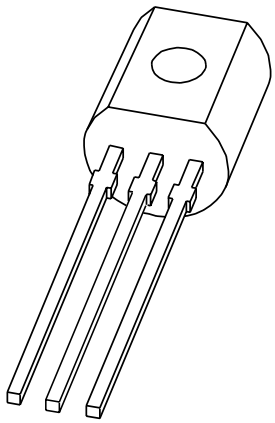
DATA SHEET



MPSA42; MPSA43
NPN high-voltage transistors

Product specification
Supersedes data of 1997 Sep 04

1999 Apr 12

Philips
Semiconductors

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NPN high-voltage transistors MPSA42; MPSA43

FEATURES

- Low current (max. 100 mA)
- High voltage (max. 300 V).

APPLICATIONS

- Video
- Telephony
- Professional communication equipment.

DESCRIPTION

NPN high-voltage transistor in a TO-92; SOT54 plastic package. PNP complement: MPSA92.

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter

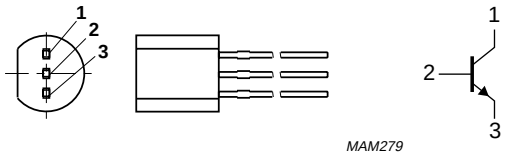


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

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			
	MPSA42		–	300	V
	MPSA43		–	200	V
V_{CEO}	collector-emitter voltage	open base			
	MPSA42		–	300	V
	MPSA43		–	200	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current (DC)		–	100	mA
I_{CM}	peak collector current		–	200	mA
I_{BM}	peak base current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °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
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	250	K/W

Note

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

CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

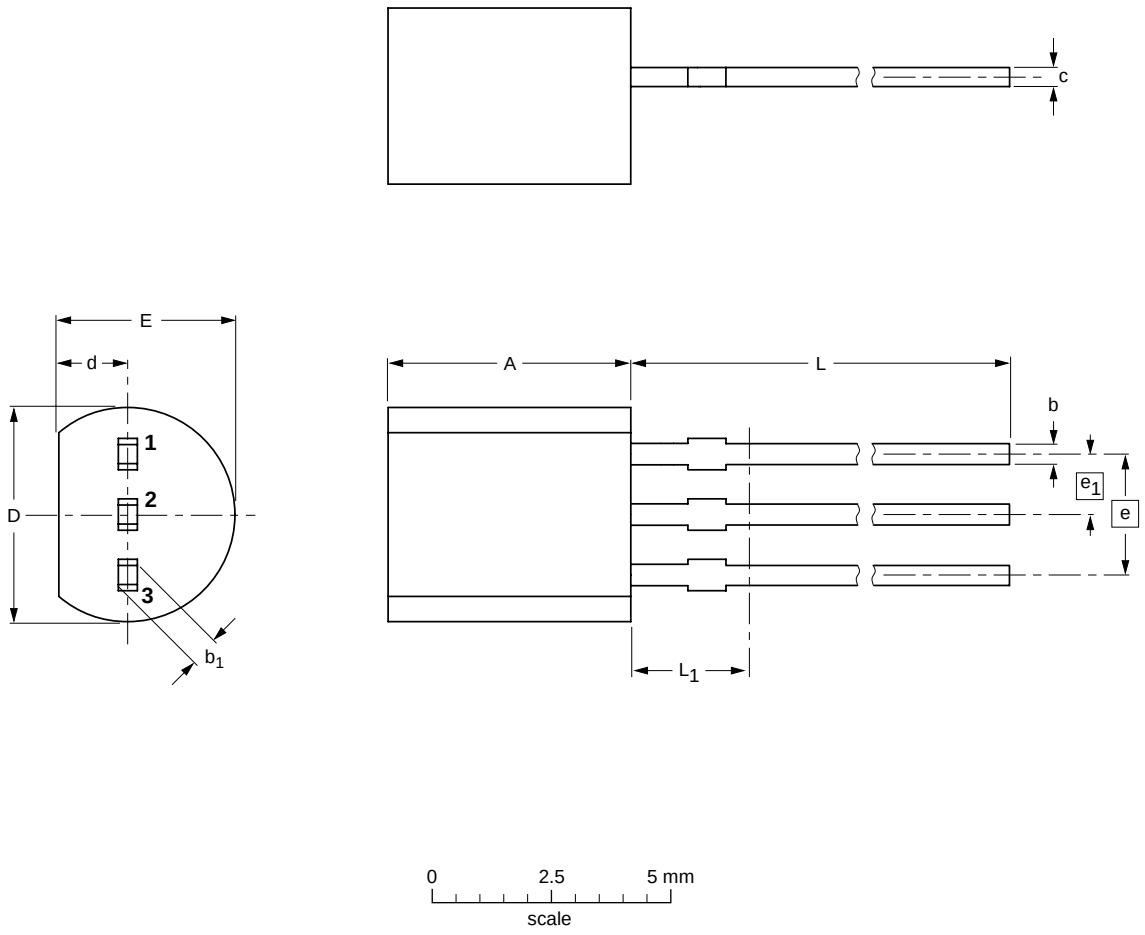
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current				
	MPSA42	I_E = 0; V_{CB} = 200 V	–	100	nA
	MPSA43	I_E = 0; V_{CB} = 160 V	–	100	nA
I_{EBO}	emitter cut-off current				
	MPSA42	I_C = 0; V_{EB} = 6 V	–	100	nA
	MPSA43	I_C = 0; V_{EB} = 4 V	–	100	nA
h_{FE}	DC current gain	V_{CE} = 10 V; note 1			
		I_C = 1 mA	25	–	
		I_C = 10 mA	40	–	
		I_C = 30 mA	40	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = 20 mA; I_B = 2 mA; note 1	–	500	mV
V_{BEsat}	base-emitter saturation voltage	I_C = 20 mA; I_B = 2 mA; note 1	–	900	mV
C_c	collector capacitance	$I_E = i_e$ = 0; V_{CB} = 20 V; f = 1 MHz			
	MPSA42		–	3	pF
	MPSA43		–	4	pF
f_T	transition frequency	I_C = 10 mA; V_{CE} = 20 V; f = 100 MHz	50	–	MHz

Note

1. Pulse test: $t_p \leq 300\ \mu s$; $\delta \leq 0.02$.

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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