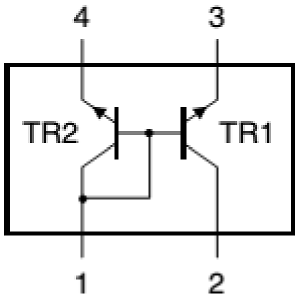
BCV61 NPN General-purpose Double Transistor

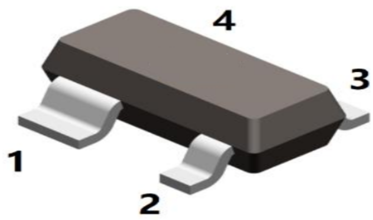


Features

- Low Current.
- Low Voltage.
- Matched Pairs.

Applications

- Applications With Working Point Independent of Temperature.
- Current Mirrors.



SOT-143

Ordering Information

Part Number	Package	Shipping	Marking Code
BCV61	SOT-143	3000 pcs / Tape & Reel	1M
BCV61A	SOT-143	3000 pcs / Tape & Reel	1J
BCV61B	SOT-143	3000 pcs / Tape & Reel	1K
BCV61C	SOT-143	3000 pcs / Tape & Reel	1L

Maximum Ratings (@T_A=25℃ unless otherwise specified)

Symbol	Parameter	Value	Units
MAXIMUM RATINGS			
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current - Continuous	0.1	A
I_{CM}	Collector Current − Peak	0.2	A
Thermal Characteristic			
P_{tot}	Total Power Dissipation, T_a≤25℃	250	mW
T_J	Junction Temperature	150	℃
T_j, T_{stg}	Junction and Storage Temperature	-65 to +150	℃
$R_{th(j-a)}$ (Note 1)	Thermal resistance from junction to ambient	500	℃/W

Electrical Characteristics (@T_A=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100uA, I_E = 0	30	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	30	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100uA, I_C = 0	6	-	-	V
RCollector Cut-Off Current	I_{CBO}	V_{CB} =30V, I_E = 0	-	-	15	nA
Emitter Cut-Off Current	I_{EBO}	V_{EB} =5V, I_C = 0	-	-	100	nA
DC Current Gain (Note 1)	h_{FE}	V_{CE} = 5V, I_C = 100uA	100	-	-	
		V_{CE} = 5V, I_C =2mA				
		BCV61	110		800	
		BCV61A	110		220	
		BCV61B	200		450	
		BCV61C	420		800	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C= 10mA, I_B=0.5mA	-	0.09	0.25	V
		I_C= 100mA, I_B=5mA		0.2	0.6	
Base−Emitter Saturation Voltage(Note 2)	$V_{BE(sat)}$	I_C= 10mA, I_B=0.5mA	-	0.7	-	V
		I_C= 100mA, I_B=5mA		0.9		
Base−Emitter Turn−on Voltage(Note 3)	$V_{BE(on)}$	I_C= 2mA, V_{CE}=5V	0.58	0.66	0.7	V
		I_C= 10mA, V_{CE}=5V	-	-	0.77	
Transition Frequency	f_T	V_{CE} = 5V, I_C = 10mA, f = 100MHz	100	-	-	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	-	2.5	-	pF

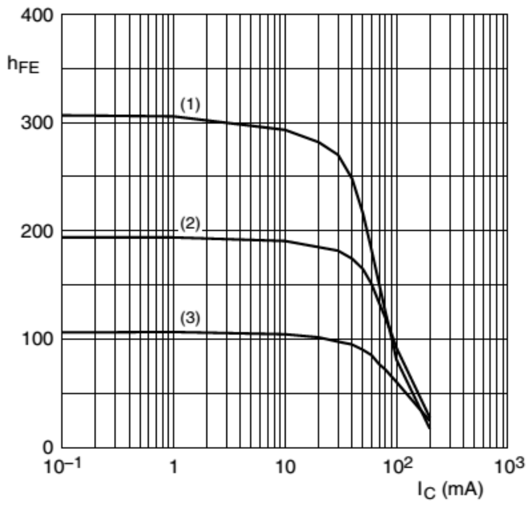
Notes：

1：Device mounted on an FR4 PCB.

2：V_{BEsat} decreases by about 1.7 mV/K with increasing temperature.

3：V_{BE} decreases by about 2 mV/K with increasing temperature.

Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)



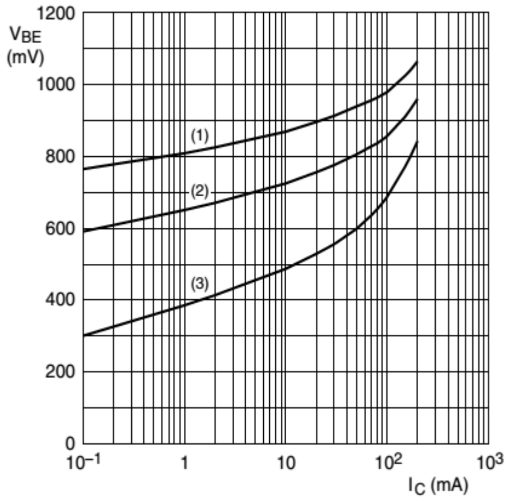
V_{CE} = 5 V

(1) T_{amb} = 150 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = –55 °C

Fig 1. BCV61A: DC current gain as a function of collector current; typical values



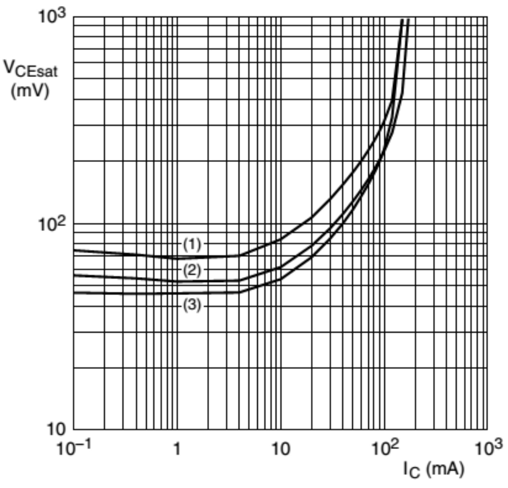
V_{CE} = 5 V

(1) T_{amb} = –55 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = 150 °C

Fig 2. BCV61A: Base-emitter voltage as a function of collector current; typical values



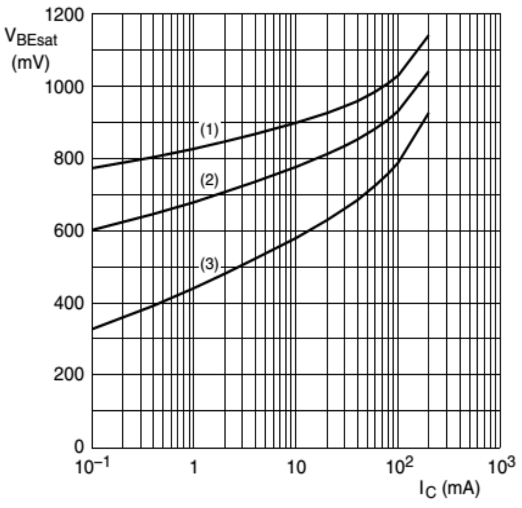
I_C/I_B = 20

(1) T_{amb} = 150 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = –55 °C

Fig 3. BCV61A: Collector-emitter saturation voltage as a function of collector current; typical values



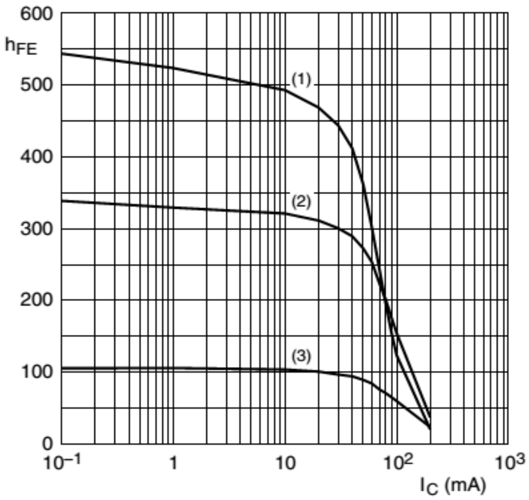
I_C/I_B = 10

(1) T_{amb} = –55 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = 150 °C

Fig 4. BCV61A: Base-emitter saturation voltage as a function of collector current; typical values



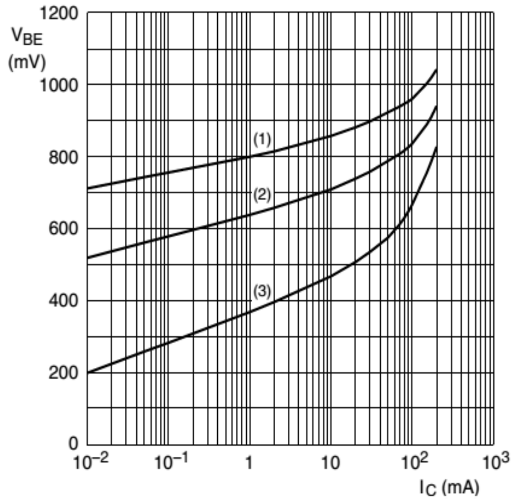
V_{CE} = 5 V

(1) T_{amb} = 150 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −55 °C

Fig 5. BCV61B: DC current gain as a function of collector current; typical values



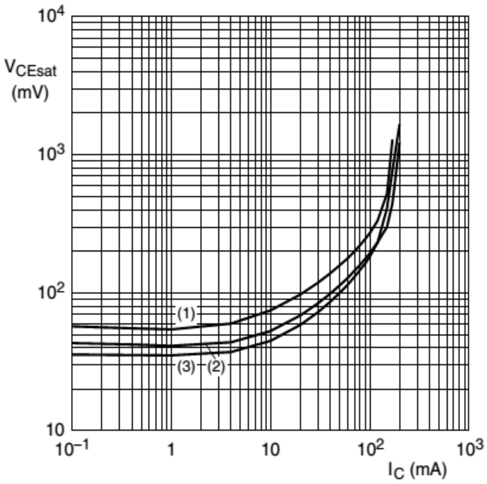
V_{CE} = 5 V

(1) T_{amb} = −55 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = 150 °C

Fig 6. BCV61B: Base-emitter voltage as a function of collector current; typical values



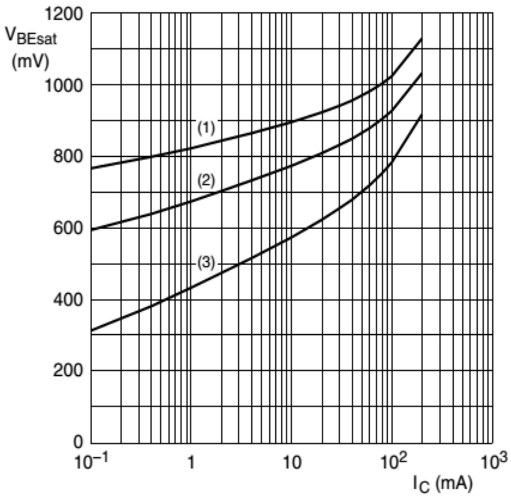
I_C/I_B = 20

(1) T_{amb} = 150 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −55 °C

Fig 7. BCV61B: Collector-emitter saturation voltage as a function of collector current; typical values



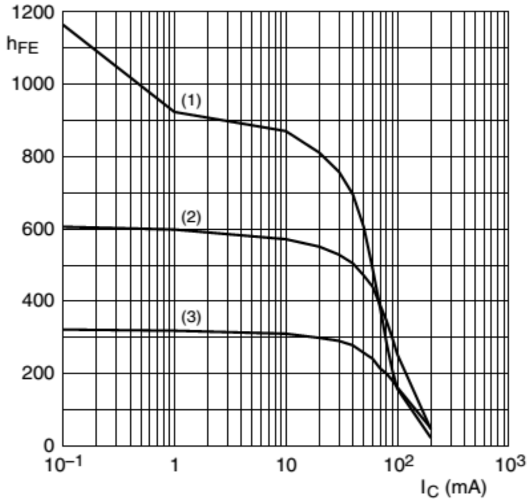
I_C/I_B = 10

(1) T_{amb} = −55 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = 150 °C

Fig 8. BCV61B: Base-emitter saturation voltage as a function of collector current; typical values



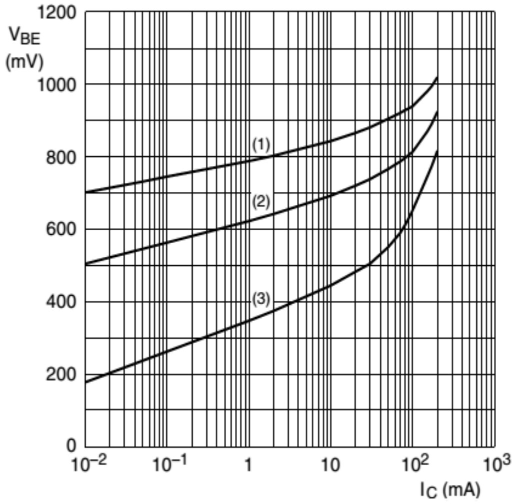
V_{CE} = 5 V

(1) T_{amb} = 150 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −55 °C

Fig 9. BCV61C: DC current gain as a function of collector current; typical values



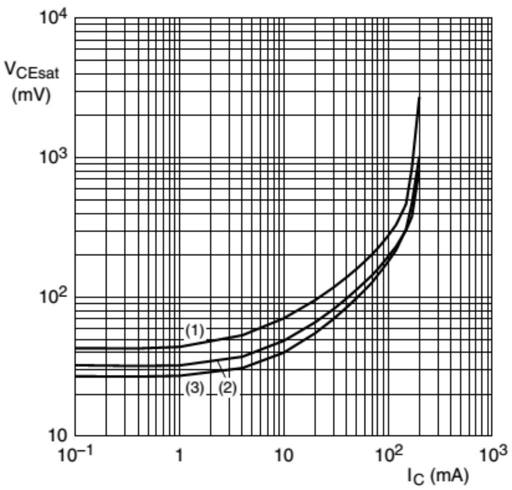
V_{CE} = 5 V

(1) T_{amb} = −55 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = 150 °C

Fig 10. BCV61C: Base-emitter voltage as a function of collector current; typical values



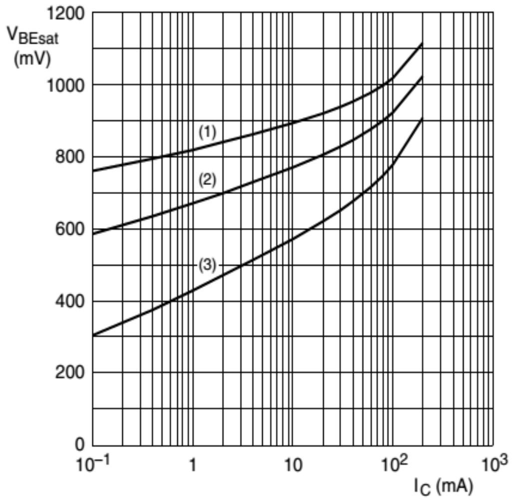
I_C/I_B = 20

(1) T_{amb} = 150 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −55 °C

Fig 11. BCV61C: Collector-emitter saturation voltage as a function of collector current; typical values



I_C/I_B = 10

(1) T_{amb} = −55 °C

(2) T_{amb} = 25 °C

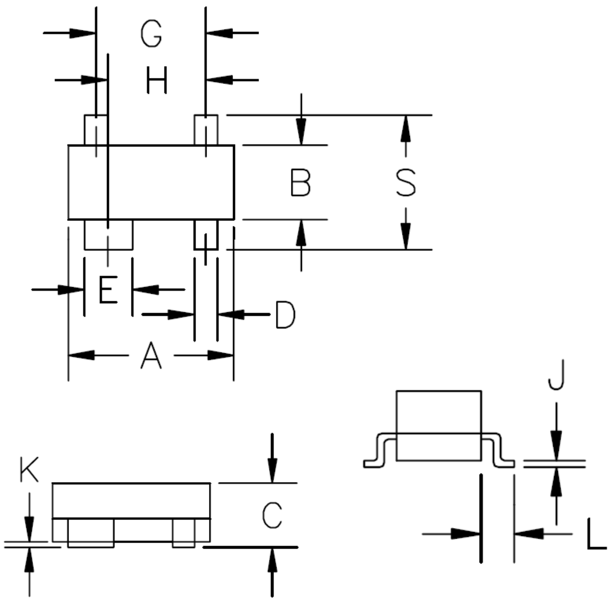
(3) T_{amb} = 150 °C

Fig 12. BCV61C: Base-emitter saturation voltage as a function of collector current; typical values

Package Outline

Plastic surface mounted package

SOT-143



DIMN	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	–
B	.047	.055	1.20	1.40	–
C	.031	.047	.80	1.20	–
D	.014	.018	.37	.510	–
E	.030	.035	.76	.940	–
G	.076 BSC		1.92 BSC		–
H	.068 BSC		1.72 BSC		–
J	.003	.005	.085	.180	–
K	.002	.005	.013	0.10	–
L	.010	.022	–	.55	REF
S	.082	.104	2.10	2.64	–