BC856S

65 V, 100 mA PNP/PNP general-purpose transistor

15 July 2026 Product data sheet

1. General description

PNP/PNP general-purpose transistor pair in a very small SOT363-3 (SC-88) Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Low collector capacitance
- Low collector-emitter saturation voltage
- Closely matched current gain
- Reduces number of components and board space
- No mutual interference between the transistors

3. Applications

- General-purpose switching and amplification

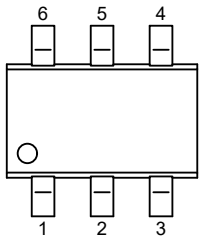
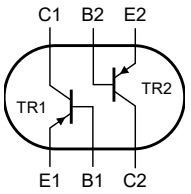
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
V_{CEO}	collector-emitter voltage	open base		-	-	-65	V
I_C	collector current			-	-	-100	mA
h_{FE}	DC current gain	V_{CE} = -5 V; I_C = -2 mA; T_{amb} = 25 °C		110	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	E1	emitter TR1	 Transparent top view **TSSOP6 (SOT363-3)**	 *sym138*
2	B1	base TR1		
3	C2	collector TR2		
4	E2	emitter TR2		
5	B2	base TR2		
6	C1	collector TR1		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BC856S	TSSOP6	Plastic surface-mounted package; 6 leads	SOT363-3

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
BC856S	5F%

[1] % = placeholder for manufacturing site code

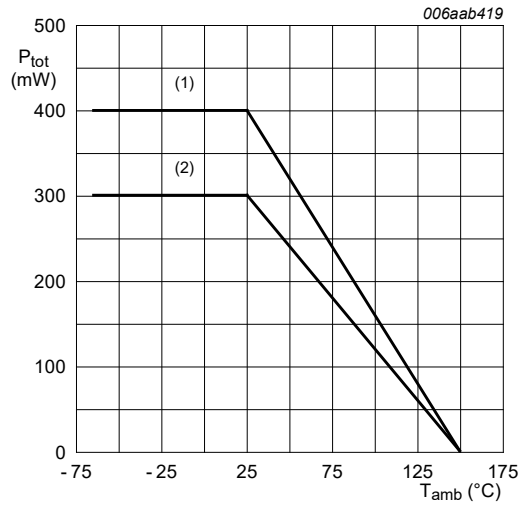
8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
Per transistor						
V_{CBO}	collector-base voltage	open emitter		-	-80	V
V_{CEO}	collector-emitter voltage	open base		-	-65	V
V_{EBO}	emitter-base voltage	open collector		-	-5	V
I_C	collector current			-	-100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	[1]	-	220	mW
			[2]	-	250	mW
Per device						
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	[1]	-	300	mW
			[2]	-	400	mW
T_j	junction temperature			-	150	°C
T_{amb}	ambient temperature			-65	150	°C
T_{stg}	storage temperature			-65	150	°C

[1] Device mounted on an FR4 PCB, single-sided, 35 µm copper, tin-plated and standard footprint.
[2] Device mounted on an FR4 PCB, single-sided, 35 µm copper, tin-plated, mounting pad for collector 1 cm².



(1) FR4 PCB, single-sided, 35 µm copper, tin-plated, mounting pad for collector 1 cm^2
(2) FR4 PCB, single-sided, 35 µm copper, tin-plated and standard footprint

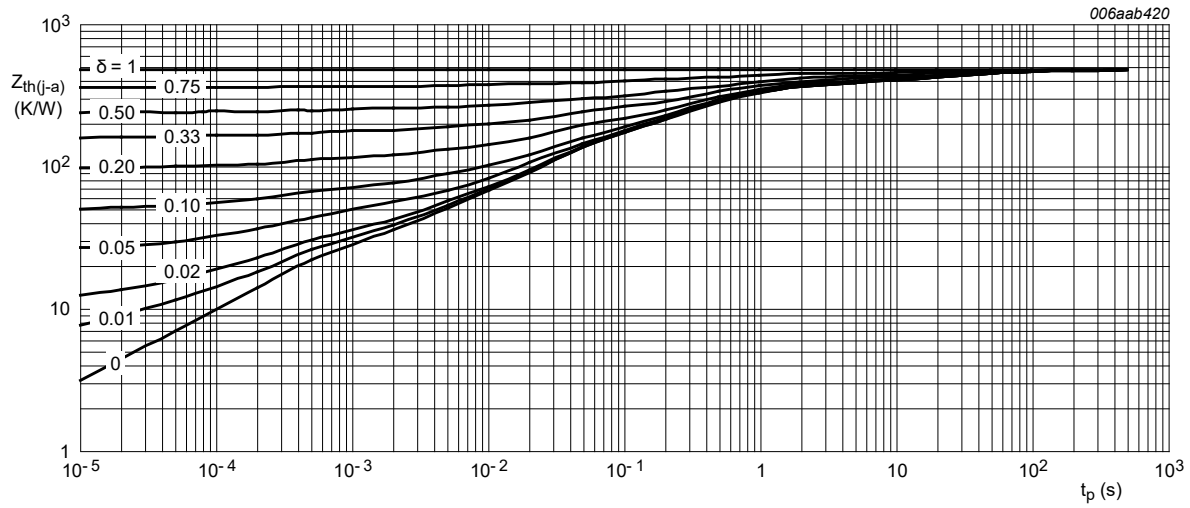
Fig. 1. Per device: Power derating curves

9. Thermal characteristics

Table 6. Thermal characteristics

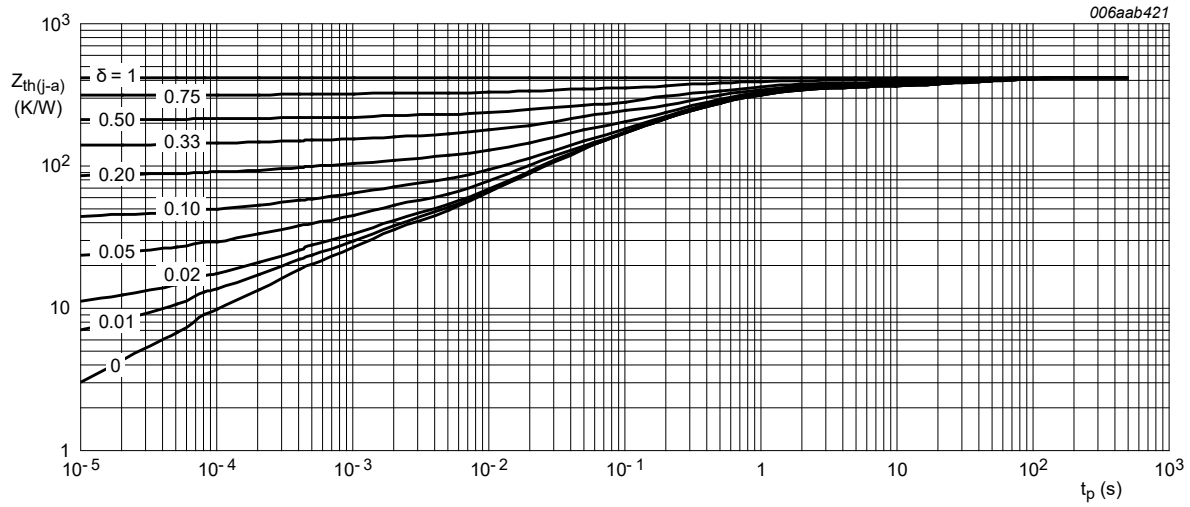
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	568	K/W
			[2]	-	-	500	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point			-	-	230	K/W
Per device							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	416	K/W
			[2]	-	-	313	K/W

[1] Device mounted on an FR4 PCB, single-sided, 35 µm copper, tin-plated and standard footprint.
[2] Device mounted on an FR4 PCB, single-sided, 35 µm copper, tin-plated, mounting pad for collector 1 cm².



FR4 PCB, single-sided, 35 µm copper, tin-plated and standard footprint

Fig. 2. Per transistor: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



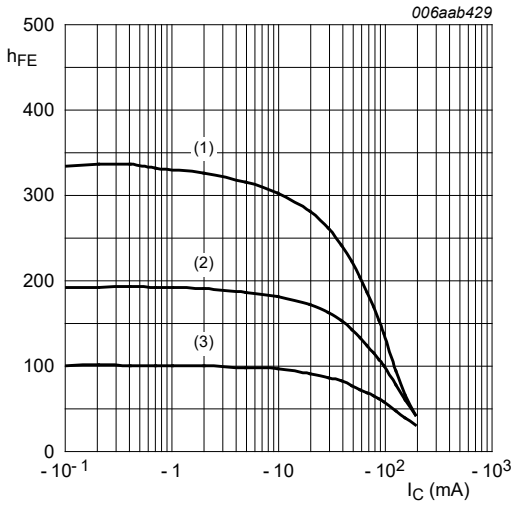
FR4 PCB, single-sided, 35 µm copper, tin-plated, mounting pad for collector 1 cm^2

Fig. 3. Per transistor: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

10. Characteristics

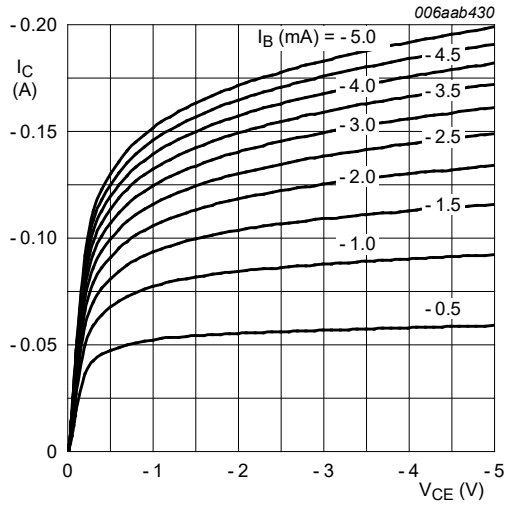
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
$V_{(BR)CBO}$	collector-base breakdown voltage	I_C = -100 µA; I_E = 0 A; T_{amb} = 25 °C		-80	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	I_C = -2 mA; I_B = 0 A; T_{amb} = 25 °C		-65	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	I_C = 0 A; I_E = -100 µA; T_{amb} = 25 °C		-5	-	-	V
I_{CBO}	collector-base cut-off current	V_{CB} = -30 V; I_E = 0 A; T_{amb} = 25 °C		-	-	-15	nA
		V_{CB} = -30 V; I_E = 0 A; T_j = 150 °C		-	-	-5	µA
I_{EBO}	emitter-base cut-off current	V_{EB} = -5 V; I_C = 0 A; T_{amb} = 25 °C		-	-	-100	nA
h_{FE}	DC current gain	V_{CE} = -5 V; I_C = -2 mA; T_{amb} = 25 °C		110	-	-	
V_{CEsat}	collector-emitter saturation voltage	I_C = -10 mA; I_B = -0.5 mA; T_{amb} = 25 °C		-	-	-100	mV
		I_C = -100 mA; I_B = -5 mA; pulsed; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_{amb} = 25 °C		-	-	-300	mV
V_{BEsat}	base-emitter saturation voltage	I_C = -10 mA; I_B = -0.5 mA; T_{amb} = 25 °C		-	700	-	mV
V_{BE}	base-emitter voltage	V_{CE} = -5 V; I_C = -2 mA; T_{amb} = 25 °C		-600	-650	-750	mV
		V_{CE} = -5 V; I_C = -10 mA; T_{amb} = 25 °C		-	-	-820	mV
C_c	collector capacitance	V_{CB} = -10 V; I_E = 0 A; i_e = 0 A; f = 1 MHz; T_{amb} = 25 °C		-	-	2.5	pF
f_T	transition frequency	V_{CE} = -5 V; I_C = -10 mA; f = 100 MHz; T_{amb} = 25 °C		100	-	-	MHz



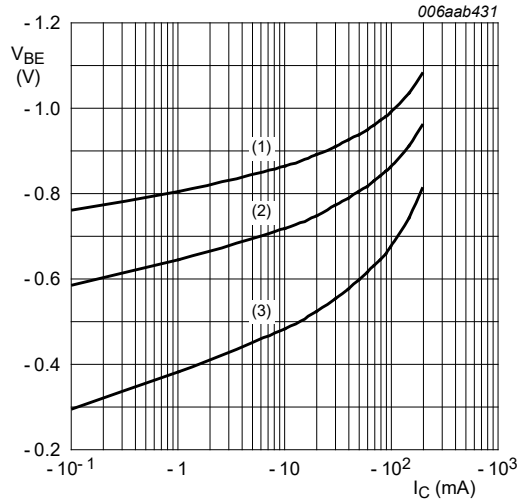
V_{CE} = -5 V
(1) T_{amb} = 150 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = -55 °C

Fig. 4. Per transistor: DC current gain as a function of collector current; typical values



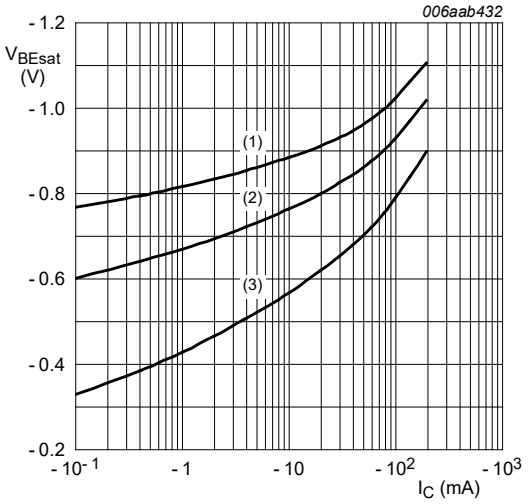
T_{amb} = 25 °C

Fig. 5. Per transistor: Collector current as a function of collector-emitter voltage; typical values



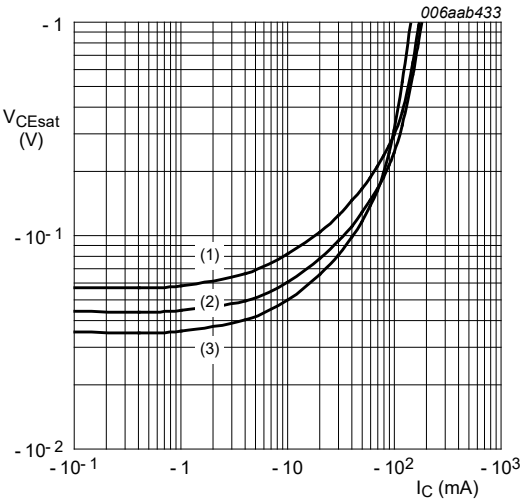
V_{CE} = -5 V
(1) T_{amb} = -55 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 150 °C

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



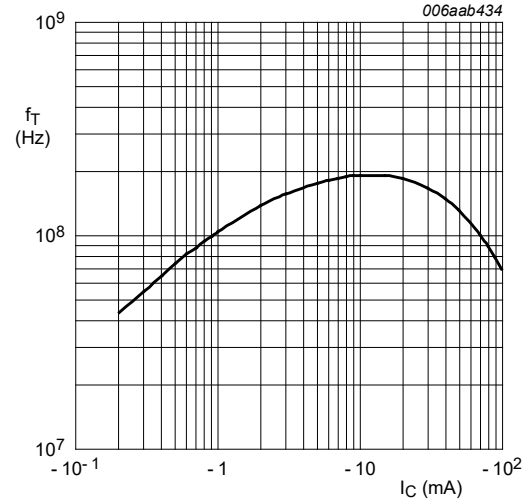
I_C/I_B = 20
(1) T_{amb} = -55 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 150 °C

Fig. 7. Per transistor: Base-emitter saturation 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. 8. Per transistor: Collector-emitter saturation voltage as a function of collector current; typical values



f = 1 MHz
T_{amb} = 25 °C
V_{CE} = -5 V

Fig. 9. Per transistor: Transition frequency as a function of collector current; typical values

11. Package outline

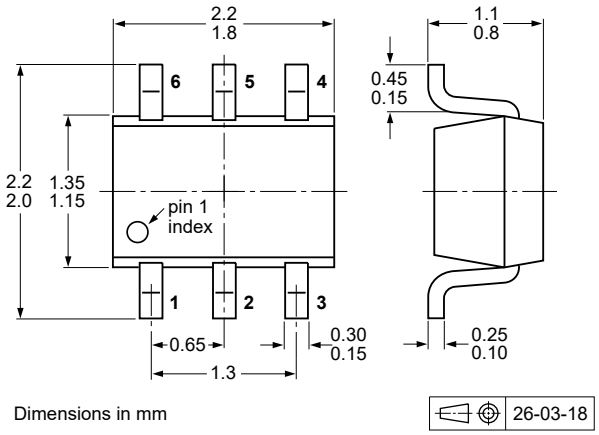


Fig. 10. Package outline TSSOP6 (SOT363-3)

12. Soldering

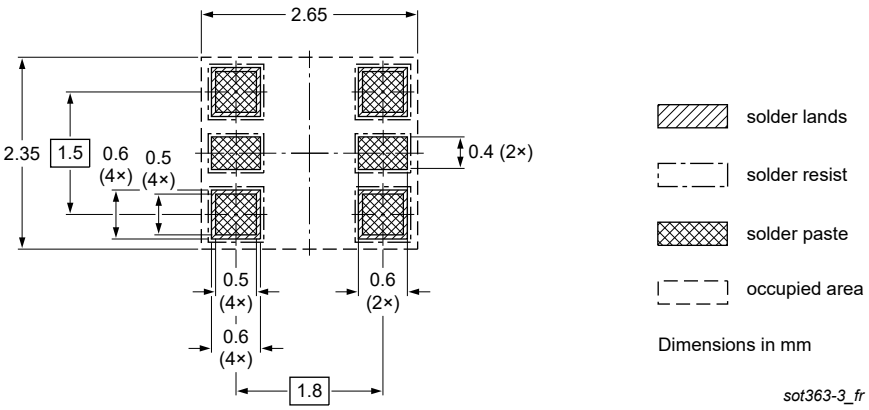


Fig. 11. Reflow soldering footprint for TSSOP6 (SOT363-3)

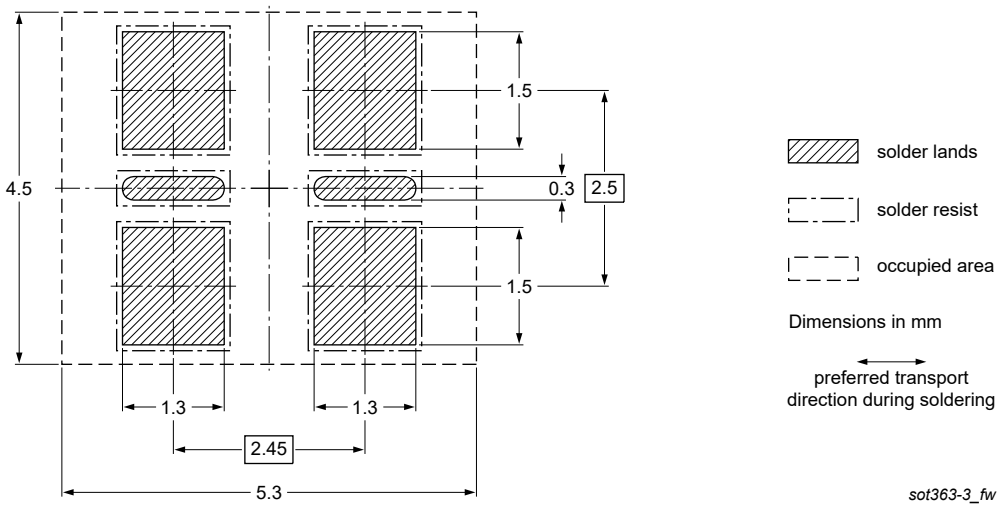


Fig. 12. Wave soldering footprint for TSSOP6 (SOT363-3)

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BC856S v.4	20260715	Product data sheet	-	BC856S v.3
Modification:	• Package changed from SOT363 to SOT363-3			
BC856S v.3	20220701	Product data sheet	-	BC856S_2
BC856S_2	20090219	Product data sheet	-	BC856S_1
BC856S_1	19990824	Product specification	-	-

14. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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Date of release: 15 July 2026