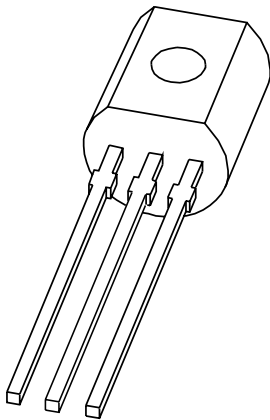


DATA SHEET



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

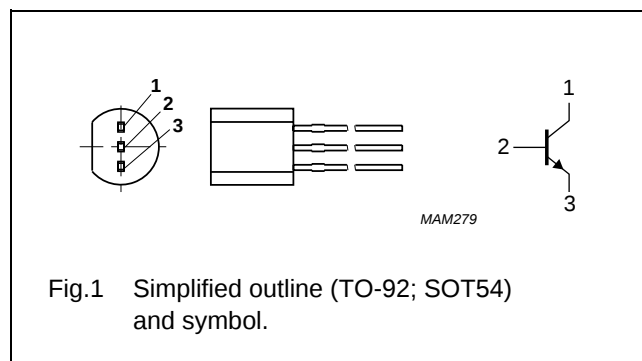
- Video
- Telephony
- Professional communication equipment.

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_{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	$T_{amb} \leq 25\text{ °C}$	—	500	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		—	150	°C
T_{amb}	ambient temperature		−65	+150	°C

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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

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector-base cut-off current				
	MPSA42	$V_{CB} = 200\text{ V}; I_E = 0\text{ A}$	—	100	nA
	MPSA43	$V_{CB} = 160\text{ V}; I_E = 0\text{ A}$	—	100	nA
I_{EBO}	emitter-base cut-off current				
	MPSA42	$V_{EB} = 6\text{ V}; I_C = 0\text{ A}$	—	100	nA
	MPSA43	$V_{EB} = 4\text{ V}; I_C = 0\text{ A}$	—	100	nA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}$; note 1			
		$I_C = 1\text{ mA}$	25	—	
		$I_C = 10\text{ mA}$	40	—	
		$I_C = 30\text{ mA}$	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	$V_{CB} = 20\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$			
	MPSA42		—	3	pF
	MPSA43		—	4	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

Technical drawing of the SOT54 package showing top, side, and end views with dimension labels A, b, b₁, c, D, d, E, e, e₁, L, L₁.

0 2.5 5 mm
scale

DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b ₁	c	D	d	E	e	e ₁	L	L ₁ ⁽¹⁾ 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

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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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2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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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

For additional information please visit: **<http://www.nxp.com>**

For sales offices addresses send e-mail to: **salesaddresses@nxp.com**

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