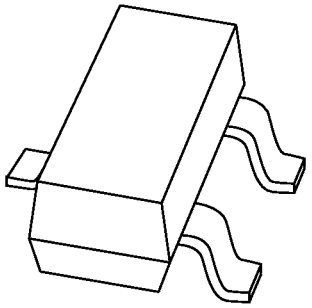
DATA SHEET



PMBT6428; PMBT6429
NPN general purpose transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Apr 02

Philips
Semiconductors

PHILIPS

NPN general purpose transistors PMBT6428; PMBT6429

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 50 V).

APPLICATIONS

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

DESCRIPTION

NPN transistor in a SOT23 plastic package.

MARKING

TYPE NUMBER	MARKING CODE
PMBT6428	p1K
PMBT6429	p1L

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

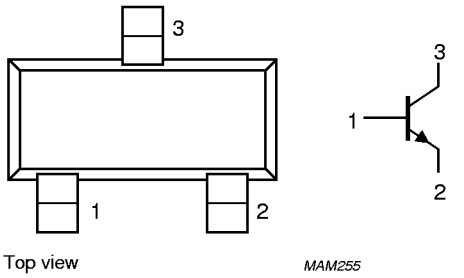


Fig.1 Simplified outline SOT23 and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	PMBT6428		–	60	V
	PMBT6429		–	55	V
V_{CEO}	collector-emitter voltage	open base			
	PMBT6428		–	50	V
	PMBT6429		–	45	V
I_{CM}	peak collector current		–	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	250	mW
h_{FE}	DC current gain	$I_C = 0.1$ mA; $V_{CE} = 5$ V			
	PMBT6428		250	650	
	PMBT6429		500	1250	
f_T	transition frequency	$I_C = 1$ mA; $V_{CE} = 5$ V; f = 100 MHz	100	700	MHz

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			
	PMBT6428		–	60	V
	PMBT6429		–	55	V
V_{CEO}	collector-emitter voltage	open base			
	PMBT6428		–	50	V
	PMBT6429		–	45	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	$T_{amb} \leq 25$ °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.

THERMAL CHARACTERISTICS

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

Note

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

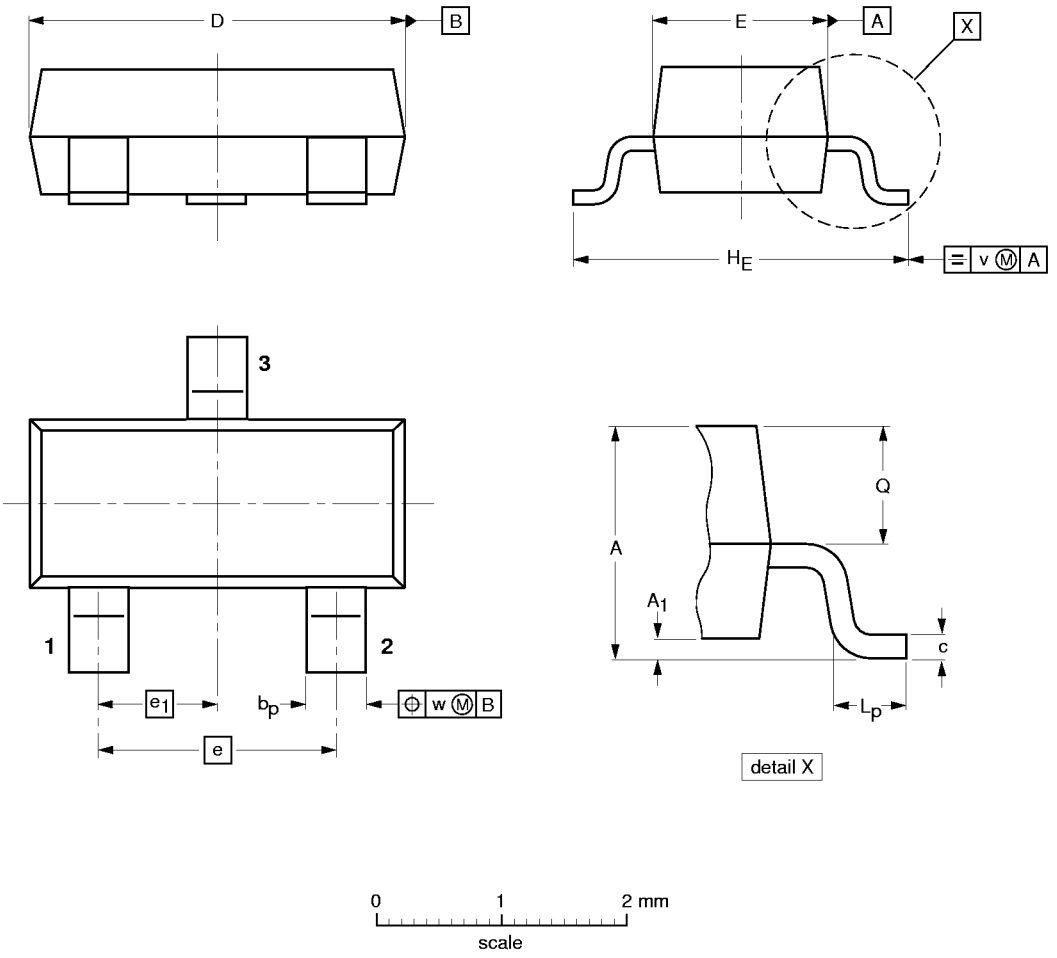
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = 30 V	–	10	nA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = 5 V	–	10	nA
h_{FE}	DC current gain	I_C = 0.1 mA; V_{CE} = 5 V			
	PMBT6428		250	650	
	PMBT6429		500	1250	
h_{FE}	DC current gain	I_C = 1 mA; V_{CE} = 5 V			
	PMBT6428		250	–	
	PMBT6429		500	–	
h_{FE}	DC current gain	I_C = 10 mA; V_{CE} = 5 V			
	PMBT6428		250	–	
	PMBT6429		500	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = 10 mA; I_B = 0.5 mA	–	200	mV
		I_C = 100 mA; I_B = 5 mA	–	600	mV
V_{BE}	base-emitter voltage	I_C = 1 mA; V_{CE} = 5 V	560	660	mV
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = 10 V; f = 1 MHz	–	3	pF
C_e	emitter capacitance	I_C = i_c = 0; V_{EB} = 0.5 V; f = 1 MHz	–	12	pF
f_T	transition frequency	I_C = 1 mA; V_{CE} = 5 V; f = 100 MHz	100	700	MHz

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT23**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23						97-02-28