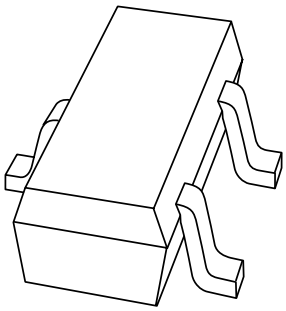
DATA SHEET



PDTA114TE
PNP resistor-equipped transistor

Preliminary specification
Supersedes data of 1997 Jul 14
File under Discrete Semiconductors, SC04

1998 Jul 23

Philips
Semiconductors

PHILIPS

PNP resistor-equipped transistor PDTA114TE

FEATURES

- Built-in bias resistor R1 (typ. 10 kΩ)
- Simplification of circuit design
- Reduces number of components and board space.

APPLICATIONS

- Especially suitable for space reduction in interface and driver circuit applications
- Inverter circuit configurations without use of an external resistor.

DESCRIPTION

PNP resistor-equipped transistor in an SC-75 plastic package.
NPN complement: PDTC114TE.

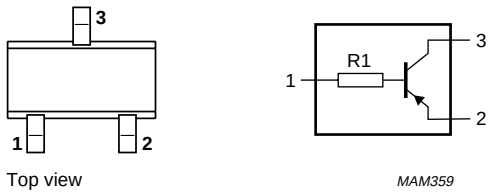


Fig.1 Simplified outline (SC-75) and symbol.

PINNING

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

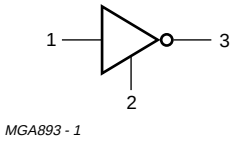


Fig.2 Equivalent inverter symbol.

MARKING

TYPE NUMBER	MARKING CODE
PDTA114TE	11

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CEO}	collector-emitter voltage	open base	–	–	–50	V
I_O	output current (DC)		–	–	–100	mA
I_{CM}	peak collector current		–	–	–100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	–	150	mW
h_{FE}	DC current gain	$I_C = -1$ mA; $V_{CE} = -5$ V	200	–	–	
R1	input resistor		7	10	13	kΩ

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	–	–50	V
V_{CEO}	collector-emitter voltage	open base	–	–50	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_O	output current (DC)		–	–100	mA
I_{CM}	peak collector current		–	–100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	150	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	833	K/W

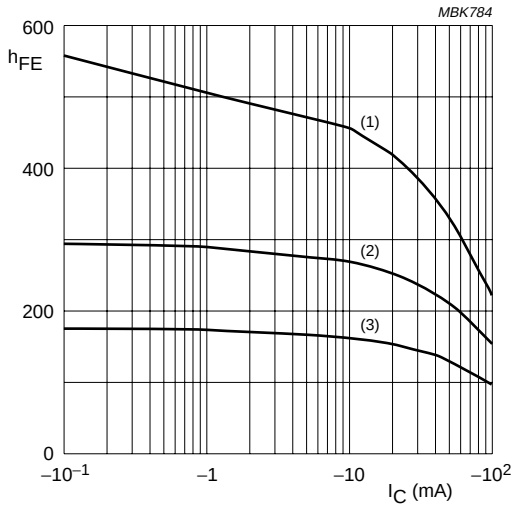
Note

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

CHARACTERISTICS

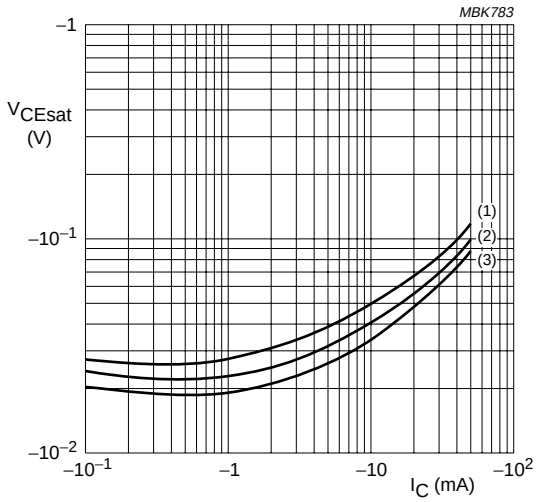
T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = -50$ V	–	–	–100	nA
I_{CEO}	collector cut-off current	$I_B = 0$; $V_{CE} = -30$ V	–	–	–1	µA
		$I_B = 0$; $V_{CE} = -30$ V; $T_j = 150$ °C	–	–	–50	µA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = -5$ V	–	–	–100	nA
h_{FE}	DC current gain	$I_C = -5$ V; $I_C = -1$ mA	200	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10$ mA; $I_B = -0.5$ mA	–	–	–150	mV
R1	input resistor		7	10	13	kΩ
C_c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = -10$ V; f = 1 MHz	–	–	3	pF



V_{CE} = −5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −40 °C.

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



I_C/I_B = 10.
(1) T_{amb} = 100 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −40 °C.

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