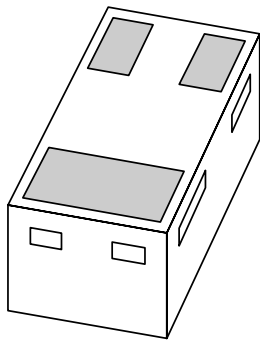


DATA SHEET



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 × 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

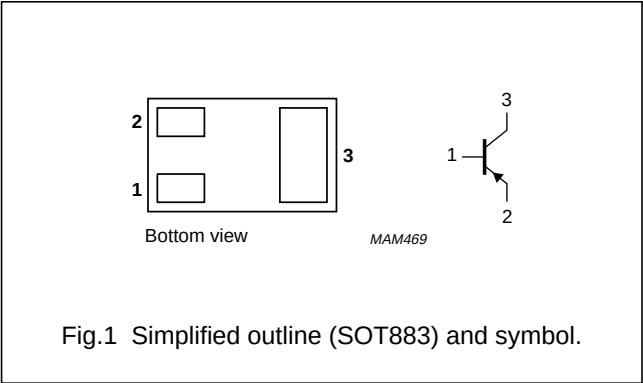
TYPE NUMBER	MARKING CODE
2PA1774QM	PB
2PA1774RM	PA
2PA1774SM	PC

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 NUMBER	PACKAGE		
	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	$T_{amb} \leq 25\text{ °C}$ 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.

THERMAL CHARACTERISTICS

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

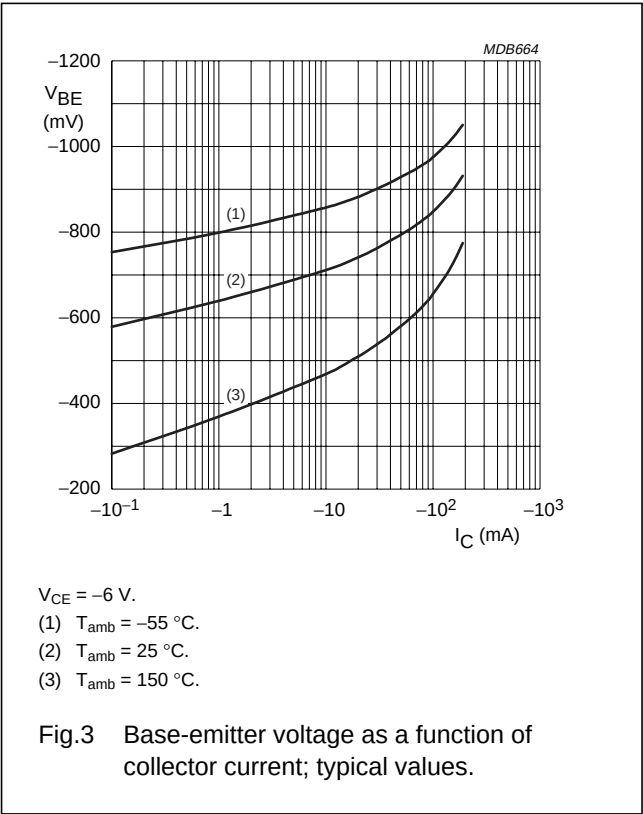
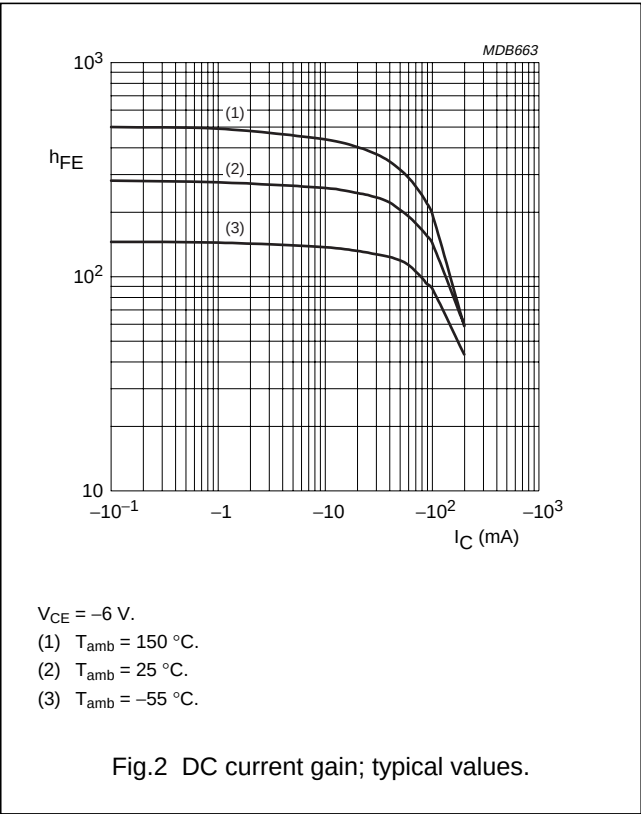
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	V _{CB} = -30 V; I _E = 0	–	–100	nA
		V _{CB} = -30 V; I _E = 0; T _j = 150 °C	–	–5	μA
I _{EBO}	emitter-base cut-off current	V _{EB} = -4 V; I _C = 0	–	–100	nA
h _{FE}	DC current gain	V _{CE} = -6 V; I _C = -1 mA			
V _{CEsat}	collector-emitter saturation voltage	I _C = -50 mA; I _B = -5 mA; note 1	–	–200	mV
C _c	collector capacitance	I _E = i _e = 0; V _{CB} = -12 V; f = 1 MHz	–	2.2	pF
f _T	transition frequency	V _{CE} = -12 V; I _C = -2 mA; f = 100 MHz	100	–	MHz

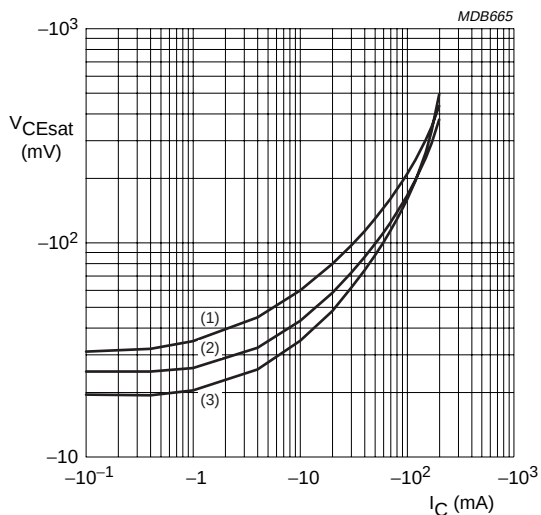
Note

1. Pulse test: t_p ≤ 300 μs; δ ≤ 0.02.



PNP general purpose transistor

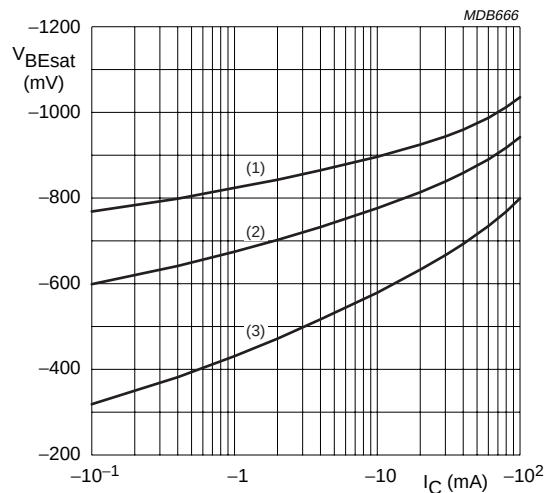
2PA1774M series



$I_C/I_B = 10$.

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

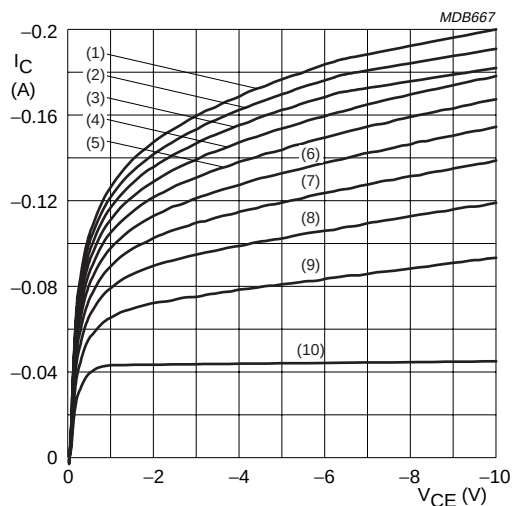
Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.



$I_C/I_B = 10$.

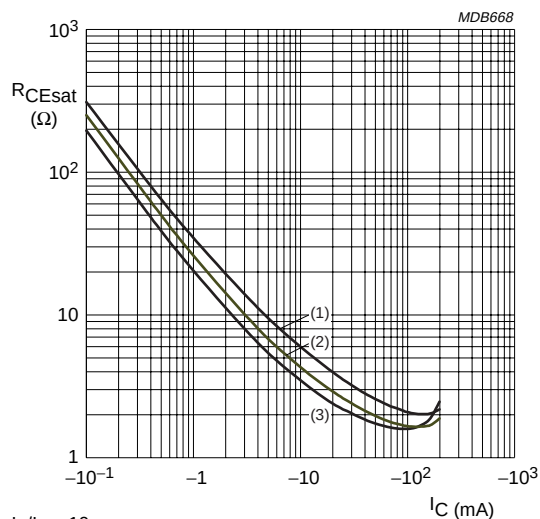
- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 150\text{ }^{\circ}\text{C}$.

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



- | | | |
|-------------------------------|-------------------------------|--------------------------------|
| (1) $I_B = -2.7\text{ mA}$. | (5) $I_B = -1.62\text{ mA}$. | (9) $I_B = -0.54\text{ mA}$. |
| (2) $I_B = -2.43\text{ mA}$. | (6) $I_B = -1.35\text{ mA}$. | (10) $I_B = -0.27\text{ mA}$. |
| (3) $I_B = -2.16\text{ mA}$. | (7) $I_B = -1.08\text{ mA}$. | |
| (4) $I_B = -1.89\text{ mA}$. | (8) $I_B = -0.81\text{ mA}$. | |

Fig.6 Collector current as a function of collector-emitter voltage; typical values.



$I_C/I_B = 10$.

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

Fig.7 Collector-emitter equivalent on-resistance as a function of collector current; typical values.

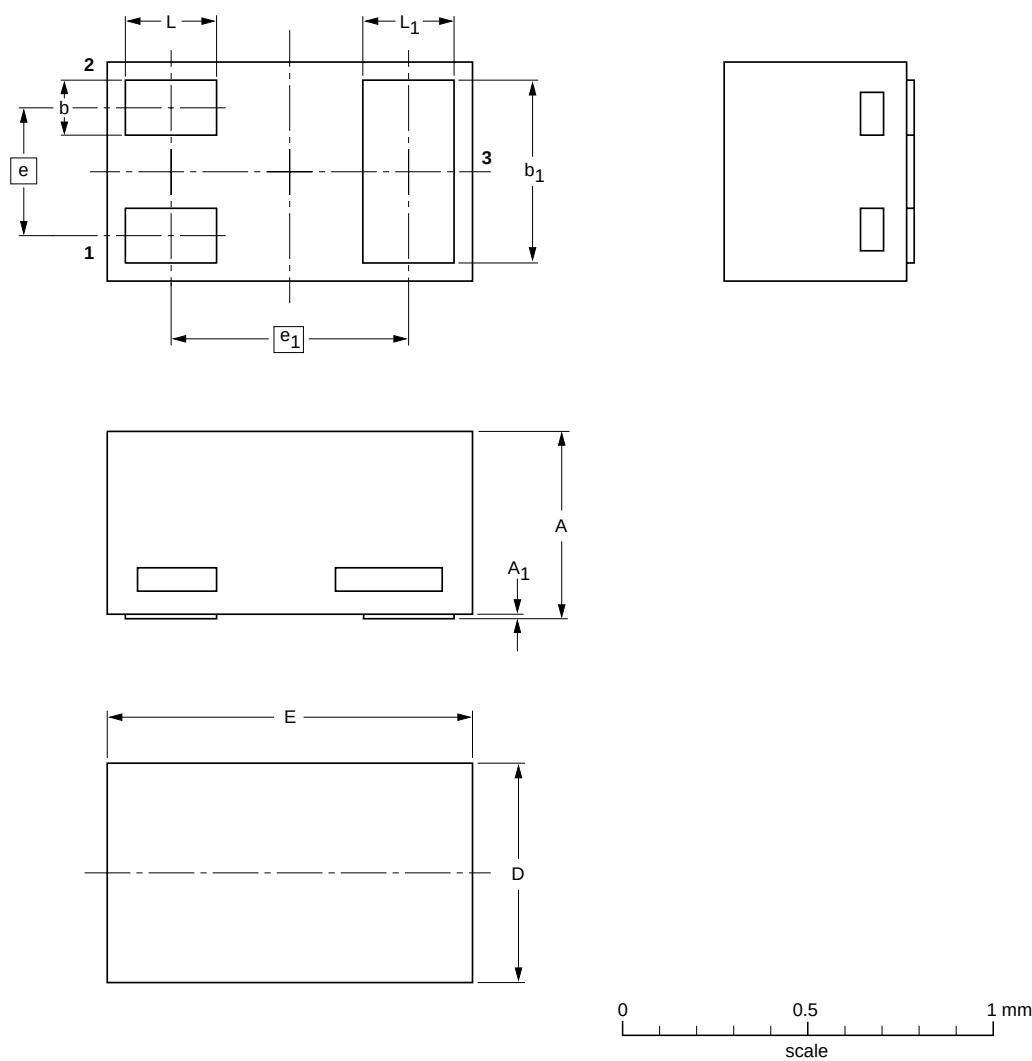
PNP general purpose transistor

2PA1774M series

PACKAGE OUTLINE

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

SOT883



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

PNP general purpose transistor

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
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