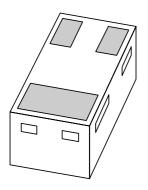
DISCRETE SEMICONDUCTORS

DATA SHEET



2PA1774M seriesPNP general purpose transistor

Product specification

2004 Feb 19





PNP general purpose transistor

2PA1774M series

FEATURES

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

APPLICATIONS

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

DESCRIPTION

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

NPN complement: 2PC4617M series.

MARKING

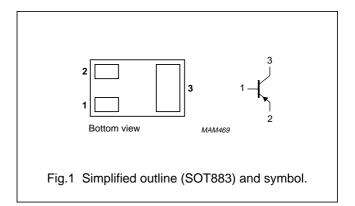
TYPE NUMBER	MARKING CODE
2PA1774QM	PB
2PA1774RM	PA
2PA1774SM	PC

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V _{CEO}	collector-emitter voltage	-40	V
I _C	collector current (DC)	-100	mA
I _{CM}	peak collector current	-200	mA

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



ORDERING INFORMATION

TYPE	PACKAGE				
NUMBER	NAME	NAME DESCRIPTION VERSION			
2PA1774QM	_	leadless ultra small plastic package; 3 solder lands; body 1.0 x 0.6 x 0.5 mm	SOT883		
2PA1774RM	_				
2PA1774SM	_				

PNP general purpose transistor

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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	_	-40	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			
		note 1	_	250	mW
		note 2	_	430	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 μ m copper strip line.
- 2. Device mounted on a FR4 printed-circuit board, single-sided copper, mounting pad for collector 1 cm².

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 μm copper strip line.
- 2. Device mounted on a FR4 printed-circuit board, single-sided copper, mounting pad for collector 1 cm².

PNP general purpose transistor

2PA1774M series

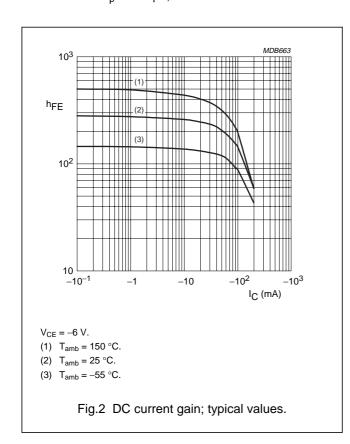
CHARACTERISTICS

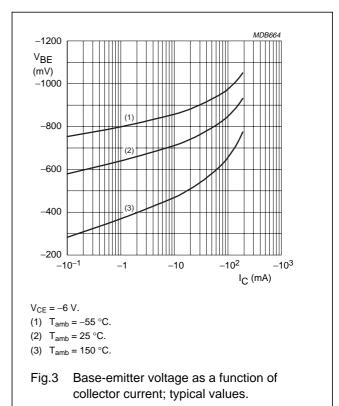
 T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	$V_{CB} = -30 \text{ V; } I_E = 0$	_	-100	nA
		$V_{CB} = -30 \text{ V}; I_E = 0; T_j = 150 ^{\circ}\text{C}$	_	- 5	μΑ
I _{EBO}	emitter-base cut-off current	$V_{EB} = -4 \text{ V}; I_{C} = 0$	_	-100	nA
h _{FE}	DC current gain	$V_{CE} = -6 \text{ V}; I_{C} = -1 \text{ mA}$			
	2PA1774QM		120	270	
	2PA1774RM		180	390	
	2PA1774SM		270	560	
V _{CEsat}	collector-emitter saturation voltage	$I_C = -50 \text{ mA}$; $I_B = -5 \text{ mA}$; note 1	_	-200	mV
C _c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = -12 \text{ V}$; $f = 1 \text{ MHz}$	_	2.2	pF
f _T	transition frequency	$V_{CE} = -12 \text{ V; } I_{C} = -2 \text{ mA;}$ f = 100 MHz	100	_	MHz

Note

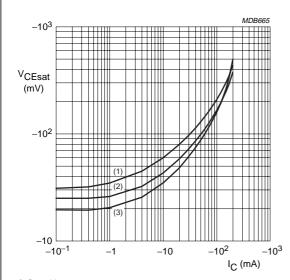
1. Pulse test: $t_p \le 300 \ \mu s; \ \delta \le 0.02.$





PNP general purpose transistor

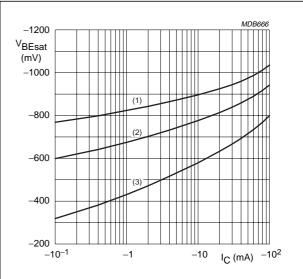
2PA1774M series



 $I_{\rm C}/I_{\rm B} = 10$.

- (1) T_{amb} = 150 °C.
- (2) $T_{amb} = 25 \, ^{\circ}C$.
- (3) $T_{amb} = -55 \, ^{\circ}C$.

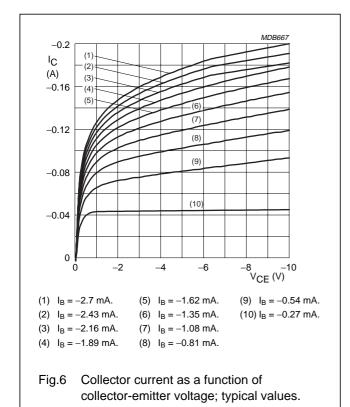
Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.

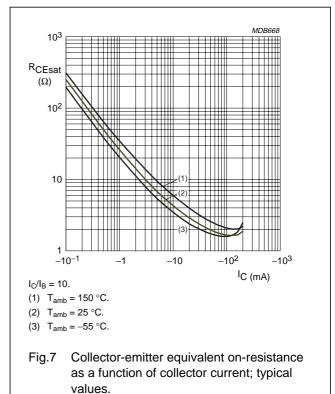


 $I_{\rm C}/I_{\rm B} = 10.$

- (1) $T_{amb} = -55 \, ^{\circ}C$.
- (2) $T_{amb} = 25 \, ^{\circ}C$.
- (3) $T_{amb} = 150 \, ^{\circ}C$.

Fig.5 Base-emitter saturation voltage as a function of collector current; typical values.





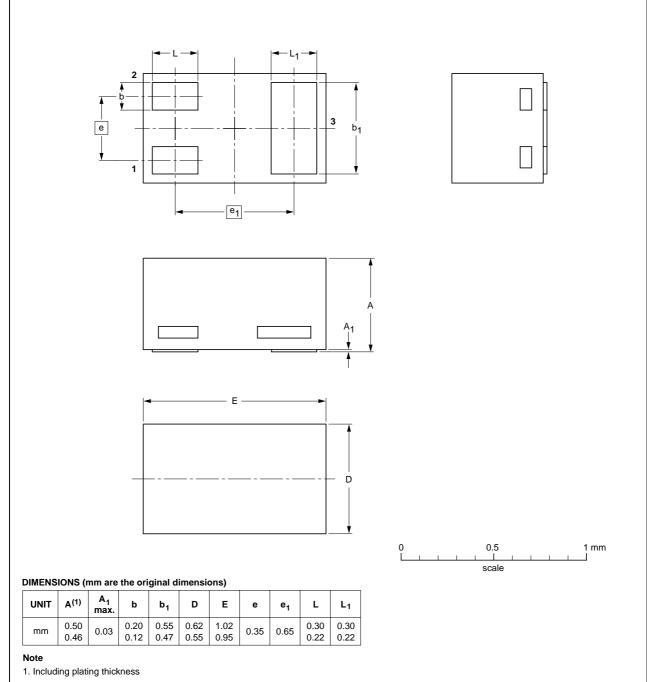
PNP general purpose transistor

2PA1774M series

PACKAGE OUTLINE

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

SOT883



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

PNP general purpose transistor

2PA1774M 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.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

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- 3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

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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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