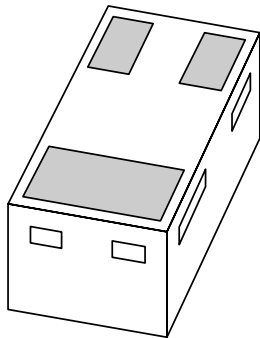


# DATA SHEET



## **2PC4617M series** NPN general purpose transistors

Product data sheet

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

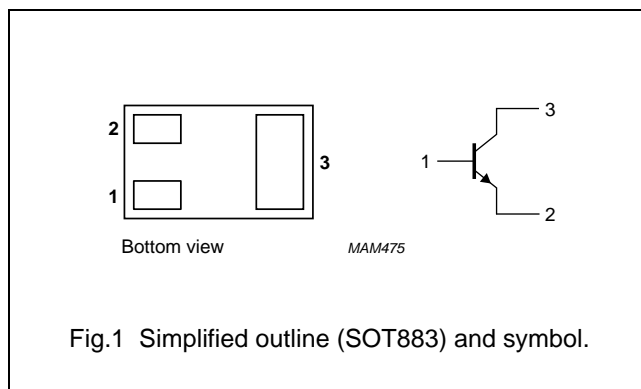
TYPE NUMBER	MARKING CODE
2PC4617QM	D7
2PC4617RM	D8
2PC4617SM	D9

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V <sub>CEO</sub>	collector-emitter voltage	50	V
I <sub>C</sub>	collector current (DC)	100	mA
I <sub>CM</sub>	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 <sub>CB0</sub>	collector-base voltage	open emitter	–	50	V
V <sub>CEO</sub>	collector-emitter voltage	open base	–	50	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	5	V
I <sub>C</sub>	collector current (DC)		–	100	mA
I <sub>CM</sub>	peak collector current		–	200	mA
I <sub>BM</sub>	peak base current		–	200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C note 1 note 2	–	250 430	mW mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	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 cm<sup>2</sup>.

## NPN general purpose transistors

## 2PC4617M series

## 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  $\mu\text{m}$  copper strip line.
2. Device mounted on a FR4 printed-circuit board, single-sided copper, mounting pad for collector 1  $\text{cm}^2$ .

## 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	$\mu\text{A}$
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 4\text{ V}; I_C = 0$	–	100	nA
$h_{FE}$	DC current gain 2PC4617QM 2PC4617RM 2PC4617SM	$V_{CE} = 6\text{ V}; I_C = 1\text{ mA}$			
			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	$I_E = i_e = 0; V_{CB} = 12\text{ V}; f = 1\text{ MHz}$	–	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:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

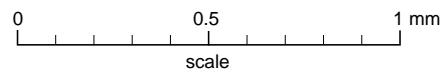
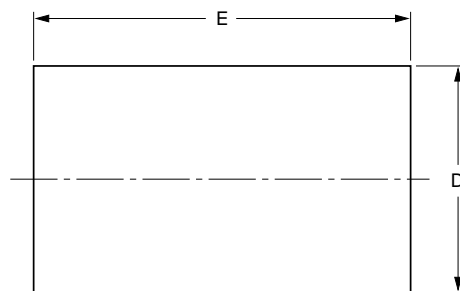
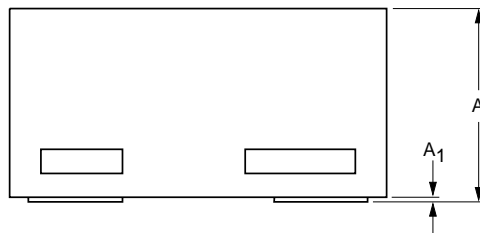
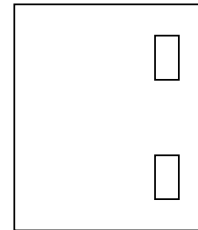
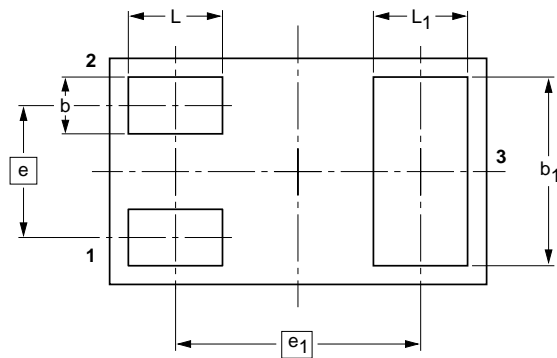
NPN general purpose transistors

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 <sup>(1)</sup>	A <sub>1</sub> max.	b	b <sub>1</sub>	D	E	e	e <sub>1</sub>	L	L <sub>1</sub>
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

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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## **Contact information**

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