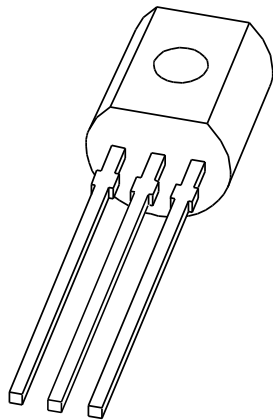


DATA SHEET



PH5416 PNP high-voltage transistor

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Apr 22

PNP high-voltage transistor

PH5416

FEATURES

- High current (max. 1 A)
- High voltage (max. 300 V).

APPLICATIONS

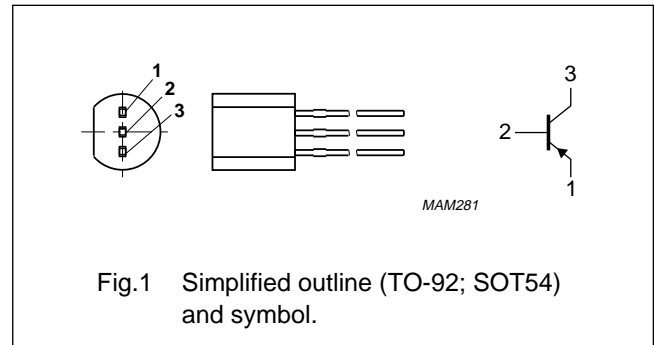
- Telephony applications.

DESCRIPTION

PNP high-voltage transistor in a TO-92; SOT54 plastic package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–350	V
V_{CEO}	collector-emitter voltage	open base	–	–300	V
I_{CM}	peak collector current		–	–1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	500	mW
h_{FE}	DC current gain	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V}$	30	120	
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	15	–	MHz

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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	–	–350	V
V_{CEO}	collector-emitter voltage	open base	–	–300	V
V_{EBO}	emitter-base voltage	open collector	–	–6	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–1	A
I_{BM}	peak base current		–	–500	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	500	mW
T_{stg}	storage temperature		–65	150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	250	K/W

Note

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

CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -280\text{ V}$	–	–100	nA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -6\text{ V}$	–	–100	nA
h_{FE}	DC current gain	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V}$	30	120	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -50\text{ mA}; I_B = -5\text{ mA}$	–	–800	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -50\text{ mA}; I_B = -5\text{ mA}$	–	–1	V
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V};$ $f = 1\text{ MHz}$	–	15	pF
C_e	emitter capacitance	$I_C = i_c = 0; V_{EB} = -5\text{ V};$ $f = 1\text{ MHz}$	–	75	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V};$ $f = 100\text{ MHz}$	15	–	MHz

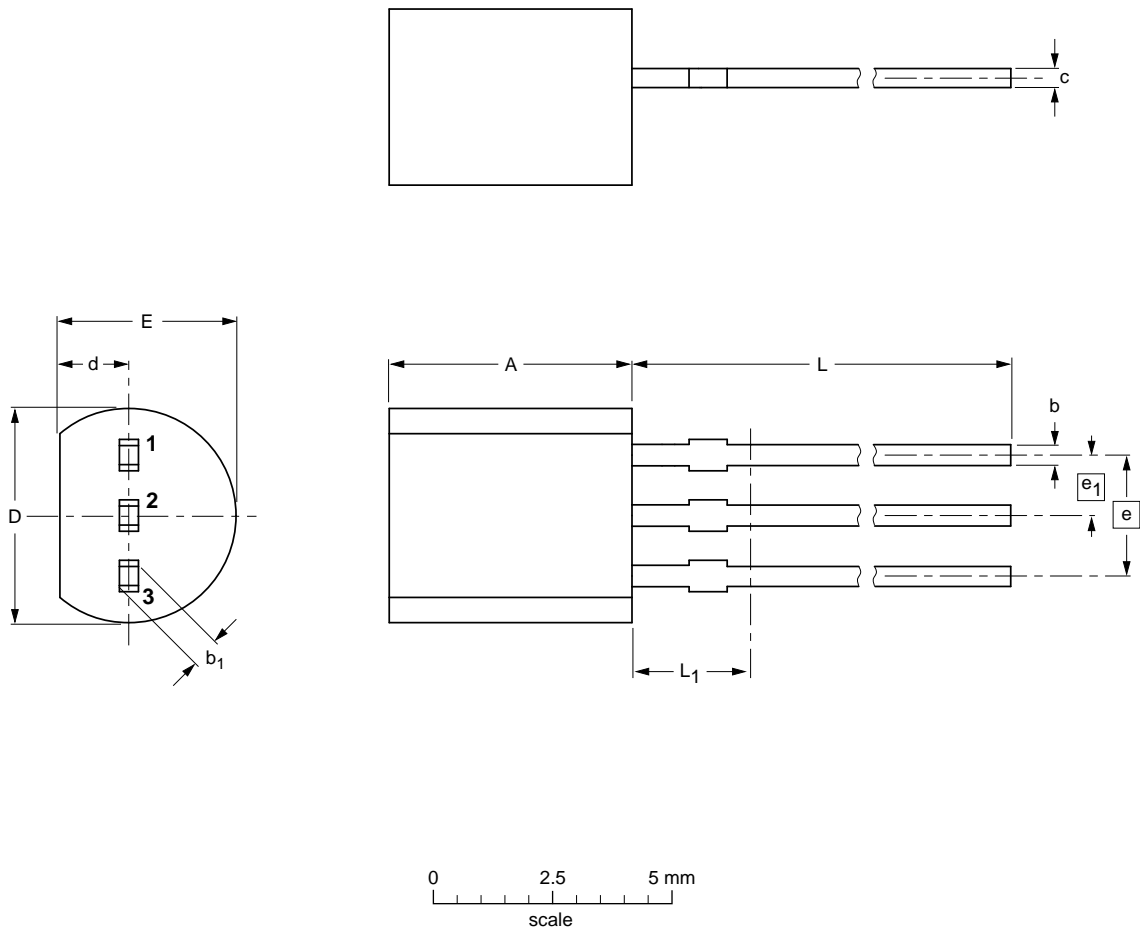
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PACKAGE OUTLINE

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 5.0	0.48 0.40	0.66 0.56	0.45 0.40	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	EIAJ		
SOT54		TO-92	SC-43		97-02-28

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DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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NOTES

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NOTES

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