

PNP 1 GHz switching transistor

PMBTH81

FEATURES

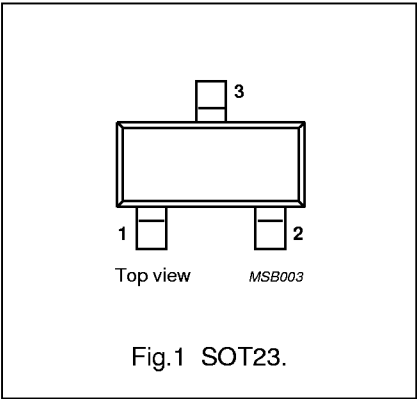
- Low cost
- High transition frequency.

DESCRIPTION

The PMBTH81 is a general purpose silicon pnp transistor, encapsulated in a SOT23 plastic envelope. Its complement is the PMBTH10.

PINNING

PIN	DESCRIPTION
Code: V31	
1	base
2	emitter
3	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter	–	20	V
V _{CEO}	collector-emitter voltage	open base	–	20	V
P _{tot}	total power dissipation	T _s = 45 °C (note 1)	–	400	mW
C _{ce}	collector-emitter capacitance	V _{CB} = 10 V; I _B = 0; f = 1 MHz	–	0.65	pF
C _{cb}	collector-base capacitance	V _{CB} = 10 V; I _E = 0; f = 1 MHz	–	0.85	pF
f _T	transition frequency	V _{CE} = 10 V; I _C = 5 mA; f = 100 MHz; T _{amb} = 25 °C	600	–	MHz

Note

1. T_s is the temperature at the soldering point of the collector tab.

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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	20	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
V_{EBO}	emitter-base voltage	open collector	–	3	V
I_C	collector current		–	40	mA
P_{tot}	total power dissipation	$T_s = 45\text{ °C}$ (note 1)	–	400	mW
T_{stg}	storage temperature		–65	150	°C
T_j	junction temperature		–	150	°C

THERMAL RESISTANCE

SYMBOL	PARAMETER	THERMAL RESISTANCE
$R_{th\ j-s}$	from junction to soldering point (note 1)	260 K/W

Note

1. T_s is the temperature at the soldering point of the collector tab.

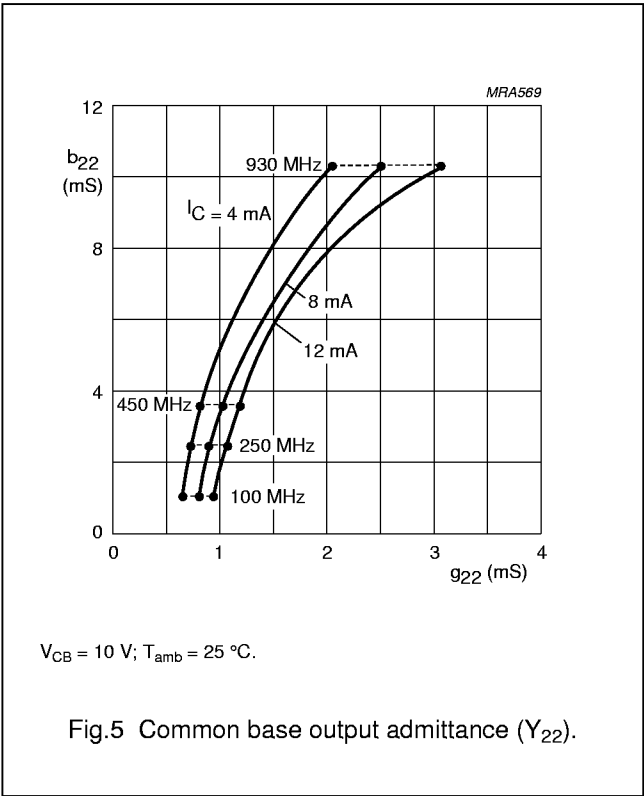
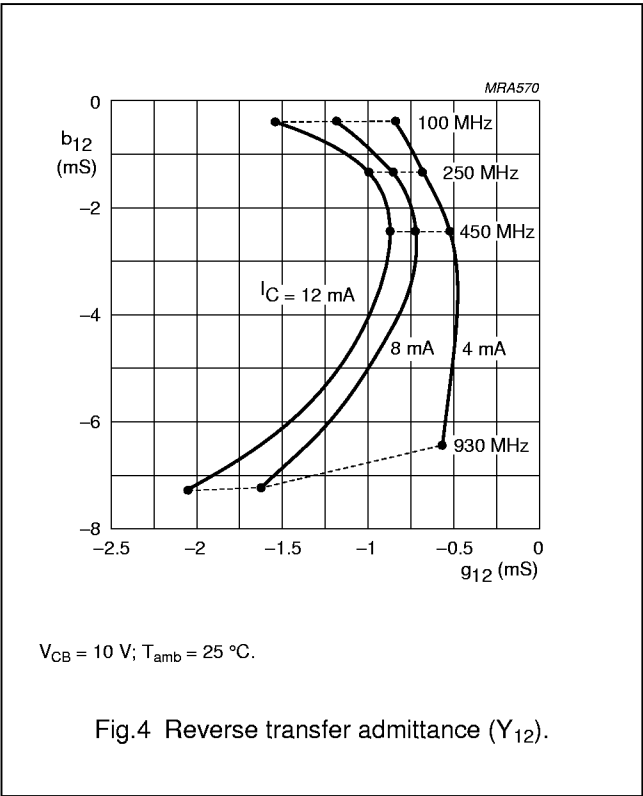
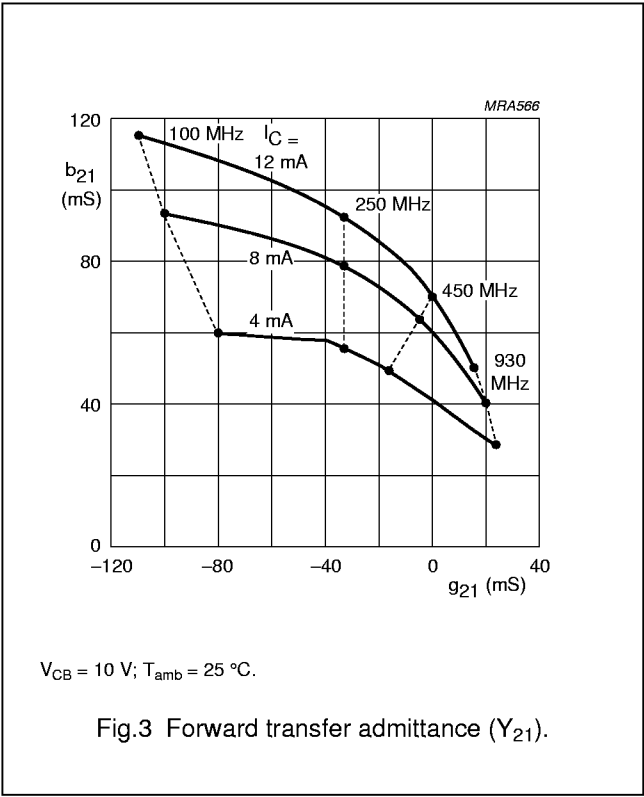
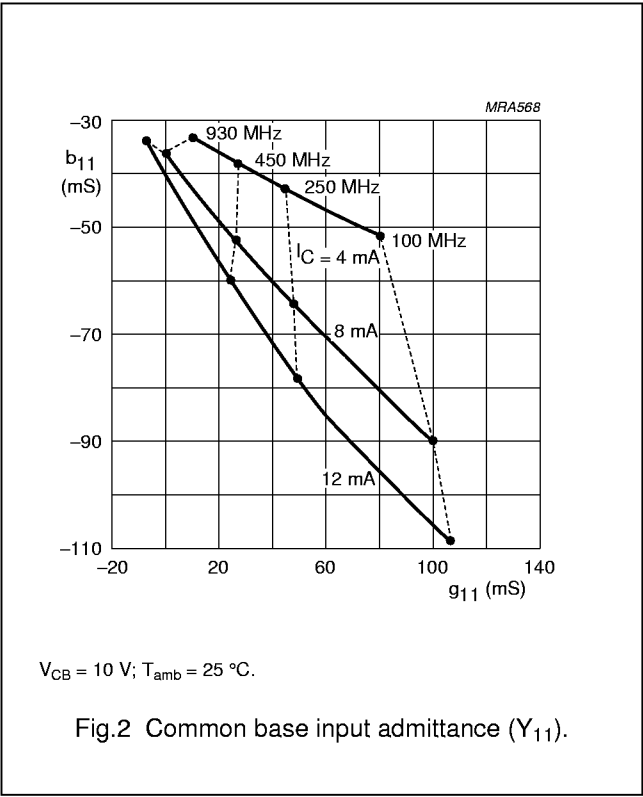
CHARACTERISTICS

$T_j = 25\text{ °C}$

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	open emitter; $I_C = 10\text{ }\mu\text{A}$; $I_E = 0$	20	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	open base; $I_C = 1\text{ mA}$; $I_B = 0$	20	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	open collector; $I_E = 10\text{ }\mu\text{A}$; $I_C = 0$	3	–	V
$V_{CE\ sat}$	collector-emitter saturation voltage	$I_C = 5\text{ mA}$; $I_B = 0.5\text{ mA}$	–	0.5	V
$V_{BE\ on}$	base-emitter ON voltage	$V_{CE} = 10\text{ V}$; $I_C = 5\text{ mA}$	–	0.9	V
I_{CBO}	collector-base cut-off current	$V_{CB} = 10\text{ V}$; $I_E = 0$	–	100	nA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 2\text{ V}$; $I_C = 0$	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}$; $I_C = 5\text{ mA}$	60	–	
C_{ce}	collector-emitter capacitance	$V_{CB} = 10\text{ V}$; $I_B = 0$; $f = 1\text{ MHz}$	–	0.65	pF
C_{cb}	collector-base capacitance	$V_{CB} = 10\text{ V}$; $I_E = 0$; $f = 1\text{ MHz}$	–	0.85	pF
f_T	transition frequency	$V_{CE} = 10\text{ V}$; $I_C = 5\text{ mA}$; $f = 100\text{ MHz}$; $T_{amb} = 25\text{ °C}$	600	–	MHz

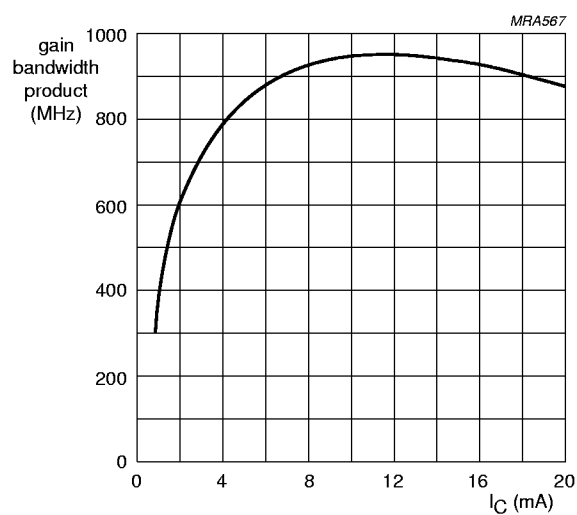
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$V_{CE} = 10$ V; $f = 100$ MHz.

Fig.6 Current gain-bandwidth product as a function of collector current.

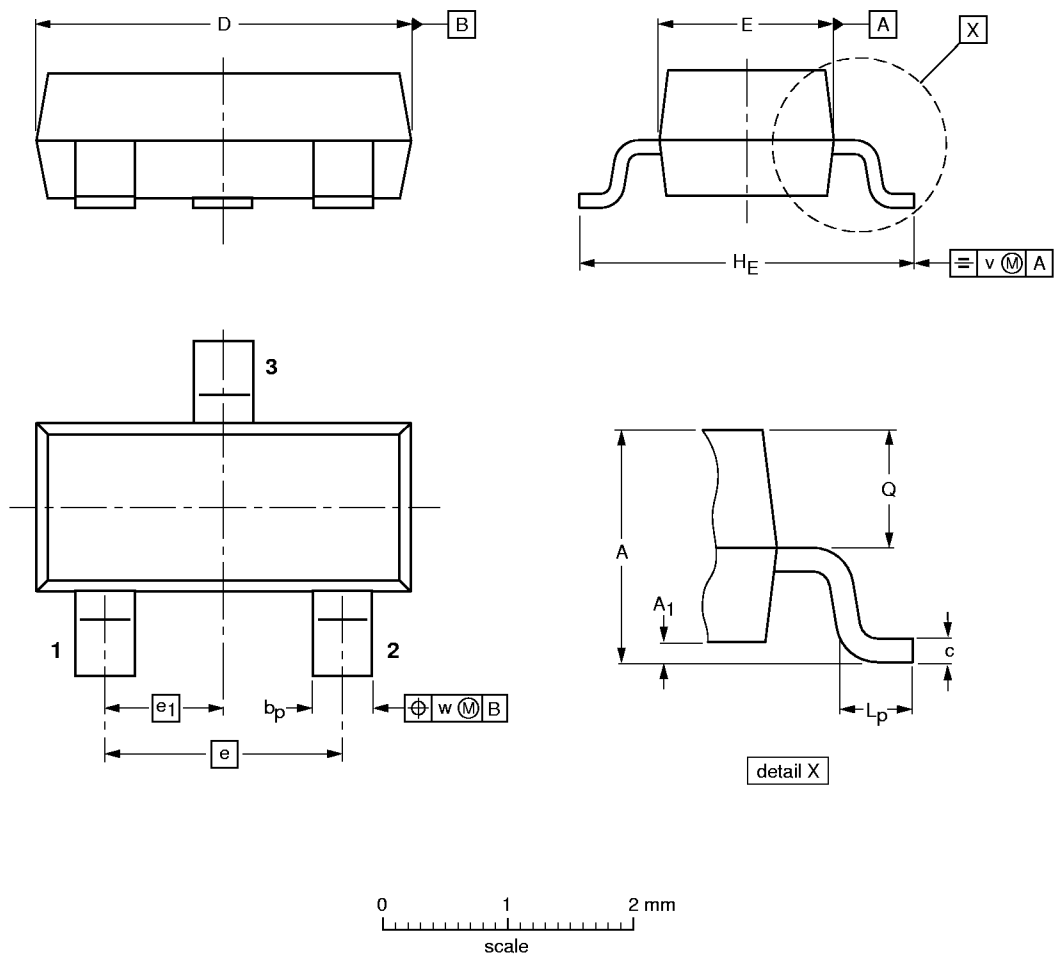
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PACKAGE OUTLINE

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