# SIEMENS

PNP Silicon Double Transistors BCV 62

Preliminary Data

● To be used as a current mirror
● Good thermal coupling and V_{BE} matching
● High current gain
● Low emitter-saturation voltage
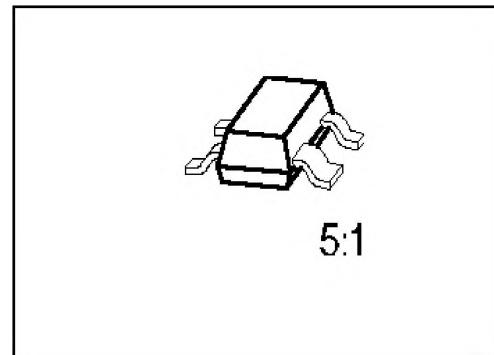
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Type	Marking	Ordering Code (tape and reel)	Pin Configuration	Package[1]
BCV 62 A	3Js	Q62702-C2158		SOT-143
BCV 62 B	3Ks	Q62702-C2159		
BCV 62 C	3Ls	Q62702-C2160		

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage (transistor T1)	V_{CEO}	30	V
Collector-base voltage (open emitter) (transistor T1)	V_{CBO}	30	
Emitter-base voltage	V_{EBS}	6	
Collector current	I_C	100	mA
Collector peak current	I_{CM}	200	
Base peak current (transistor T1)	I_{BM}	200	
Total power dissipation, T_S = 99 °C[2]	P_{tot}	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	– 65 … + 150	

Thermal Resistance

Junction - ambient[2]	$R_{th\,JA}$	≤ 240	K/W
Junction - soldering point	$R_{th\,JS}$	≤ 170	

[1] For detailed information see chapter Package Outlines.
[2] Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

Electrical Characteristics

at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics for transistor T1

Parameter	Symbol	min.	typ.	max.	Unit
Collector-emitter breakdown voltage I_C = 10 mA, I_B = 0	$V_{(BR)CE0}$	30	–	–	V
Collector-base breakdown voltage I_C = 10 µA, I_B = 0	$V_{(BR)CB0}$	30	–	–	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBS}$	6	–	–	
Collector-base cutoff current V_{CE} = 30 V, I_E = 0 V_{CE} = 30 V, I_E = 0, T_A = 150 °C	I_{CB0}	– –	– –	15 5	nA µA
DC current gain[1] I_C = 0.1 mA, V_{CE} = 5 V I_C = 2 mA, V_{CE} = 5 V BCV 62 A BCV 62 B BCV 62 C	h_{FE}	100 125 220 420	– 180 290 520	220 475 800	–
Collector-emitter saturation voltage[1] I_C = 10 mA, I_B = 0.5 mA I_C = 100 mA, I_B = 5 mA	V_{CEsat}	– –	75 250	300 650	mV
Base-emitter saturation voltage[1] I_C = 10 mA, I_C = 0.5 mA I_C = 100 mA, I_C = 5 mA	V_{BEsat}	– –	700 850	– –	
Base-emitter voltage I_C = 2 mA, V_{CE} = 5 V I_C = 10 mA, V_{CE} = 5 V	V_{BE}	600 –	650 –	750 820	

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[1] Pulse test conditions: $t \leq$ 300 µs, D = 2 %.

Electrical Characteristics

at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics for transistor T2

Parameter	Symbol	min.	typ.	max.	Unit
Base-emitter forward voltage I_E = 10 µA I_E = 250 mA	V_{BES}	0.4 –	– –	– 1.8	V
Matching of transistor T1 and transistor T2 at I_{E2} = 0.5 mA and V_{CE1} = 5 V T_A = 25 °C T_A = 150 °C	I_{C1} / I_{C2} I_{C1} / I_{C2}	0.7 0.7	– –	1.3 1.3	
Thermal coupling of transistor T1 and transistor T2 [1] T1: V_{CE} = 5 V Maximum current for thermal stability of I_{C1}	I_{E2}	–	5	–	mA

AC characteristics for transistor T1

Parameter	Symbol	min.	typ.	max.	Unit
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 100 MHz	f_t	–	250	–	MHz
Collector-base capacitance V_{CB} = 10 V, I_C = i_C = 0, f = 1 MHz	C_{cb}	–	3	–	pF
Input capacitance V_{EB} = 0.5 V, I_C = i_C = 0, f = 1 MHz	C_{ibo}	–	8	–	
Noise figure I_C = 200 µA, V_{CE} = 5 V, R_S = 2 kΩ f = 1 kHz, B = 200 Hz	F	–	2	–	dB
Input impedance I_C = 1 mA, V_{CE} = 10 V, f = 1 kHz	h_{11e}	–	4.5	–	kΩ
Open-circuit reverse voltage transfer ratio I_C = 1 mA, V_{CE} = 10 V, f = 1 kHz	h_{12e}	–	2	–	10^{-4}
Short-circuit forward current transfer ratio I_C = 1 mA, V_{CE} = 10 V, f = 1 kHz	h_{21e}	100	–	900	–
Open-circuit output admittance I_C = 1 mA, V_{CE} = 10 V, f = 1 kHz	h_{22e}	–	30	–	µS

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[1] Without emitter resistor. Device mounted on alumina 15 mm × 16.5 mm × 0.7 mm.

Test circuit for current matching
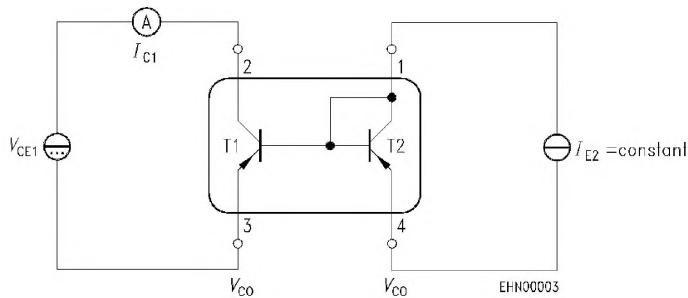
Note: Voltage drop at contacts: $V_{CO} < \dfrac{2}{3}\, V_T = 16\ \text{mV}$

Characteristic for determination of V_{CE1} at specified R_E range with I_{E2} as parameter under condition of $I_{C1} / I_{E2} = 1.3$
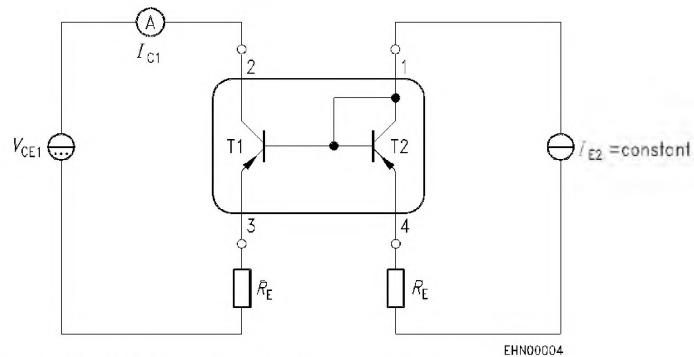
Note: BCV 62 with emitter resistors

Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy
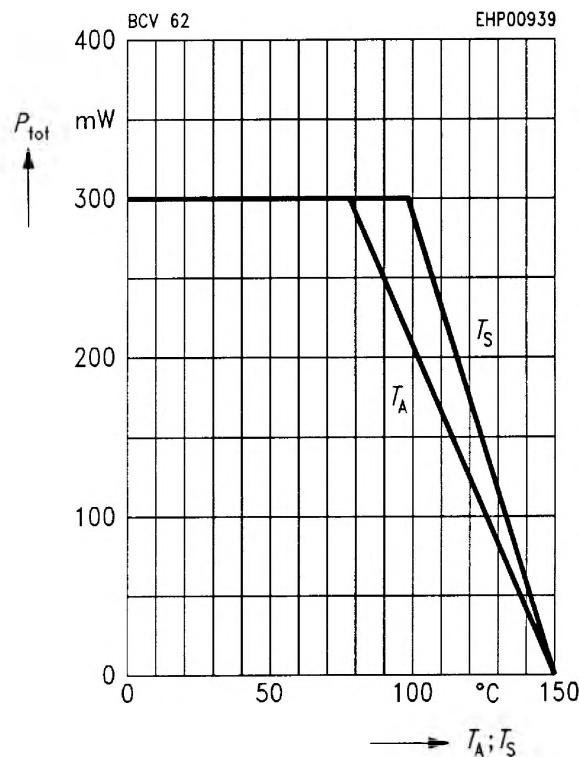
Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f(t_p)$