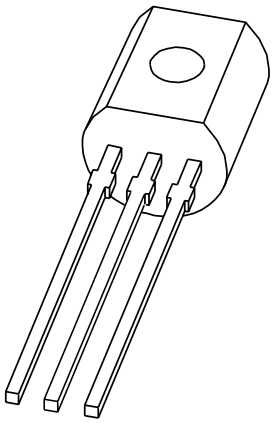
DATA SHEET



ED1602
PNP general purpose transistor

Product specification
Supersedes data of 1997 Jul 04

1999 Apr 27

Philips
Semiconductors

PHILIPS

PNP general purpose transistor ED1602

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 20 V).

APPLICATIONS

- Audio pre-amplifiers and driver stages
- FM multiplex stereo decoders
- Small-signal circuits in television receivers
- Medium speed switching.

DESCRIPTION

PNP transistor in a TO-92; SOT54 plastic package.
NPN complement: ED1402.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector

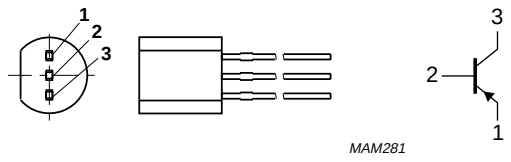


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

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	–	–25	V
V_{CEO}	collector-emitter voltage	open base	–	–20	V
V_{EBO}	emitter-base voltage	open collector	–	–4	V
I_C	collector current (DC)		–	–100	mA
I_{CM}	peak collector current		–	–200	mA
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	500	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	250	K/W

Note

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

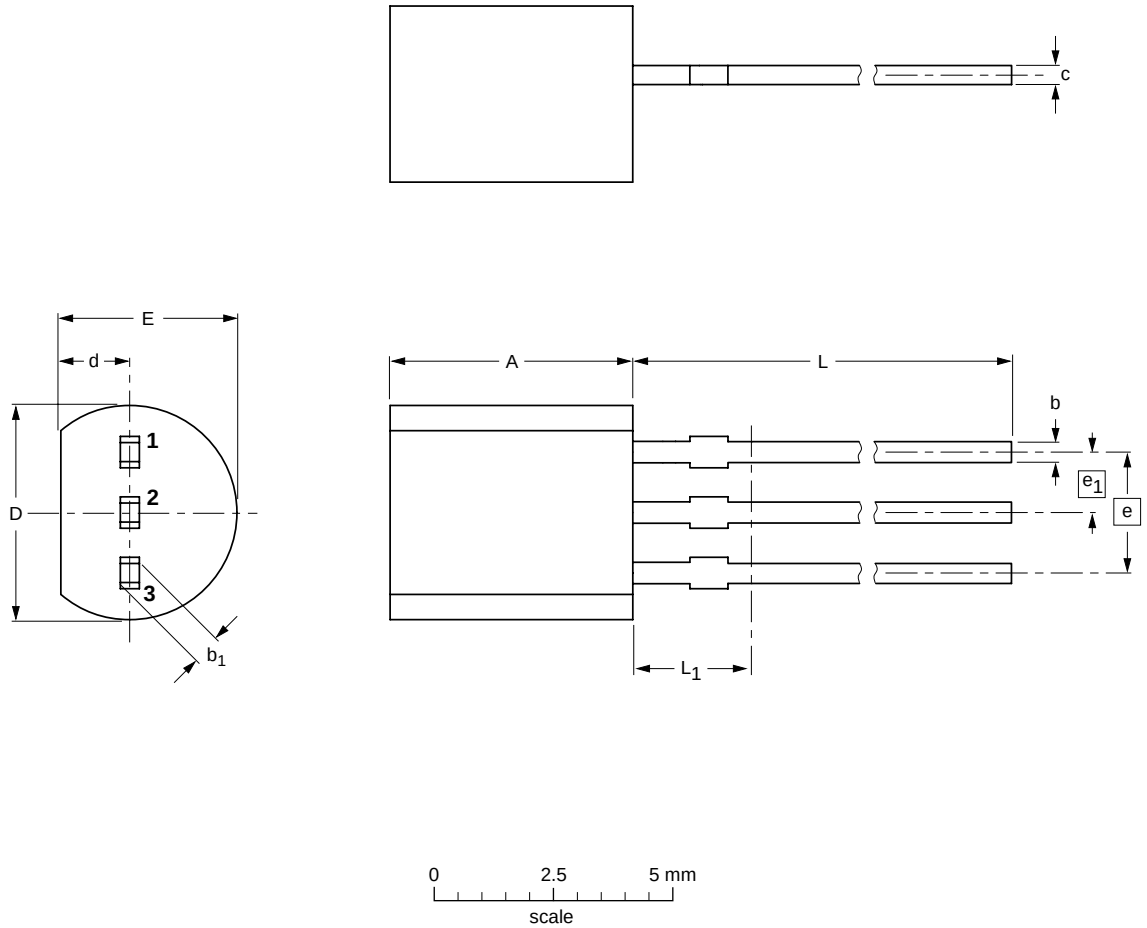
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = -20$ V	–	–15	nA
		$I_E = 0$; $V_{CB} = -10$ V; $T_j = 150$ °C	–	–20	µA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = -4$ V	–	–100	nA
h_{FE}	DC current gain	$I_C = -2$ mA; $V_{CE} = -5$ V			
	ED1602C		125	190	
	ED1602D		170	260	
	ED1602E		223	475	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10$ mA; $I_B = -0.5$ mA	–	–300	mV
		$I_C = -100$ mA; $I_B = -5$ mA	–	–650	mV
V_{BE}	base-emitter voltage	$I_C = -2$ mA; $V_{CE} = -5$ V	–500	–750	mV
C_c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = -10$V; f = 1 MHz	–	5	pF
f_T	transition frequency	$I_C = -5$ mA; $V_{CE} = -5$ V; f = 100 MHz	100	–	MHz
F	noise figure	$I_C = -0.2$ mA; $V_{CE} = -5$ V; $R_S = 2$ kΩ; f = 1 kHz; B = 200 Hz	–	4	dB

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

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.	

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NOTES

NOTES

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