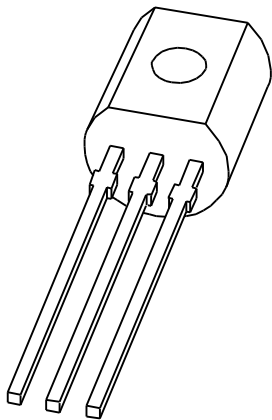


# DATA SHEET



## **2N5401** PNP high-voltage transistor

Product specification  
Supersedes data of 1999 Apr 08

2004 Oct 28

## PNP high-voltage transistor

2N5401

## FEATURES

- Low current (max. 300 mA)
- High voltage (max. 150 V).

## APPLICATIONS

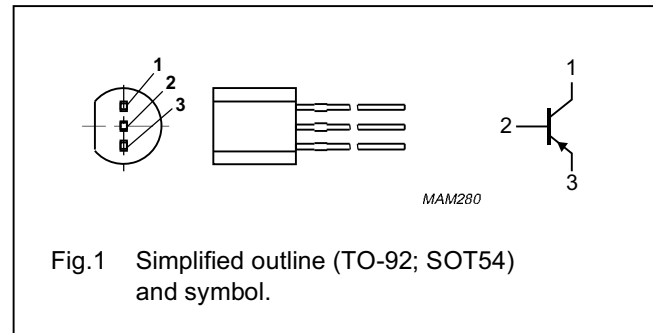
- General purpose switching and amplification
- Telephony applications.

## DESCRIPTION

PNP high-voltage transistor in a TO-92; SOT54 plastic package. NPN complement: 2N5551.

## PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
2N5401	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54

## 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	–	–160	V
$V_{CEO}$	collector-emitter voltage	open base	–	–150	V
$V_{EBO}$	emitter-base voltage	open collector	–	–5	V
$I_C$	collector current (DC)		–	–300	mA
$I_{CM}$	peak collector current		–	–600	mA
$I_{BM}$	peak base current		–	–100	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	630	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$
$T_{amb}$	ambient temperature		–65	+150	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	200	K/W

## Note

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

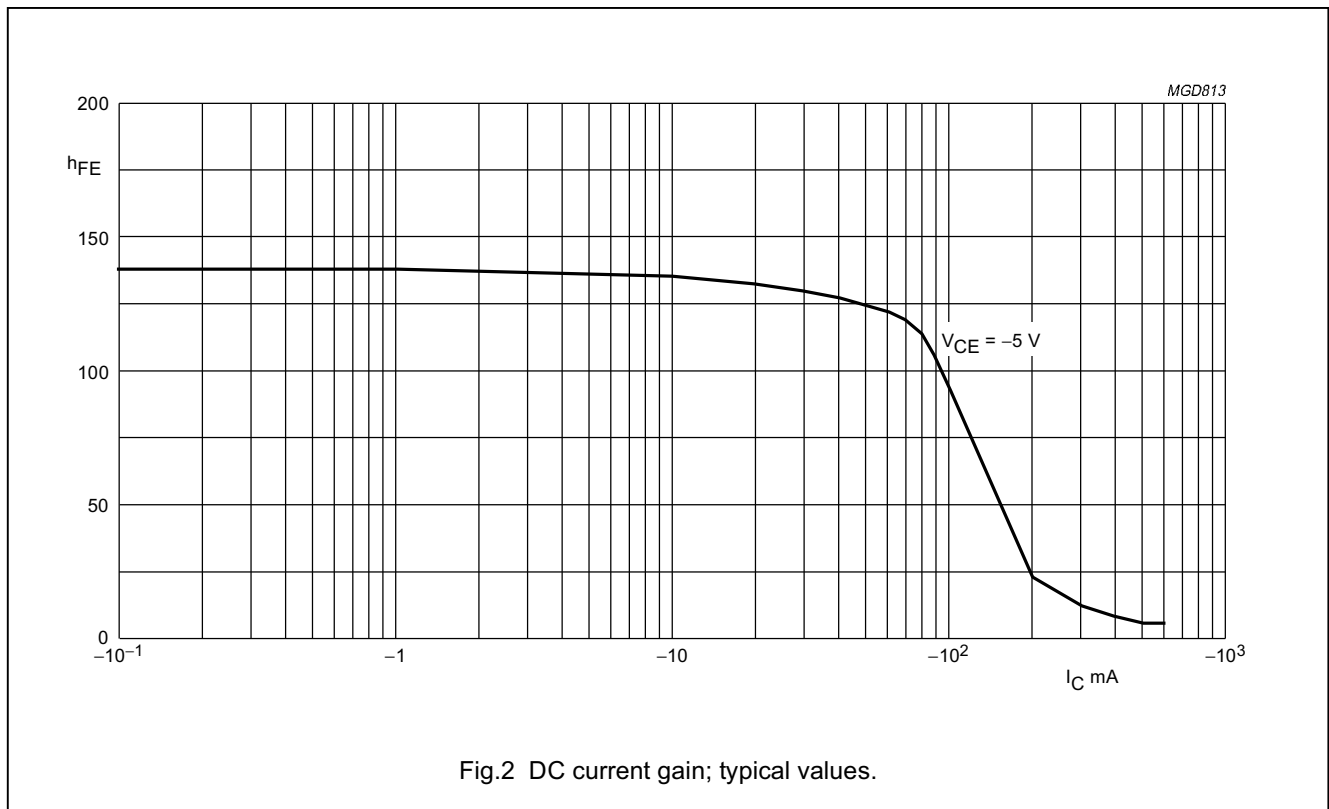
PNP high-voltage transistor

2N5401

**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = -120 V; I <sub>E</sub> = 0 A	-	-50	nA
		V <sub>CB</sub> = -120 V; I <sub>E</sub> = 0 A; T <sub>j</sub> = 100 °C	-	-50	μA
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = -4 V; I <sub>C</sub> = 0 A	-	-50	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = -5 V; see Fig.2 I <sub>C</sub> = -1 mA I <sub>C</sub> = -10 mA I <sub>C</sub> = -50 mA	50 60 50	- 240 -	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = -10 mA; I <sub>B</sub> = -1 mA	-	-200	mV
		I <sub>C</sub> = -50 mA; I <sub>B</sub> = -5 mA	-	-500	mV
C <sub>c</sub>	collector capacitance	V <sub>CB</sub> = -10 V; I <sub>E</sub> = i <sub>e</sub> = 0 A; f = 1 MHz	-	6	pF
f <sub>T</sub>	transition frequency	V <sub>CE</sub> = -10 V; I <sub>C</sub> = -10 mA; f = 100 MHz	100	300	MHz
F	noise figure	V <sub>CE</sub> = -5 V; I <sub>C</sub> = -200 μA; R <sub>S</sub> = 2 kΩ; f = 10 Hz to 15.7 kHz	-	8	pF



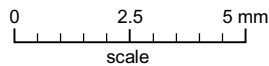
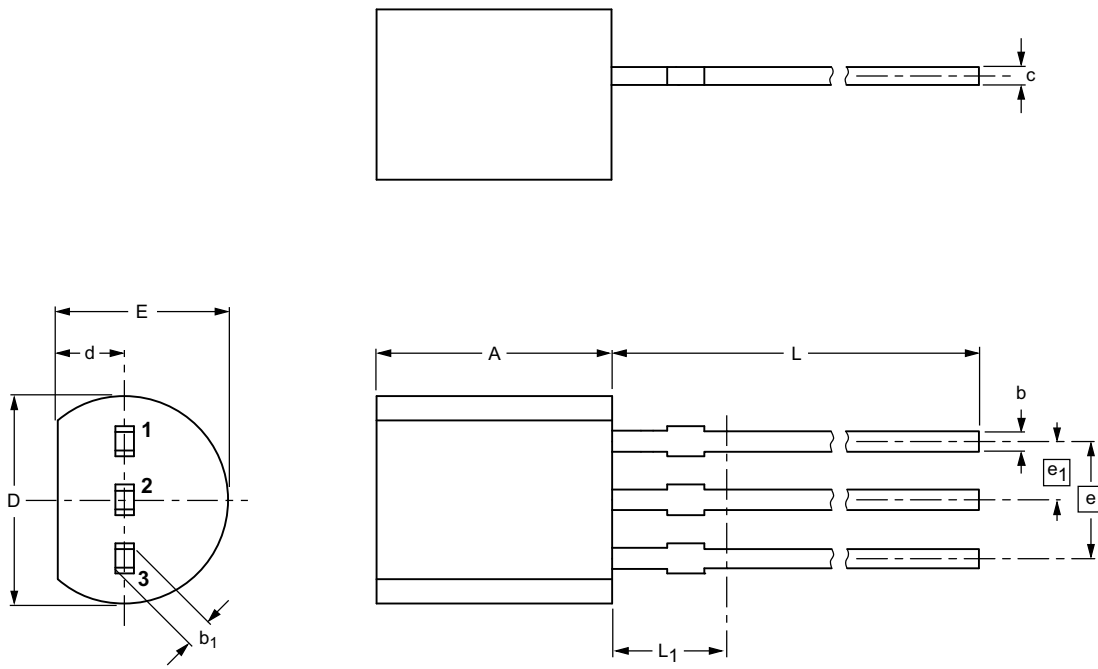
PNP high-voltage transistor

2N5401

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT54		TO-92	SC-43A		-97-02-28 04-06-28

## PNP high-voltage transistor

2N5401

## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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