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

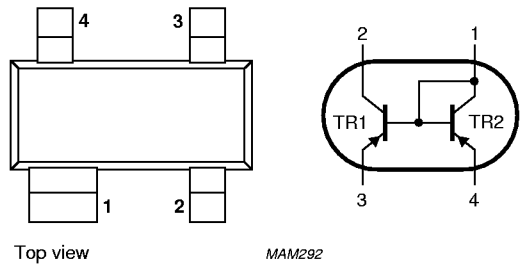

Fig.1 Simplified outline (SOT143B) and symbol.

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 1	–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	

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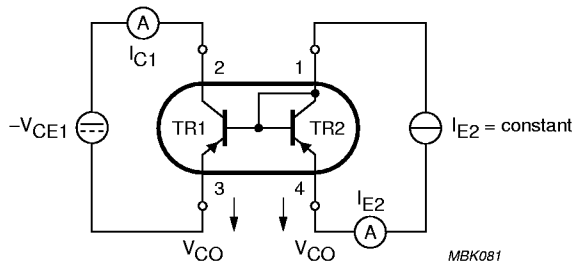
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Transistors TR1 and TR2						
$\frac{I_{C1}}{I_{E2}}$	current matching of transistors TR1 and TR2	I_{E2} = 0.5 mA; V_{CE1} = –5 V; $T_{amb} \leq$ 25 °C	0.7	–	1.3	
		I_{E2} = 0.5 mA; V_{CE1} = –5 V; $T_{amb} \leq$ 150 °C	0.7	–	1.3	
I_{E2}	emitter current 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.

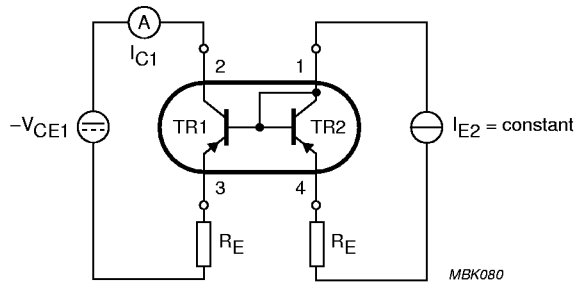
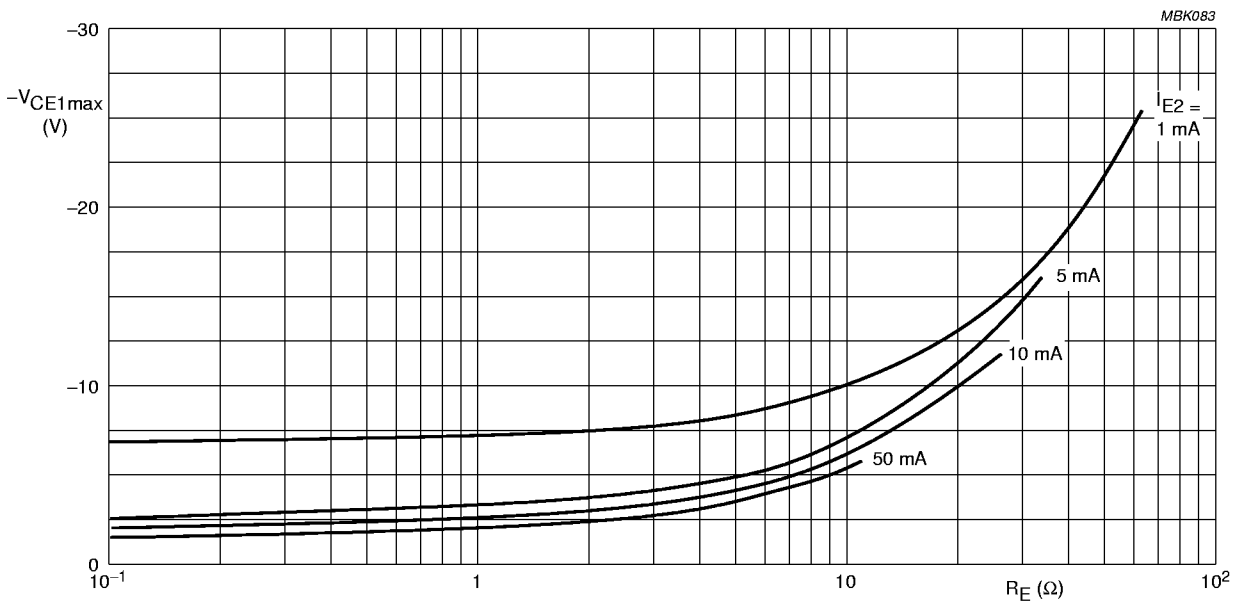


Fig.3 BCV62 with emitter resistors.

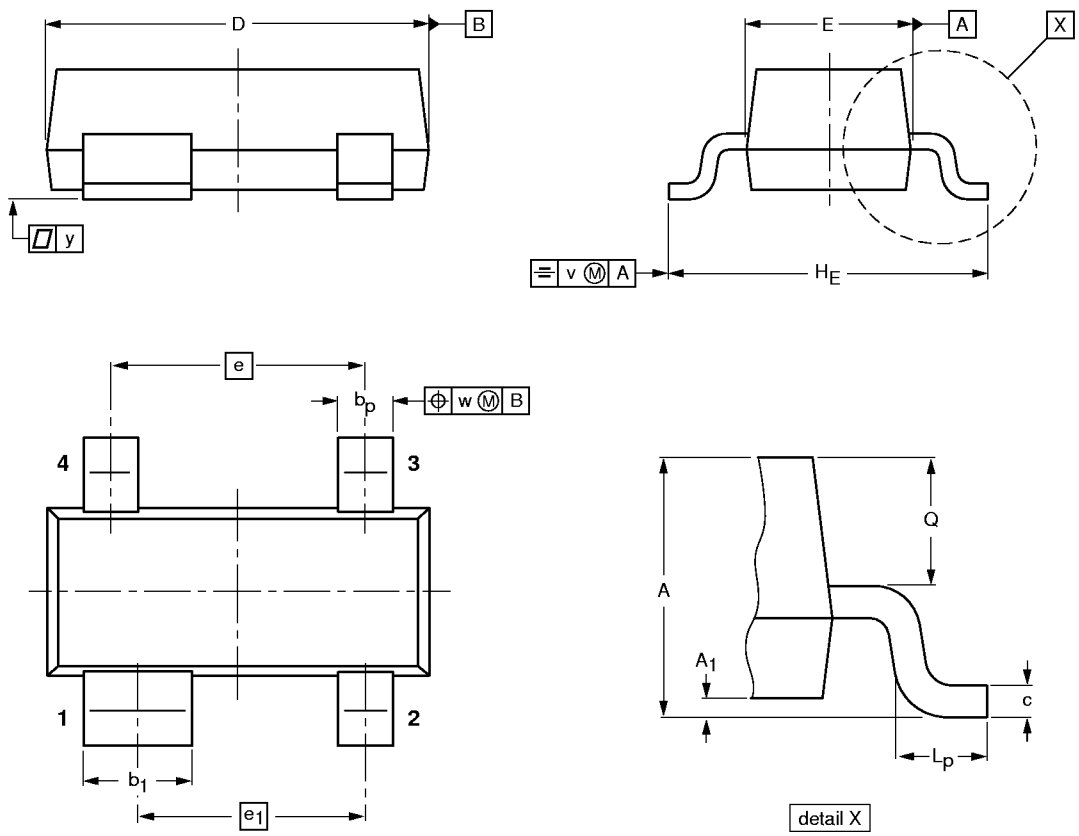


$\frac{I_{C1}}{I_{E2}}$ = 1.3 (see Fig.3).

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