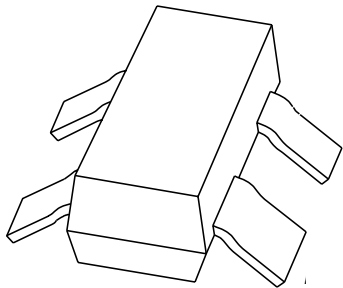


DATA SHEET



BCV63; BCV63B NPN general purpose double transistors

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

1997 Mar 10

NPN general purpose double transistors

BCV63; BCV63B

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 30 and 6 V).

APPLICATIONS

- General purpose switching and amplification
- For use in Schmitt-trigger applications.

DESCRIPTION

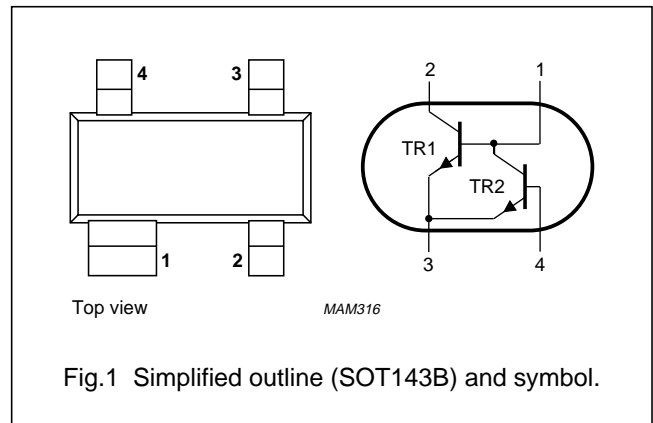
NPN double transistor in a SOT143B plastic package.
PNP complement: BCV64B.

MARKING

TYPE NUMBER	MARKING CODE
BCV63	D95
BCV63B	D96

PINNING

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



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	-	30	V
	TR1			6	V
V_{CEO}	collector-emitter voltage	open base	-	30	V
	TR1			6	V
I_{CM}	peak collector current		-	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	-	250	mW
h_{FE}	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	110	800	
	BCV63			450	
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	-	MHz
	TR1			-	MHz
	TR2				

NPN general purpose double transistors

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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	open emitter			
	TR1		–	30	V
	TR2		–	6	V
V _{CEO}	collector-emitter voltage	open base			
	TR1		–	30	V
	TR2		–	6	V
V _{EBO}	emitter-base voltage	open collector	–	6	V
I _C	collector current (DC)		–	100	mA
I _{CM}	peak collector current		–	200	mA
I _B	base current (DC)		–	100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 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. Transistor mounted on a printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	500	K/W

Note

1. Transistor mounted on a printed-circuit board.

NPN general purpose double transistors

BCV63; BCV63B

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	–	15	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ °C}$	–	–	5	μA
h_{FE}	DC current gain BCV63 TR1 BCV63 TR2	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	110	–	800	
		$I_C = 2\text{ mA}; V_{CE} = 700\text{ mV}; \text{note 1}$	110	–	800	
h_{FE}	DC current gain BCV63B TR1 BCV63B TR2	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	200	–	450	
		$I_C = 2\text{ mA}; V_{CE} = 700\text{ mV}; \text{note 1}$	200	–	450	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	75	300	mV
V_{CEsat}	collector-emitter saturation voltage TR1 TR2	$I_C = 100\text{ mA}; I_B = 5\text{ mA}$	–	250	650	mV
			–	250	–	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}; \text{note 2}$	–	700	–	mV
V_{BEsat}	base-emitter saturation voltage TR1	$I_C = 100\text{ mA}; I_B = 5\text{ mA}; \text{note 2}$	–	–850	–	mV
V_{BE}	base-emitter voltage TR1	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}; \text{note 3}$	600	650	750	mV
V_{BE}	base-emitter voltage TR1	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; \text{note 3}$	–	–	820	mV
V_{BE}	base-emitter voltage TR2	$I_C = 2\text{ mA}; V_{CE} = 700\text{ mV}; \text{note 3}$	–	700	–	mV
C_C	collector capacitance TR1	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	4	–	pF
f_T	transition frequency TR1	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz

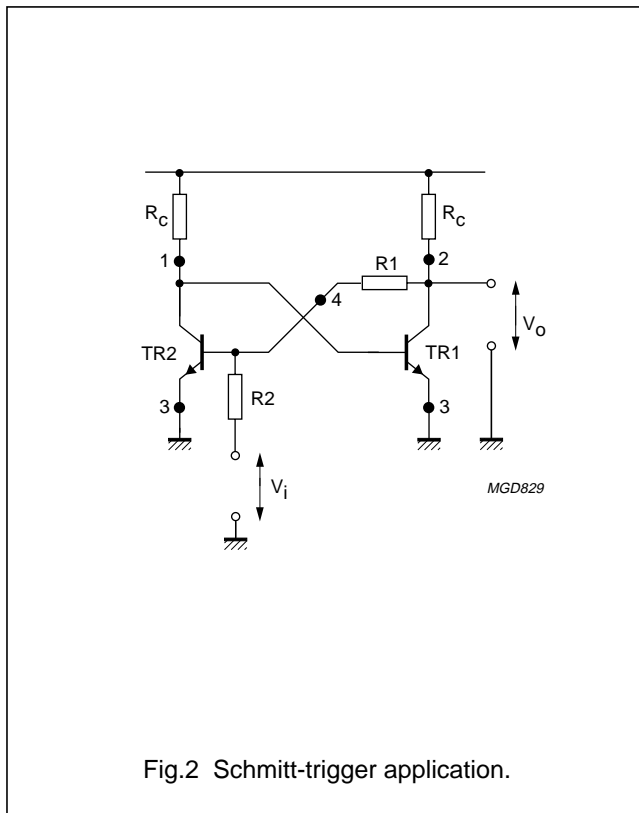
Notes

- Group selection will be done on TR1. Due to matched dies, h_{FE} values for TR2 are the same as for TR1.
- V_{BEsat} decreases by approximately 1.7 mV/K with increasing temperature.
- V_{BE} decreases by approximately 2 mV/K with increasing temperature.

NPN general purpose double transistors

BCV63; BCV63B

APPLICATION INFORMATION



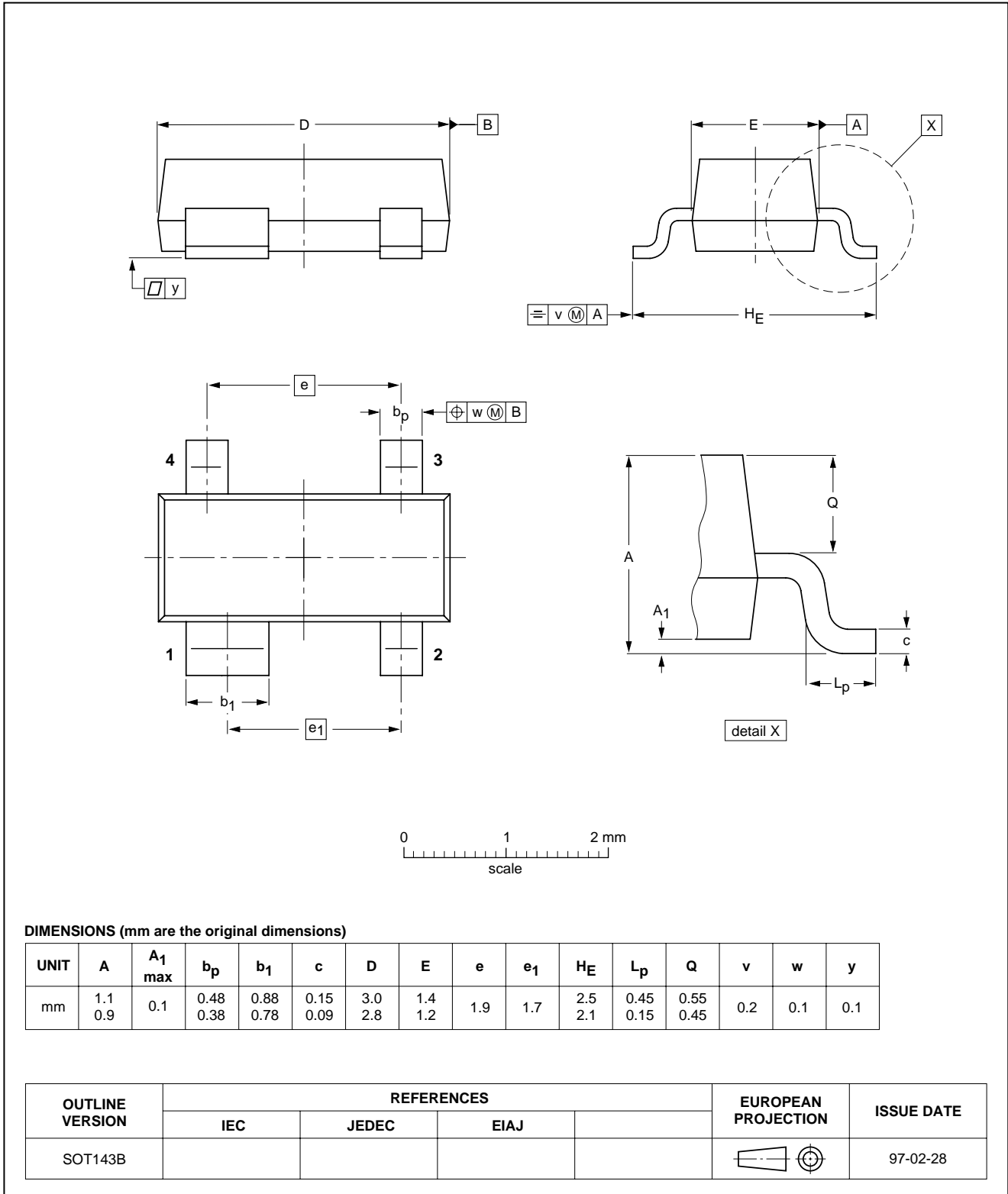
NPN general purpose double transistors

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PACKAGE OUTLINE

Plastic surface mounted package; 4 leads

SOT143B



NPN general purpose double transistors

BCV63; BCV63B

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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