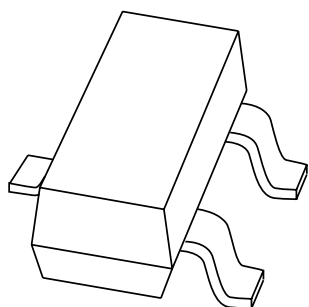


DATA SHEET



PMMT591A PNP BISS transistor

Product specification
Supersedes data of 1999 Aug 04

2001 Jun 11

PNP BISS transistor

PMMT591A

FEATURES

- High current (max. 1 A)
- Low collector-emitter saturation voltage ensures reduced power consumption.

APPLICATIONS

- Battery powered units where high current and low power consumption are important.

DESCRIPTION

PNP BISS (Breakthrough In Small Signal) transistor in a SOT23 plastic package. NPN complement: PMMT491A.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
PMMT591A	9B*

Note

1. * = p: Made in Hong Kong.
* = t: Made in Malaysia.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

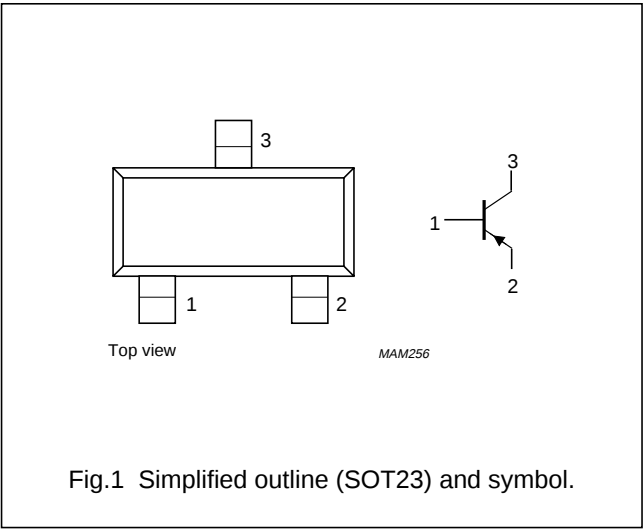


Fig.1 Simplified outline (SOT23) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter	–	–40	V
V _{CEO}	collector-emitter voltage	open base	–	–40	V
V _{EBO}	emitter-base voltage	open collector	–	–5	V
I _C	collector current (DC)		–	–1	A
I _{CM}	peak collector current		–	–2	A
I _{BM}	peak base current		–	–1	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	250	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

PNP BISS transistor

PMMT591A

THERMAL CHARACTERISTICS

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

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

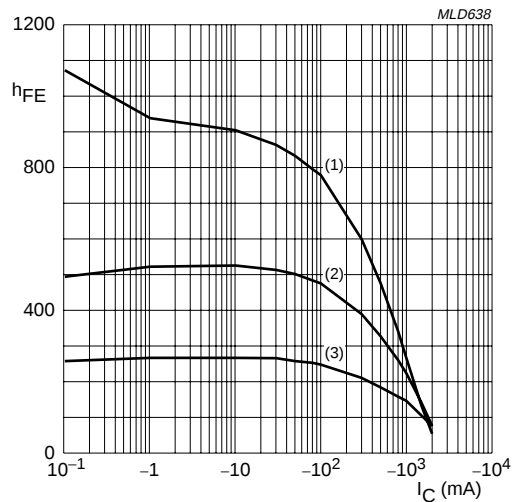
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = -30\text{ V}$	–	–100	nA
I_{CEO}	collector cut-off current	$I_B = 0$; $V_{CE} = -30\text{ V}$	–	–100	nA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = -5\text{ V}$	–	–100	nA
h_{FE}	DC current gain	$V_{CE} = -5\text{ V}$; note 1 $I_C = -1\text{ mA}$ $I_C = -100\text{ mA}$ $I_C = -500\text{ mA}$ $I_C = -1\text{ A}$	300 300 250 160	– 800 – –	
V_{CEsat}	collector-emitter saturation voltage	note 1 $I_C = -100\text{ mA}$; $I_B = -1\text{ mA}$ $I_C = -500\text{ mA}$; $I_B = -20\text{ mA}$ $I_C = -1\text{ A}$; $I_B = -100\text{ mA}$	– – –	–200 –350 –500	mV mV mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -1\text{ A}$; $I_B = -50\text{ mA}$; note 1	–	–1.1	V
V_{BE}	base-emitter voltage	$V_{CE} = -5\text{ V}$; $I_C = -1\text{ A}$; note 1	–	–1	V
C_c	collector capacitance	$I_E = I_E = 0$; $V_{CB} = -10\text{ V}$; $f = 1\text{ MHz}$	–	12	pF
f_T	transition frequency	$I_C = -50\text{ mA}$; $V_{CE} = -10\text{ V}$; $f = 100\text{ MHz}$	150	–	MHz

Note

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

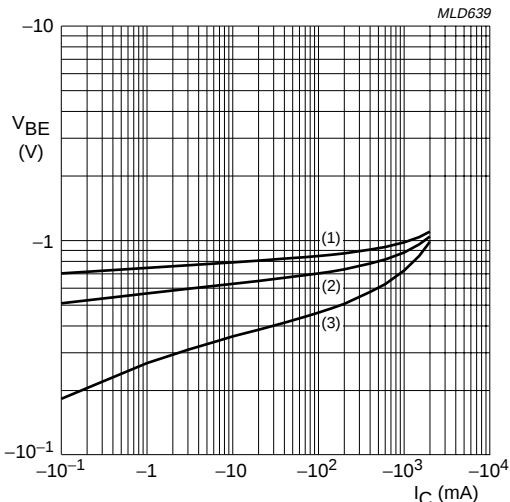
PNP BISS transistor

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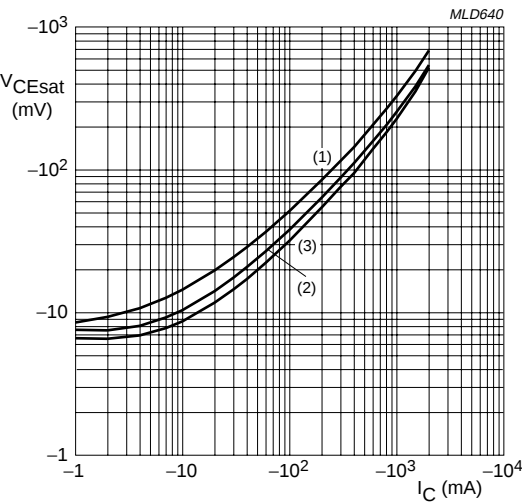
$V_{CE} = -5\text{ V}$.
(1) $T_{amb} = 150^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = -55^\circ\text{C}$.

Fig.2 DC current gain as a function of collector current; typical values.



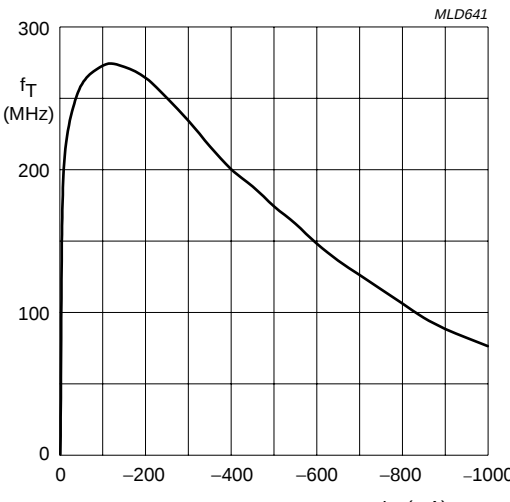
$V_{CE} = -5\text{ V}$.
(1) $T_{amb} = -55^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = 150^\circ\text{C}$.

Fig.3 Base-emitter voltage as a function of collector current; typical values.



$I_C/I_B = 10$.
(1) $T_{amb} = 150^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = -55^\circ\text{C}$.

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



$V_{CE} = -10\text{ V}$.

Fig.5 Transition frequency as a function of collector current; typical values.

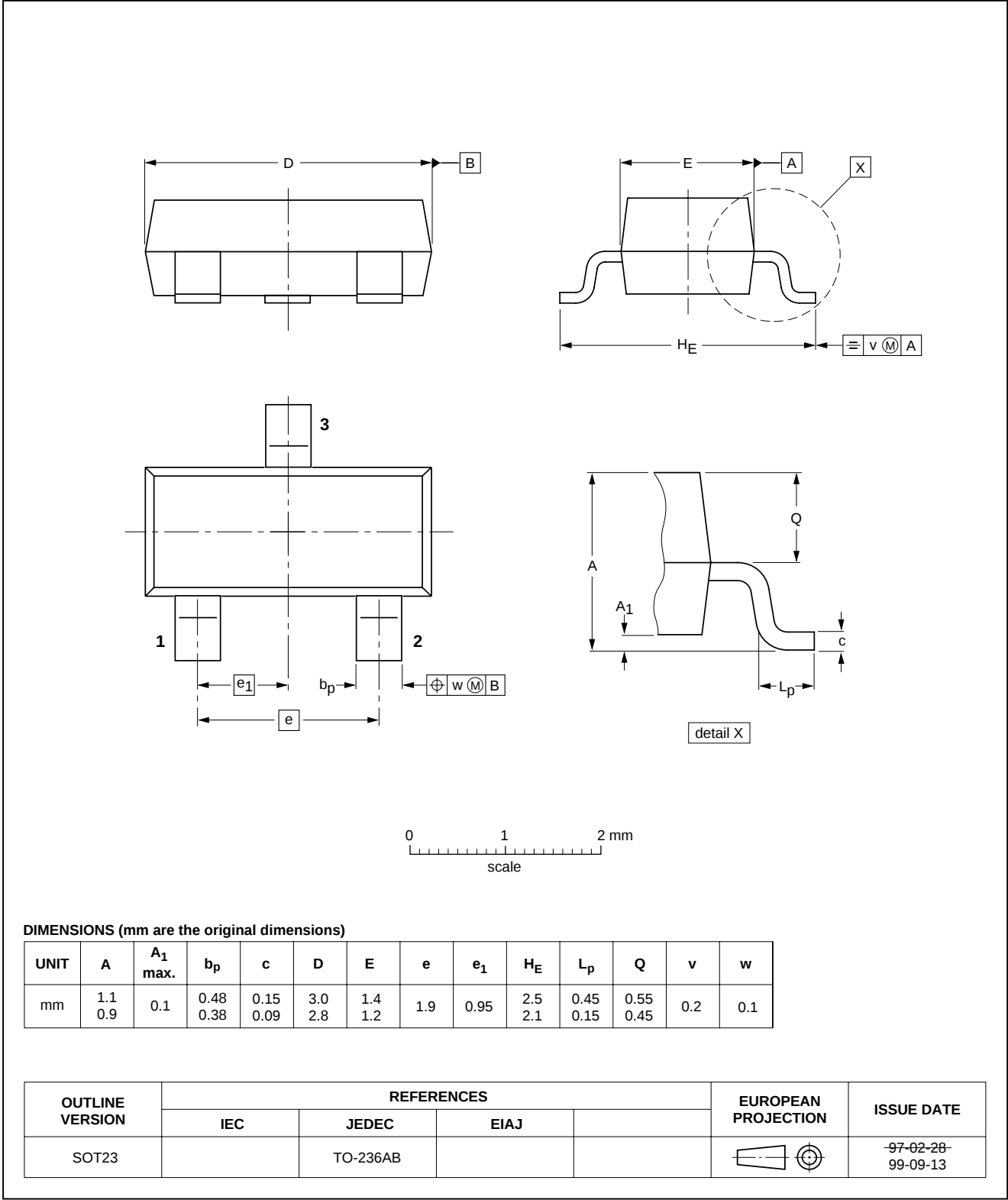
PNP BISS transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



PNP BISS transistor

PMMT591A

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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.
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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