

PNP high-voltage transistor

2N5401

FEATURES

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

APPLICATIONS

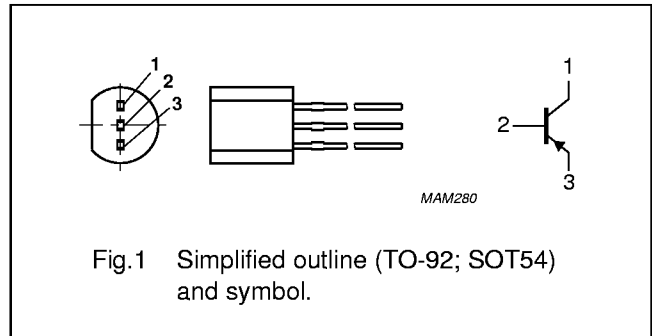
- General purpose switching and amplification
- Telephony applications.

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



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	–	–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	$T_{amb} \leq 25\text{ °C}$	–	630	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

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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.

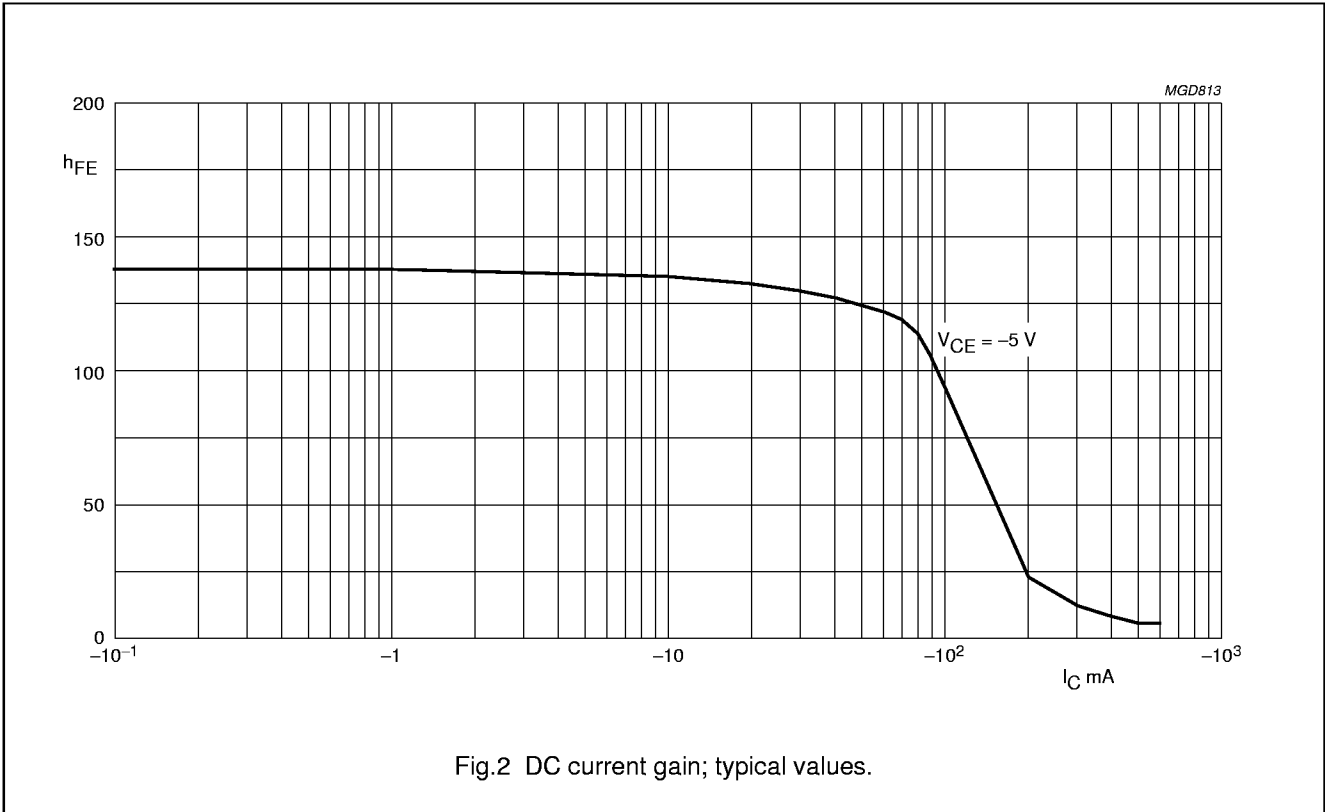
CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -120\text{ V}$	–	–50	nA
		$I_E = 0; V_{CB} = -120\text{ V}; T_{amb} = 100\text{ }^{\circ}\text{C}$	–	–50	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -4\text{ V}$	–	–50	nA
h_{FE}	DC current gain	$I_C = -1\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2	50	–	
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2	60	240	
		$I_C = -50\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2	50	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -1\text{ mA}$	–	–200	mV
		$I_C = -50\text{ mA}; I_B = -5\text{ mA}$	–	–500	mV
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	6	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	100	300	MHz
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 10\text{ Hz to }15.7\text{ kHz}$	–	8	pF

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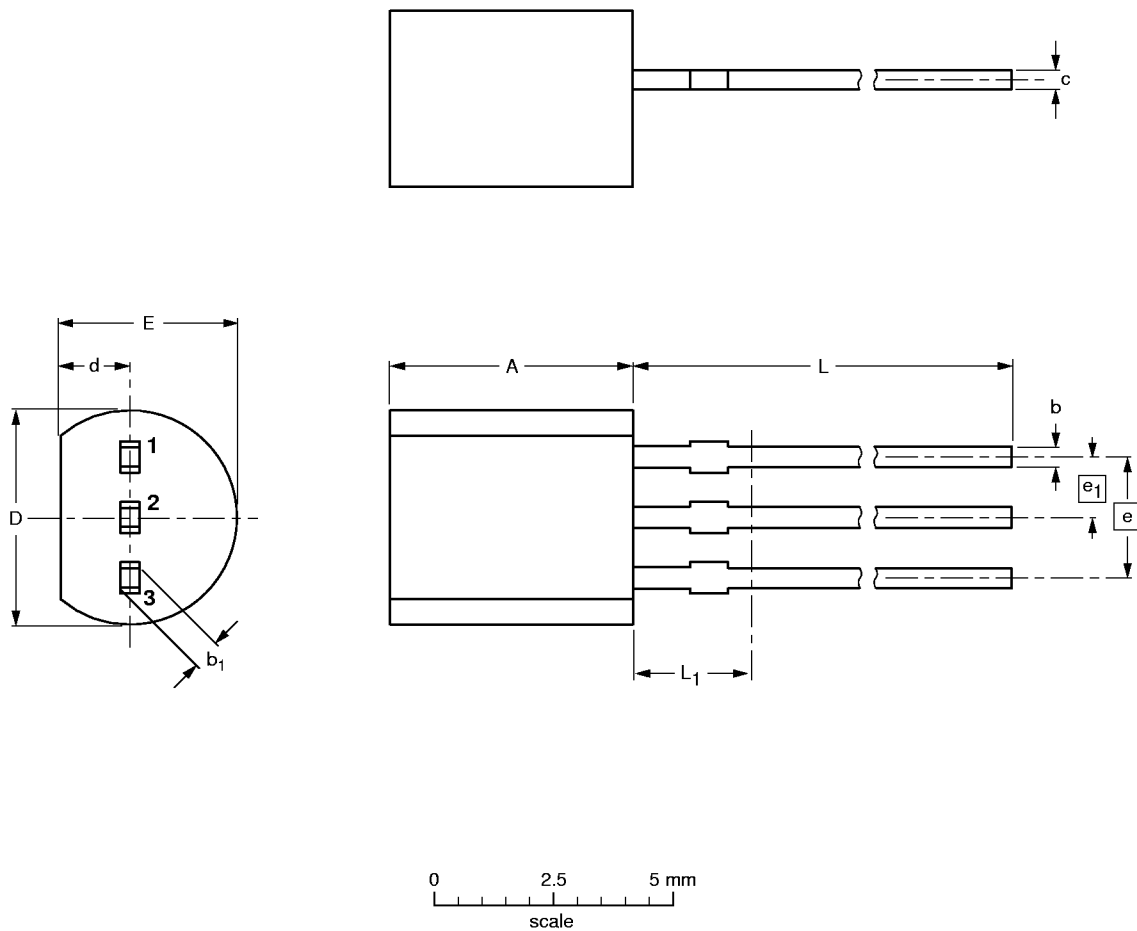
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PACKAGE OUTLINE

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

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b ₁	c	D	d	E	e	e ₁	L	L ₁ (1)
mm	5.2	0.48	0.66	0.45	4.8	1.7	4.2	2.54	1.27	14.5	2.5
	5.0	0.40	0.56	0.40	4.4	1.4	3.6				

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	EIAJ		
SOT54		TO-92	SC-43		97-02-28