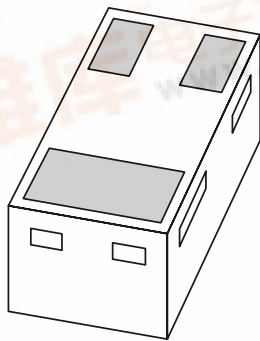


DISCRETE SEMICONDUCTORS

DATA SHEET



2PC4617M series **NPN general purpose transistors**

Product specification

2003 Jul 15

NPN general purpose transistors

2PC4617M series

FEATURES

- Leadless ultra small plastic package (1 mm × 0.6 mm × 0.5 mm)
- Board space 1.3 × 0.9 mm
- Power dissipation comparable to SOT23.

APPLICATIONS

- General purpose small signal DC applications
- Low and medium frequency AC applications
- Mobile communications, digital (still) cameras, PDAs, PCMCIA cards.

DESCRIPTION

NPN general purpose transistor in a SOT883 leadless ultra small plastic package.

PNP complement: 2PA1776M series.

MARKING

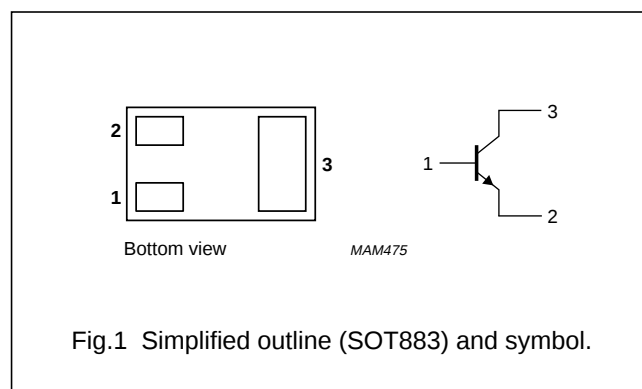
TYPE NUMBER	MARKING CODE
2PC4617QM	D7
2PC4617RM	D8
2PC4617SM	D9

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	50	V
I_C	collector current (DC)	100	mA
I_{CM}	peak collector current	200	mA

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	50	V
V_{CEO}	collector-emitter voltage	open base	–	50	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		–	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$ note 1 note 2	–	250 430	mW mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Notes

1. Refer to SOT883 standard mounting conditions (footprint), FR4 with 60 µm copper strip line.
2. Device mounted on a FR4 printed-circuit board, single-sided copper, mounting pad for collector 1 cm².

NPN general purpose transistors

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air		
		note 1	500	K/W
		note 2	290	K/W

Notes

1. Refer to SOT883 standard mounting conditions (footprint), FR4 with 60 μ m copper strip line.
2. Device mounted on a FR4 printed-circuit board, single-sided copper, mounting pad for collector 1 cm².

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = 30\text{ V}; I_E = 0$	–	100	nA
		$V_{CB} = 30\text{ V}; I_E = 0; T_j = 150\text{ }^{\circ}\text{C}$	–	5	μ A
I_{EBO}	emitter-base cut-off current	$V_{EB} = 4\text{ V}; I_C = 0$	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 6\text{ V}; I_C = 1\text{ mA}$			
			120	270	
			180	390	
			270	560	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 50\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$	–	200	mV
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = 12\text{ V}; f = 1\text{ MHz}$	–	1.5	pF
f_T	transition frequency	$V_{CE} = 12\text{ V}; I_C = 2\text{ mA}; f = 100\text{ MHz}$	100	–	MHz

Note

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

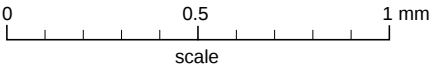
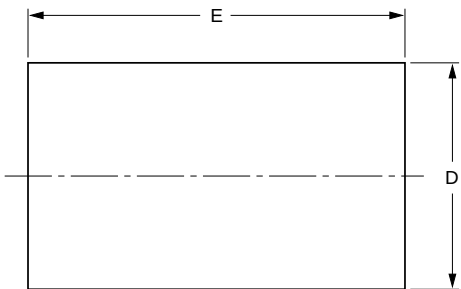
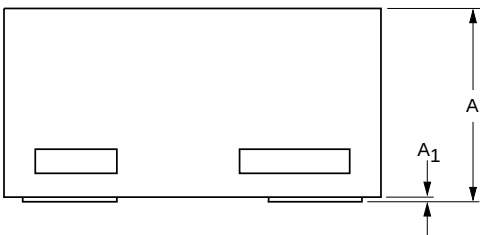
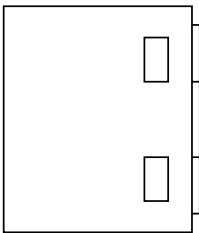
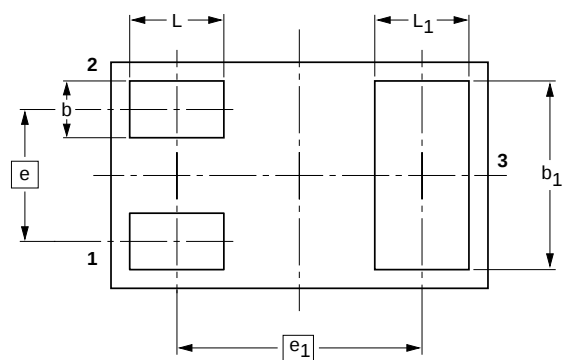
NPN general purpose transistors

2PC4617M series

PACKAGE OUTLINE

Leadless ultra small plastic package; 3 solder lands; body 1.0 x 0.6 x 0.5 mm

SOT883



DIMENSIONS (mm are the original dimensions)

UNIT	A ⁽¹⁾	A ₁ max.	b	b ₁	D	E	e	e ₁	L	L ₁
mm	0.50 0.46	0.03	0.20 0.12	0.55 0.47	0.62 0.55	1.02 0.95	0.35	0.65	0.30 0.22	0.30 0.22

Note

1. Including plating thickness

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT883			SC-101			03-02-05 03-04-03

NPN general purpose transistors

2PC4617M series

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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Notes

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2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.
3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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