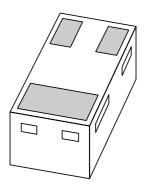
# **DISCRETE SEMICONDUCTORS**

# DATA SHEET



# **2PA1774M series**PNP 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**

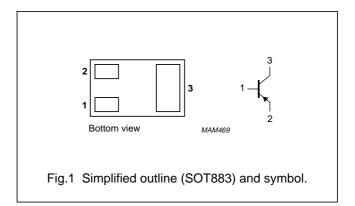
TYPE NUMBER	MARKING CODE
2PA1774QM	PB
2PA1774RM	PA
2PA1774SM	PC

# **QUICK REFERENCE DATA**

SYMBOL	PARAMETER	MAX.	UNIT
V <sub>CEO</sub>	collector-emitter voltage	-40	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



# **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 <sub>CBO</sub>	collector-base voltage	open emitter	_	-50	V
V <sub>CEO</sub>	collector-emitter voltage	open base	_	-40	V
V <sub>EBO</sub>	emitter-base voltage	open collector	_	<b>-</b> 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		_	-100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C			
		note 1	_	250	mW
		note 2	_	430	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  $\mu$ m copper strip line.
- 2. Device mounted on a FR4 printed-circuit board, single-sided copper, mounting pad for collector 1 cm<sup>2</sup>.

# THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	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 cm<sup>2</sup>.

# PNP general purpose transistor

# 2PA1774M series

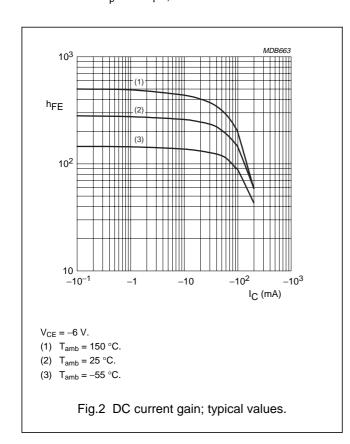
# **CHARACTERISTICS**

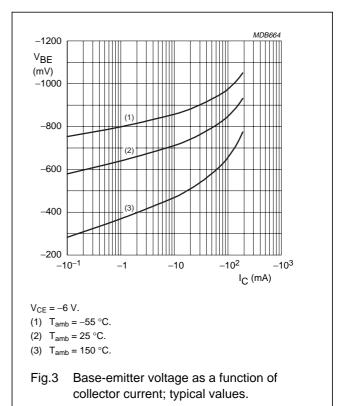
 $T_{amb}$  = 25 °C unless otherwise specified.

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

# Note

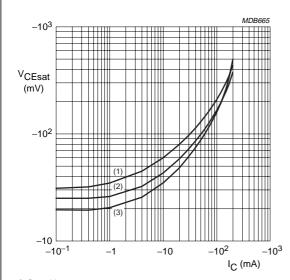
1. Pulse test:  $t_p \le 300 \ \mu s; \ \delta \le 0.02.$ 





# PNP general purpose transistor

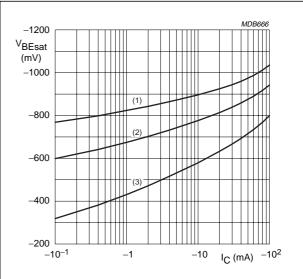
# 2PA1774M series



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

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

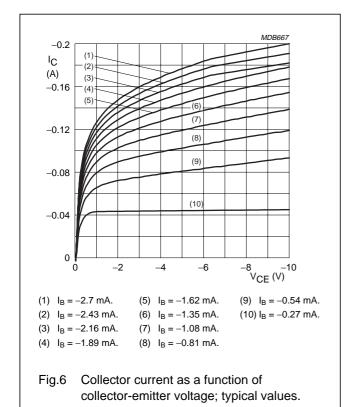
Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.

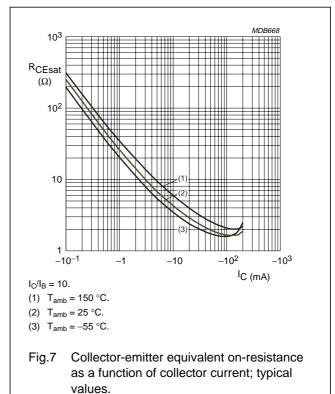


 $I_{\rm C}/I_{\rm B} = 10.$ 

- (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.





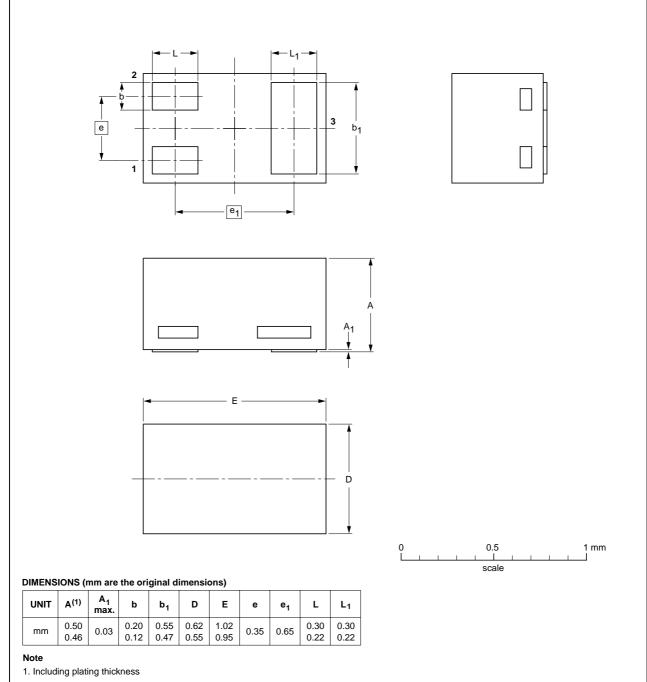
# PNP general purpose transistor

# 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			<del>03-02-05</del> 03-04-03

# PNP general purpose transistor

# 2PA1774M series

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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.
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