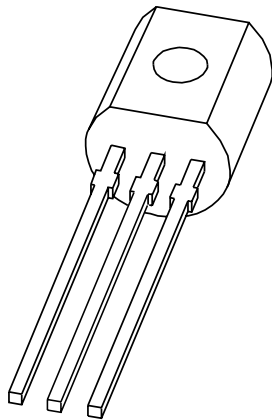


# DATA SHEET



## **MPSA42; MPSA43** NPN high-voltage transistors

Product data sheet  
Supersedes data of 1999 Apr 12

2004 Oct 11

# NPN high-voltage transistors

# MPSA42; MPSA43

## FEATURES

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

## APPLICATIONS

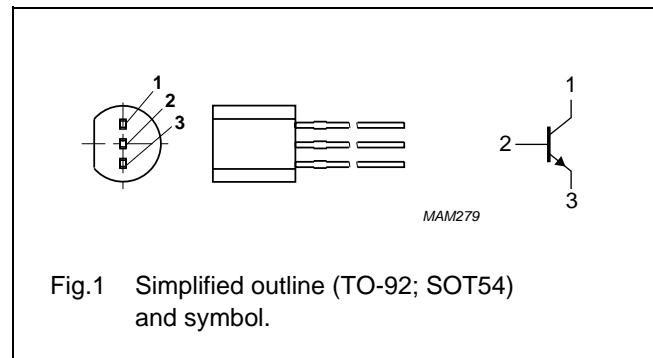
- Video
- Telephony
- Professional communication equipment.

## DESCRIPTION

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

## PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
MPSA42	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54
MPSA43			

## 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			
	MPSA42		–	300	V
	MPSA43		–	200	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	MPSA42		–	300	V
	MPSA43		–	200	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	6	V
I <sub>C</sub>	collector current (DC)		–	100	mA
I <sub>CM</sub>	peak collector current		–	200	mA
I <sub>BM</sub>	peak base current		–	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C	–	500	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	ambient temperature		–65	+150	°C

## NPN high-voltage transistors

## MPSA42; MPSA43

## 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

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

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

## Note

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

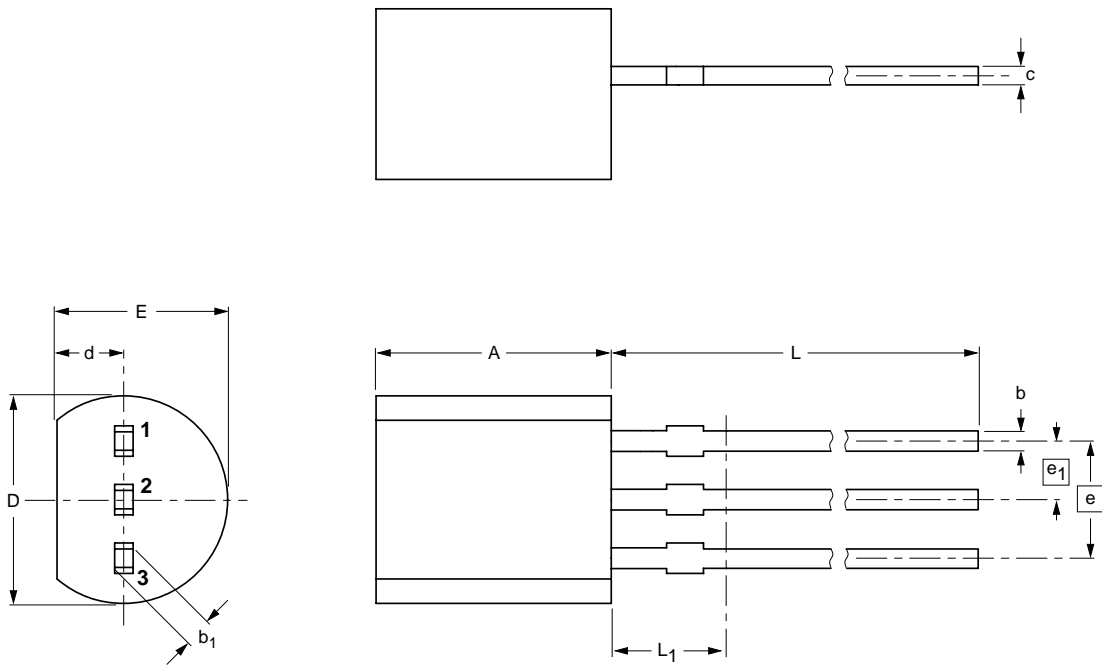
NPN high-voltage transistors

MPSA42; MPSA43

PACKAGE OUTLINE

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

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	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	JEITA		
SOT54		TO-92	SC-43A		04-06-28 04-11-16

NPN high-voltage transistors

MPSA42; MPSA43

DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

Notes

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# ***NXP Semiconductors***

## **Customer notification**

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

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