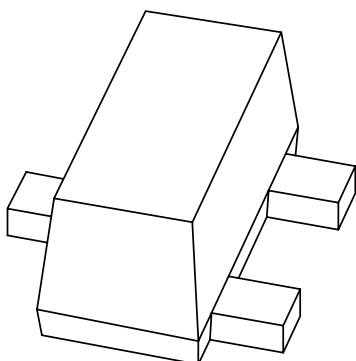


DATA SHEET



PDA114YEF

PNP resistor-equipped transistor

R1 = 10 k Ω ; R2 = 47 k Ω

Product specification

2002 Mar 15

PNP resistor-equipped transistor
R1 = 10 kΩ; R2 = 47 kΩ

PDTA114YEF

FEATURES

- Built-in bias resistors
- 250 mW total power dissipation
- Very small 1.6 × 0.85 × 0.7 mm thin package
- Flat leads
- Excellent coplanarity
- Improved thermal behaviour
- Reduces number of components and required PCB area.

APPLICATIONS

- General purpose and switching amplification
- Inverter and interface circuits
- Driver circuits.

DESCRIPTION

PNP resistor-equipped transistor in a SOT490 (SC-89) plastic package.

MARKING

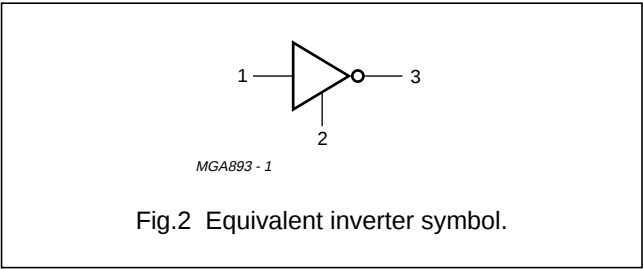
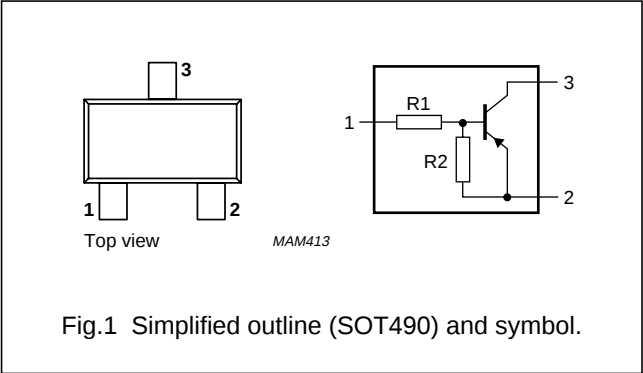
TYPE NUMBER	MARKING CODE
PDTA114YEF	37

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V _{CEO}	collector-emitter voltage	−50	V
I _O	output current (DC)	−100	mA
R1	bias resistor	10	kΩ
R2	bias resistor	47	kΩ

PINNING

PIN	DESCRIPTION
1	base/input
2	emitter/ground (+)
3	collector/output



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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	–	–50	V
V _{CEO}	collector-emitter voltage	open base	–	–50	V
V _{EBO}	emitter-base voltage	open collector	–	–10	V
V _i	input voltage				
	positive		–	+6	V
	negative		–	–40	V
I _O	output current (DC)		–	–100	mA
I _{CM}	peak collector current		–	–100	mA
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

- For mounting conditions, see “Thermal considerations and footprint design for SOT490 in the SC18 Data Handbook”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	in free air; note 1	500	K/W

Note

- For mounting conditions, see “Thermal considerations and footprint design for SOT490 in the SC18 Data Handbook”.

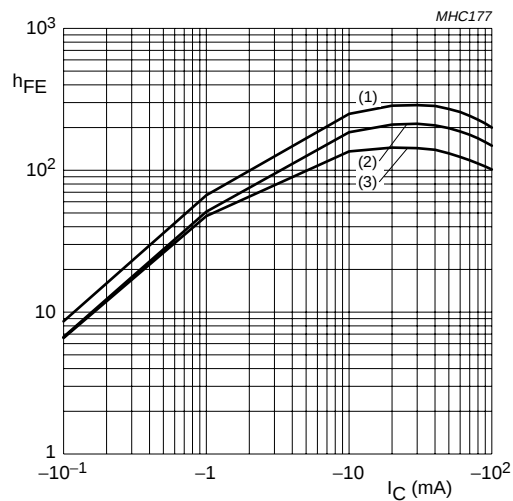
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	V _{CB} = –50 V; I _E = 0	–	–	–100	nA
I _{CEO}	collector-emitter cut-off current	V _{CE} = –30 V; I _B = 0	–	–	–1	μA
		V _{CE} = –30 V; I _B = 0; T _j = 150 °C	–	–	–50	μA
I _{EBO}	emitter-base cut-off current	V _{EB} = –5 V; I _C = 0	–	–	–150	μA
h _{FE}	DC current gain	V _{CE} = –5 V; I _C = –5 mA	100	–	–	
V _{CEsat}	saturation voltage	I _C = –5 mA; I _B = –0.25 mA	–	–	–100	mV
V _{i(off)}	input off voltage	V _{CE} = –5 V; I _C = –100 μA	–	–	–0.5	V
V _{i(on)}	input on voltage	V _{CE} = –0.3 V; I _C = –1 mA	–1.4	–	–	V
R ₁	input resistor		7	10	13	k Ω
$\frac{R_2}{R_1}$	resistor ratio		3.7	4.7	5.7	
C _c	collector capacitance	V _{CB} = –10 V; I _E = I _e = 0; f = 1 MHz	–	–	3	pF

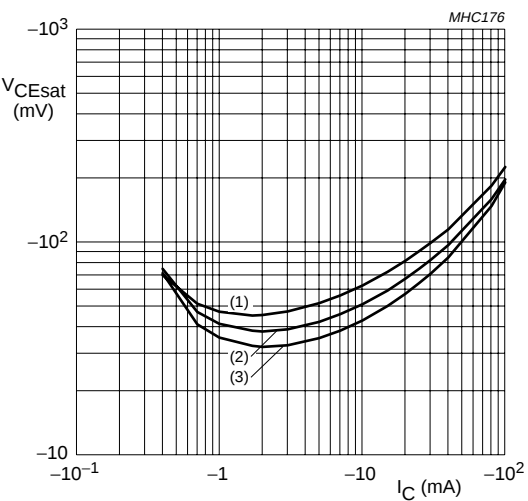
PNP resistor-equipped transistor
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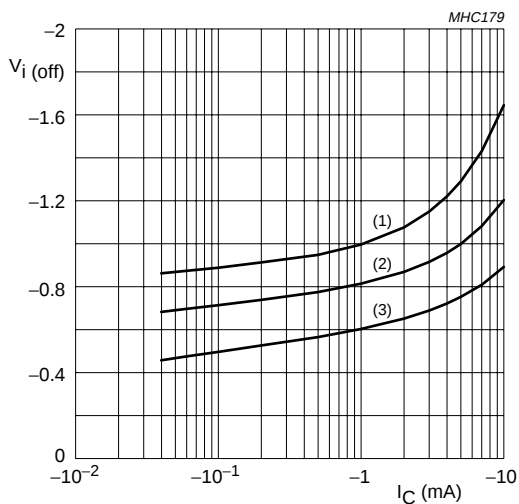
$V_{CE} = -5\text{ V}$.
(1) $T_{amb} = 100^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = -40^\circ\text{C}$.

Fig.3 DC current gain as a function of collector current; typical values.



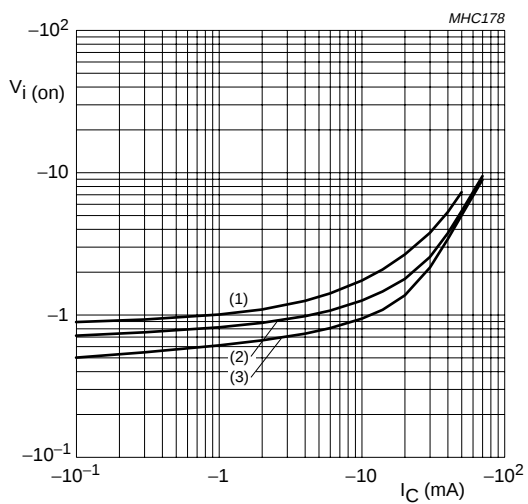
$I_C/I_B = 20$.
(1) $T_{amb} = 100^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = -40^\circ\text{C}$.

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



$V_{CE} = -5\text{ V}$.
(1) $T_{amb} = -40^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = 100^\circ\text{C}$.

Fig.5 Input-off voltage as a function of collector current; typical values.



$V_{CE} = -0.3\text{ V}$.
(1) $T_{amb} = -40^\circ\text{C}$.
(2) $T_{amb} = 25^\circ\text{C}$.
(3) $T_{amb} = 100^\circ\text{C}$.

Fig.6 Input-on voltage as a function of collector current; typical values.

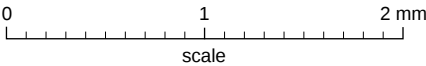
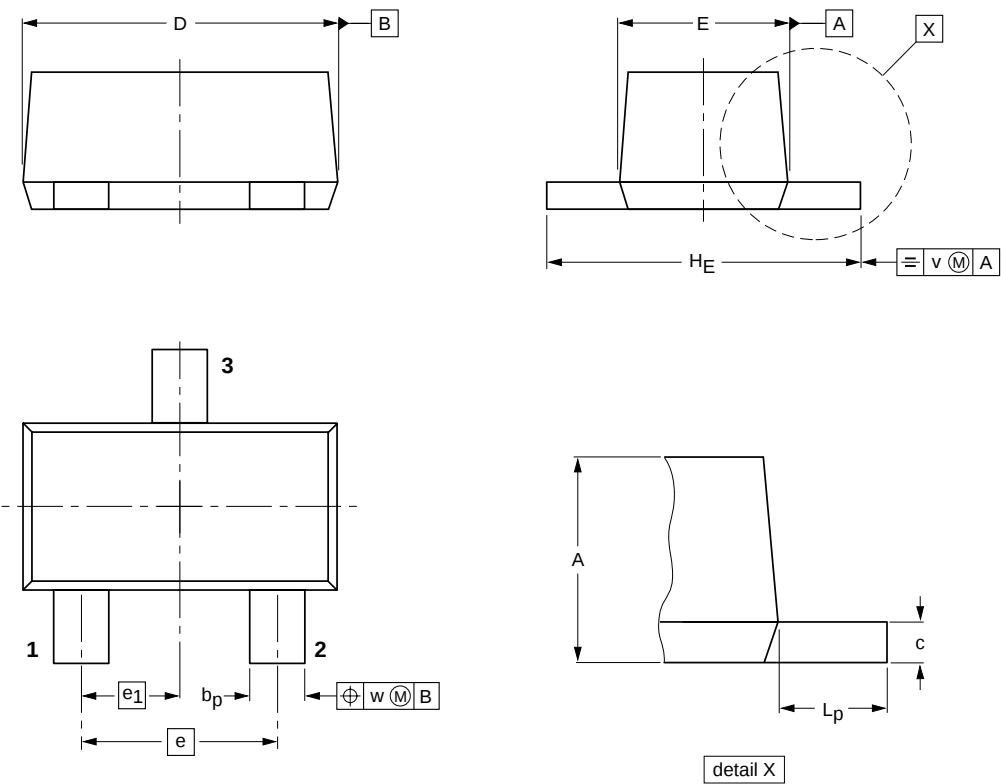
PNP resistor-equipped transistor
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT490



DIMENSIONS (mm are the original dimensions)

UNIT	A	b _p	c	D	E	e	e ₁	H _E	L _p	v	w
mm	0.8 0.6	0.33 0.23	0.2 0.1	1.7 1.5	0.95 0.75	1.0	0.5	1.7 1.5	0.5 0.3	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT490			SC-89			98-10-23

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