	BCV62C		420	–	800	
Transistors TR1 and TR2						
$\frac{I_{C1}}{I_{E2}}$	current matching of transistors TR1 and TR2	I_{E2} = 0.5 mA; V_{CE1} = –5 V; $T_{amb} \leq$ 25 °C	0.7	–	1.3	
		I_{E2} = 0.5 mA; V_{CE1} = –5 V; $T_{amb} \leq$ 150 °C	0.7	–	1.3	
I_{E2}	emitter current for thermal stability of $-I_{C1}$	V_{CE1} = –5 V; note 3; see Fig.2	–	–	5	mA

Notes

1. Decreasing –1.7 mV/°C with increasing temperature.
2. Decreasing –2 mV/°C with increasing temperature.
3. Device, without emitter resistors, mounted on an FR4 printed-circuit board.



VCE1 = -5 V; device, without emitter resistors, mounted on an FR4 printed-circuit board.

Voltage drop at contacts: $V_{CO} < \frac{2}{3}U_T \triangleq 16$ mV .

Fig.2 Test circuit current matching.

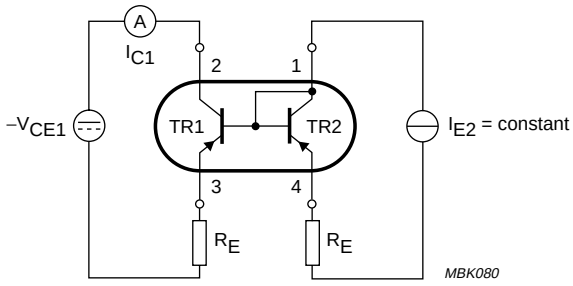
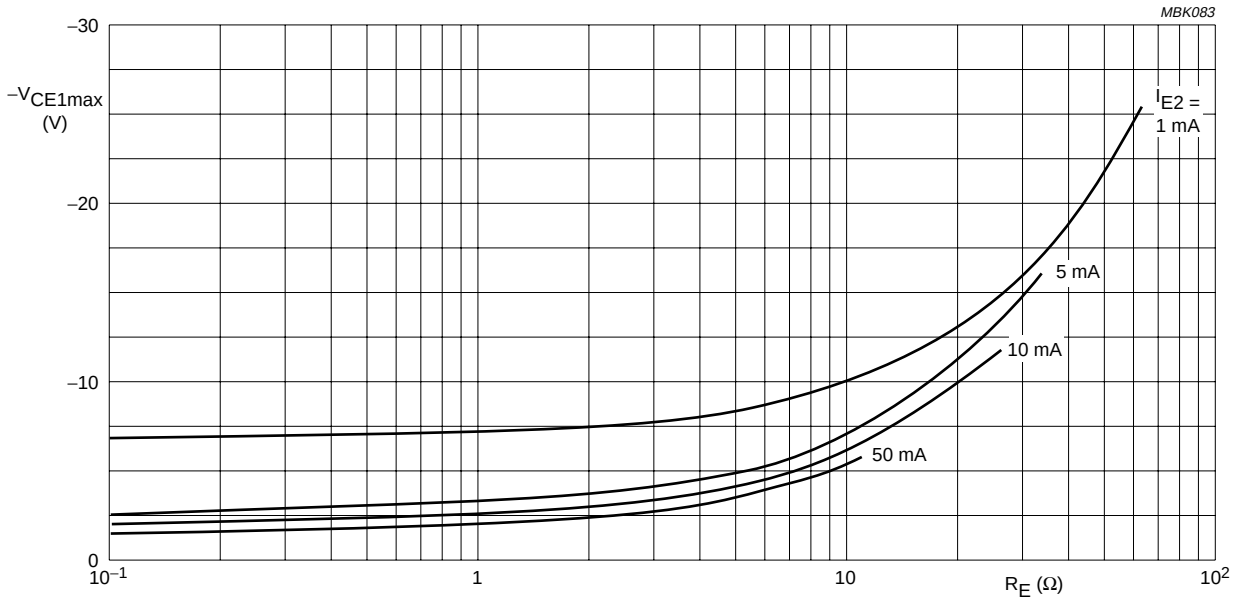


Fig.3 BCV62 with emitter resistors.

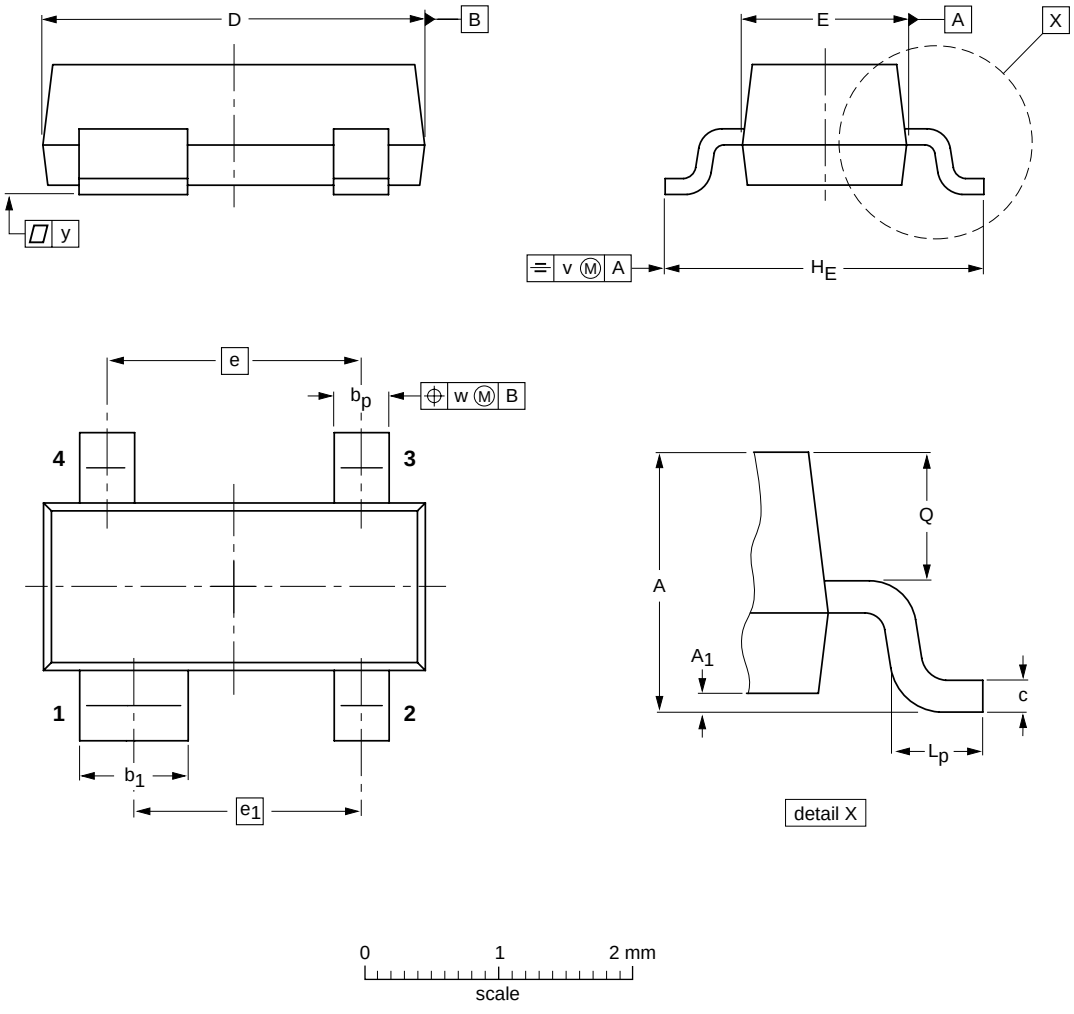


$\frac{I_{C1}}{I_{E2}}$ = 1.3 (see Fig.3).

Fig.4 Maximum collector-emitter voltage as a function of emitter resistance.

PACKAGE OUTLINE

Plastic surface mounted package; 4 leads **SOT143B**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	b_1	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.1 0.9	0.1	0.48 0.38	0.88 0.78	0.15 0.09	3.0 2.8	1.4 1.2	1.9	1.7	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT143B						97-02-28

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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