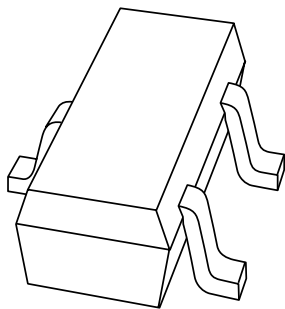


DATA SHEET



BC856T; BC857T; BC858T series PNP general purpose transistors

Product specification
File under Discrete Semiconductors, SC04

1997 Jul 07

PNP general purpose transistors

BC856T; BC857T; BC858T series

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

APPLICATIONS

- General purpose switching and amplification especially in portable equipment.

DESCRIPTION

PNP transistor in an SC-75 plastic package.
 NPN complements: BC846T, BC847T and BC848T series.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BC856AT	3A	BC857CT	3G
BC856BT	3B	BC858AT	3J
BC857AT	3E	BC858BT	3K
BC857BT	3F	BC858CT	3L

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

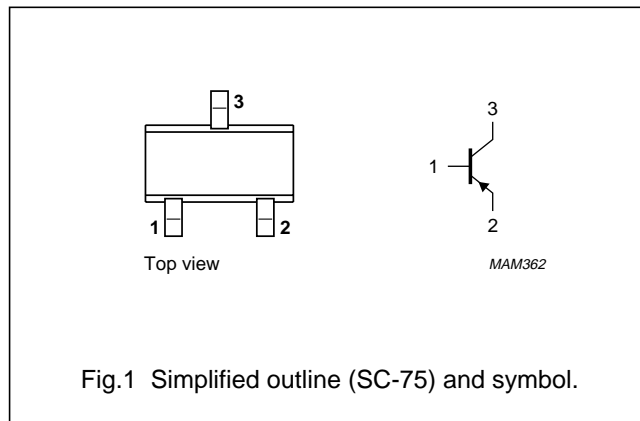


Fig.1 Simplified outline (SC-75) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BC856AT; BC856BT		–	–80	V
	BC857AT; BC857BT; BC857CT		–	–50	V
	BC858AT; BC858BT; BC858CT		–	–30	V
V _{CEO}	collector-emitter voltage	open base			
	BC856AT; BC856BT		–	–65	V
	BC857AT; BC857BT; BC857CT		–	–45	V
	BC858AT; BC858BT; BC858CT		–	–30	V
I _{CM}	peak collector current		–	–200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	–	150	mW
h _{FE}	DC current gain	I _C = –2 mA; V _{CE} = –5 V	125	800	
f _T	transition frequency	I _C = –10 mA; V _{CE} = –5V; f = 100 MHz	100	–	MHz

PNP general purpose 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			
	BC856AT; BC856BT		–	–80	V
	BC857AT; BC857BT; BC857CT		–	–50	V
	BC858AT; BC858BT; BC858CT		–	–30	V
V _{CEO}	collector-emitter voltage	open base			
	BC856AT; BC856BT		–	–65	V
	BC857AT; BC857BT; BC857CT		–	–45	V
	BC858AT; BC858BT; BC858CT		–	–30	V
V _{EBO}	emitter-base voltage	open collector	–	–5	V
I _C	collector current (DC)		–	–100	mA
I _{CM}	peak collector current		–	–200	mA
I _{BM}	peak base current		–	–100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note1	–	150	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 an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	833	K/W

Note

1. Transistor mounted on an FR4 printed-circuit board.

PNP general purpose transistors

BC856T; BC857T; BC858T series

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
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–	–100	nA
h_{FE}	DC current gain BC856AT; BC857AT; BC858AT BC856BT; BC857BT; BC858BT BC857CT; BC858CT	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	125	–	250	
			220	–	475	
			420	–	800	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$	–	–	–200	mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA}; \text{note 1}$	–	–	–400	mV
V_{BE}	base-emitter voltage	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	–600	–	–750	mV
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$	–	–	–820	mV
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	–	2.5	pF
C_e	emitter capacitance	$I_C = i_c = 0; V_{EB} = -500\text{ mV}; f = 1\text{ MHz}$	–	10	–	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 220\text{ Hz}$	–	–	10	dB

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

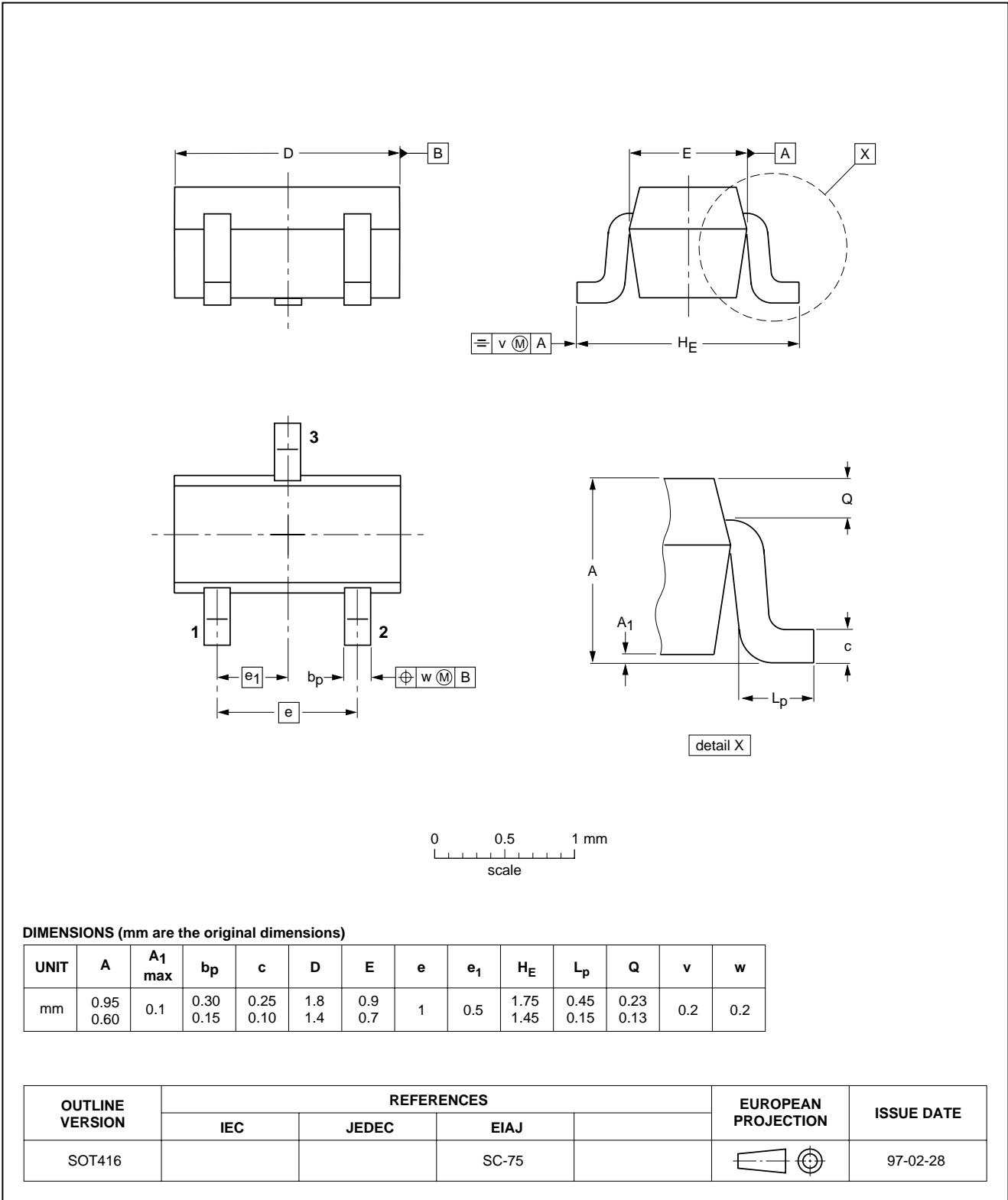
PNP general purpose transistors

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT416



PNP general purpose transistors

BC856T; BC857T; BC858T series

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.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

PNP general purpose transistors

BC856T; BC857T; BC858T series

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