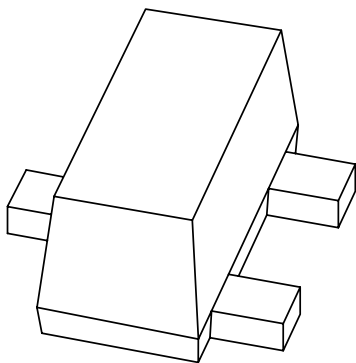


# DATA SHEET



## **PDTTC124TEF**

**NPN resistor-equipped transistor;  
R1 = 22 k $\Omega$ , R2 = open**

Product specification

2003 Jan 20

**NPN resistor-equipped transistor;  
R1 = 22 kΩ, R2 = open**

**PDTC124TEF**

**FEATURES**

- Built-in bias resistors
- 250 mW total power dissipation
- Very small 1.6 mm × 0.85 mm thin package
- Excellent coplanarity
- Flat leads
- Improved thermal behaviour
- Reduces number of components and required PCB area.

**APPLICATIONS**

- General purpose switching and amplification
- Inverter and interface circuits
- Circuit driver.

**DESCRIPTION**

NPN resistor equipped transistor in a SOT490 (SC-89) plastic package.

**MARKING**

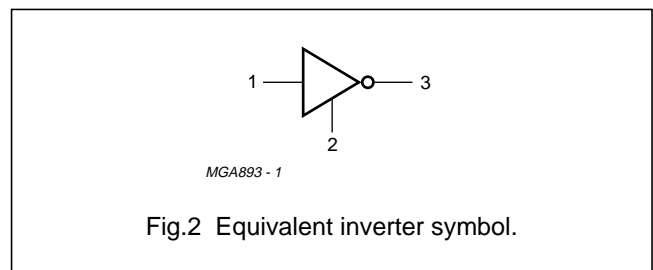
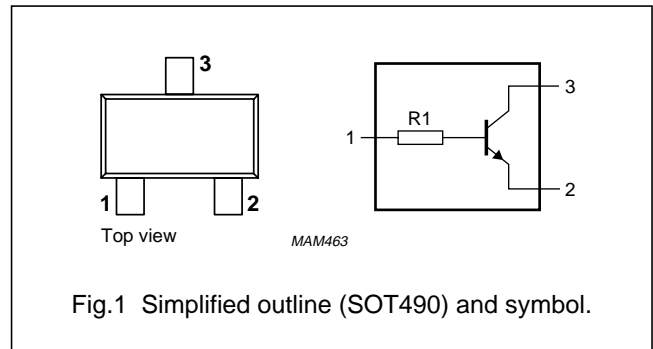
TYPE NUMBER	MARKING CODE
PDTC124TEF	35

**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	MAX.	UNIT
V <sub>CEO</sub>	collector-emitter voltage	50	V
I <sub>O</sub>	output current (DC)	100	mA
R1	bias resistor	22	kΩ
R2	open	–	–

**PINNING**

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



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### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	–	50	V
V <sub>CEO</sub>	collector-emitter voltage	open base	–	50	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	10	V
I <sub>O</sub>	output current (DC)		–	100	mA
I <sub>CM</sub>	peak collector current		–	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	250	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

### Note

- For mounting conditions, see “Thermal considerations and footprint design for SOT490 in the SC18 Data Handbook”.

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	in free air; note 1	500	K/W

### Note

- For mounting conditions, see “Thermal considerations and footprint design for SOT490 in the SC18 Data Handbook”.

### CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = 50 V; I <sub>E</sub> = 0	–	–	100	nA
I <sub>CEO</sub>	collector-emitter cut-off current	V <sub>CE</sub> = 30 V; I <sub>B</sub> = 0	–	–	1	$\mu$ A
		V <sub>CE</sub> = 30 V; I <sub>B</sub> = 0; T <sub>j</sub> = 150 °C	–	–	50	$\mu$ A
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = 5 V; I <sub>C</sub> = 0	–	–	100	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 5 V; I <sub>C</sub> = 1 mA	100	–	–	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 10 mA; I <sub>B</sub> = 0.5 mA	–	–	150	mV
R1	input resistor		15.4	22	28.6	k $\Omega$
C <sub>c</sub>	collector capacitance	I <sub>E</sub> = i <sub>e</sub> = 0; V <sub>CB</sub> = 10 V; f = 1 MHz	–	–	2.5	pF

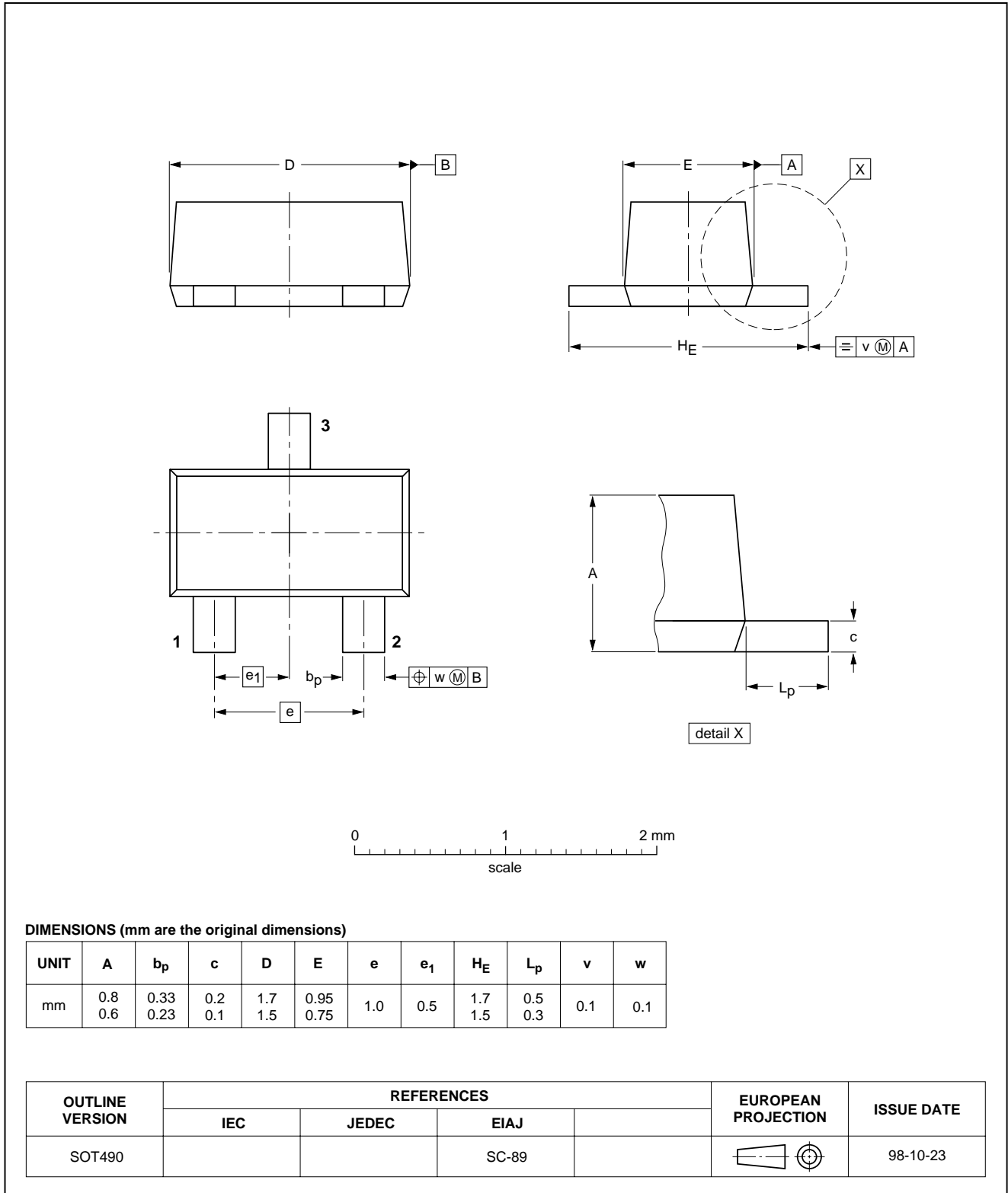
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT490



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	v	w
mm	0.8 0.6	0.33 0.23	0.2 0.1	1.7 1.5	0.95 0.75	1.0	0.5	1.7 1.5	0.5 0.3	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT490			SC-89			98-10-23

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#### DATA SHEET STATUS

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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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**NOTES**

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**NOTES**

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