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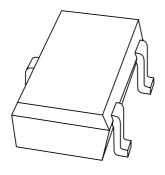
If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via **salesaddresses@nexperia.com**). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

DISCRETE SEMICONDUCTORS

DATA SHEET



PMSS3904 NPN switching transistor

Product data sheet Supersedes data of 1997 Sep 03 1999 May 27



NXP Semiconductors Product data sheet

NPN switching transistor

PMSS3904

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 40 V).

APPLICATIONS

- General purpose switching and amplification
- Telephony and professional communication equipment.

DESCRIPTION

NPN switching transistor in an SC-70 (SOT323) plastic package. PNP complement: PMSS3906.

MARKING CODE

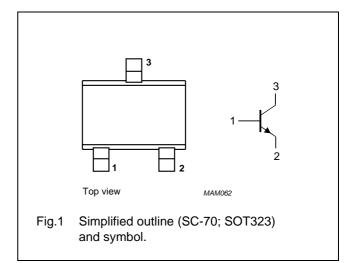
TYPE NUMBER	MARKING CODE ⁽¹⁾	
PMSS3904	*04	

Note

* = - : Made in Hong Kong.
 * = t : Made in Malaysia.

PINNING

PIN	DESCRIPTION	
1	base	
2	emitter	
3	collector	



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter	_	60	V
V _{CEO}	collector-emitter voltage	open base	_	40	V
V _{EBO}	emitter-base voltage	open collector	_	6	V
I _C	collector current (DC)		_	100	mA
I _{CM}	peak collector current		_	200	mA
I _{BM}	peak base current		_	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	_	200	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		_	150	°C
T _{amb}	operating ambient temperature		-65	+150	°C

Note

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

1999 May 27 2

NXP Semiconductors Product data sheet

NPN switching transistor

PMSS3904

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	625	K/W

Note

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

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector cut-off current	I _E = 0; V _{CB} = 30 V	_	50	nA
		I _E = 0; V _{CB} = 30 V; T _j = 150 °C	_	10	μΑ
I _{EBO}	emitter cut-off current	I _C = 0; V _{EB} = 5 V	_	50	nA
h _{FE}	DC current gain	V _{CE} = 1 V; see Fig.2			
		$I_C = 0.1 \text{ mA}$	40	_	
		I _C = 1 mA	70	_	
		I _C = 10 mA	100	300	
		I _C = 50 mA; note 1	60	_	
		I _C = 100 mA; note 1	30	_	
V _{CEsat}	collector-emitter saturation voltage	I _C = 10 mA; I _B = 1 mA	_	200	mV
		$I_C = 50 \text{ mA}; I_B = 5 \text{ mA}; \text{ note 1}$	_	300	mV
V _{BEsat}	base-emitter saturation voltage	I _C = 10 mA; I _B = 1 mA	650	850	mV
		$I_C = 50 \text{ mA}; I_B = 5 \text{ mA}; \text{ note 1}$	_	950	mV
C _c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = 5$ V; $f = 1$ MHz	_	4	pF
C _e	emitter capacitance	$I_C = i_c = 0$; $V_{EB} = 0.5 \text{ V}$; $f = 1 \text{ MHz}$	_	12	pF
f _T	transition frequency	$I_C = 10 \text{ mA}; V_{CE} = 20 \text{ V}; f = 100 \text{ MHz}$	180	-	MHz
F	noise figure	I_C = 100 μA; V_{CE} = 5 V; R_S = 1 kΩ f = 10 Hz to 15.7 KHz	_	5	dB
Switching t	imes (between 10% and 90% levels); see Fig.3			
t _{on}	turn-on time	I _{Con} = 10 mA; I _{Bon} = 1 mA;	_	110	ns
t _d	delay time	$I_{Boff} = -1 \text{ mA}; V_{CC} = 3 \text{ V};$	_	50	ns
t _r	rise time	$V_{BB} = -1.9 \text{ V}$	_	60	ns
t _{off}	turn-off time		_	1200	ns
t _s	storage time		_	1000	ns
t _f	fall time		_	200	ns

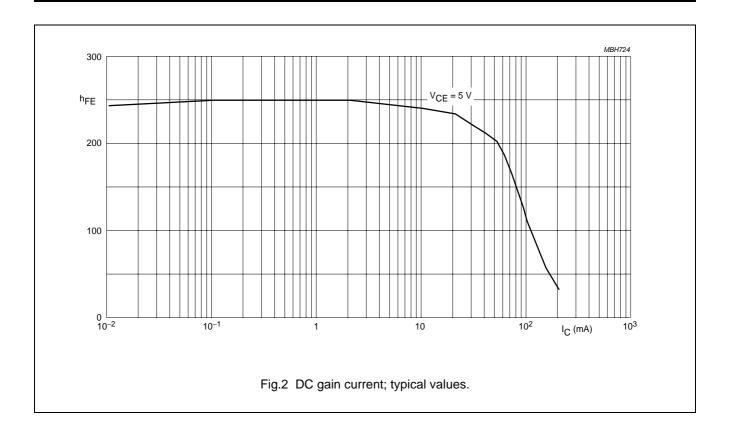
Note

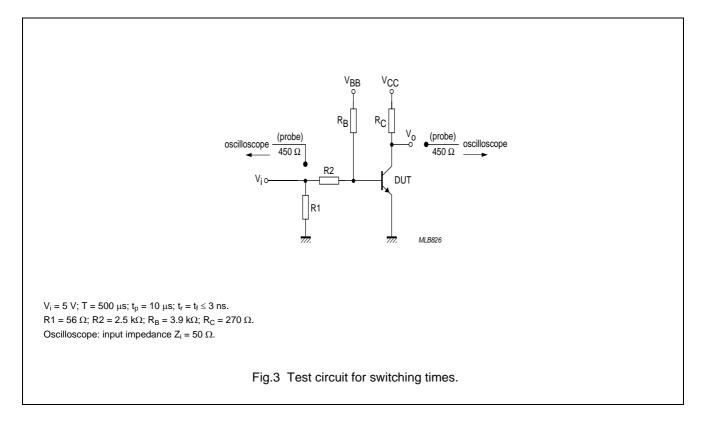
1. Pulse test: $t_p \leq 300~\mu s;~\delta \leq 0.02.$

1999 May 27 3

NPN switching transistor

PMSS3904





1999 May 27 4

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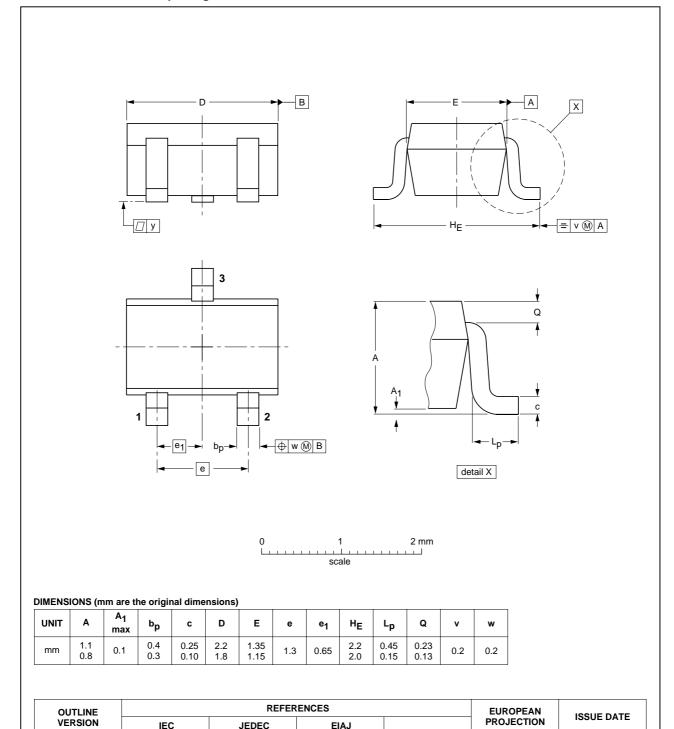
NPN switching transistor

PMSS3904

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



1999 May 27 5

IEC

SOT323

JEDEC

EIAJ

SC-70

97-02-28

NXP Semiconductors Product data sheet

NPN switching transistor

PMSS3904

DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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.

Notes

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1999 May 27 6

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Customer notification

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Contact information

For additional information please visit: $\mbox{\bf http://www.nxp.com}$

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