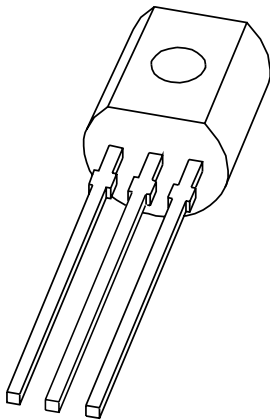


DATA SHEET



MPSA44 NPN high-voltage transistor

Product data sheet
Supersedes data of 1999 Apr 27

2004 Oct 11

NPN high-voltage transistor

MPSA44

FEATURES

- Low current (max. 300 mA)
- High voltage (max. 400 V).

APPLICATIONS

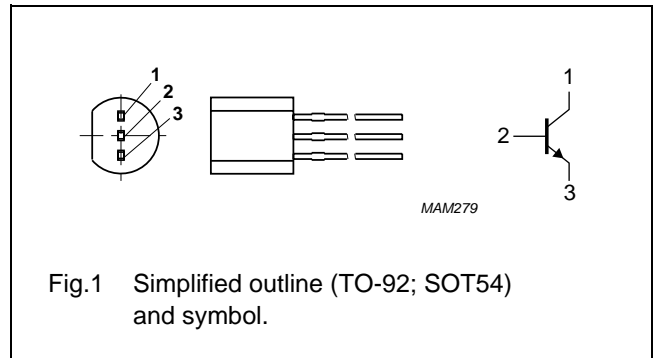
- Telecommunication applications.

DESCRIPTION

NPN high-voltage transistor in a TO-92; SOT54 plastic package.

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
MPSA44	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54

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	–	500	V
V_{CEO}	collector-emitter voltage	open base	–	400	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current (DC)		–	300	mA
I_{CM}	peak collector current		–	600	mA
I_{BM}	peak base current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	625	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	ambient temperature		–65	+150	°C

Note

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

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	200	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	$V_{CB} = 400\text{ V}; I_E = 0\text{ A}$	–	100	nA
		$V_{CB} = 400\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ °C}$	–	10	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 4\text{ V}; I_C = 0\text{ A}$	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}; I_C = 1\text{ mA}$	40	–	
		$V_{CE} = 10\text{ V}; I_C = 10\text{ mA}$	50	200	
		$V_{CE} = 10\text{ V}; I_C = 50\text{ mA}; \text{note 1}$	45	–	
		$V_{CE} = 10\text{ V}; I_C = 100\text{ mA}; \text{note 1}$	40	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 1\text{ mA}; I_B = 0.1\text{ mA}$	–	400	mV
		$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	–	500	mV
		$I_C = 50\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$	–	750	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 1\text{ mA}; \text{note 1}$	–	850	mV
C_c	collector capacitance	$V_{CB} = 20\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$	–	7	pF
C_e	emitter capacitance	$V_{EB} = 0.5\text{ V}; I_C = i_c = 0\text{ A}; f = 1\text{ MHz}$	–	180	pF
f_T	transition frequency	$V_{CE} = 10\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}$	20	–	MHz

Note

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

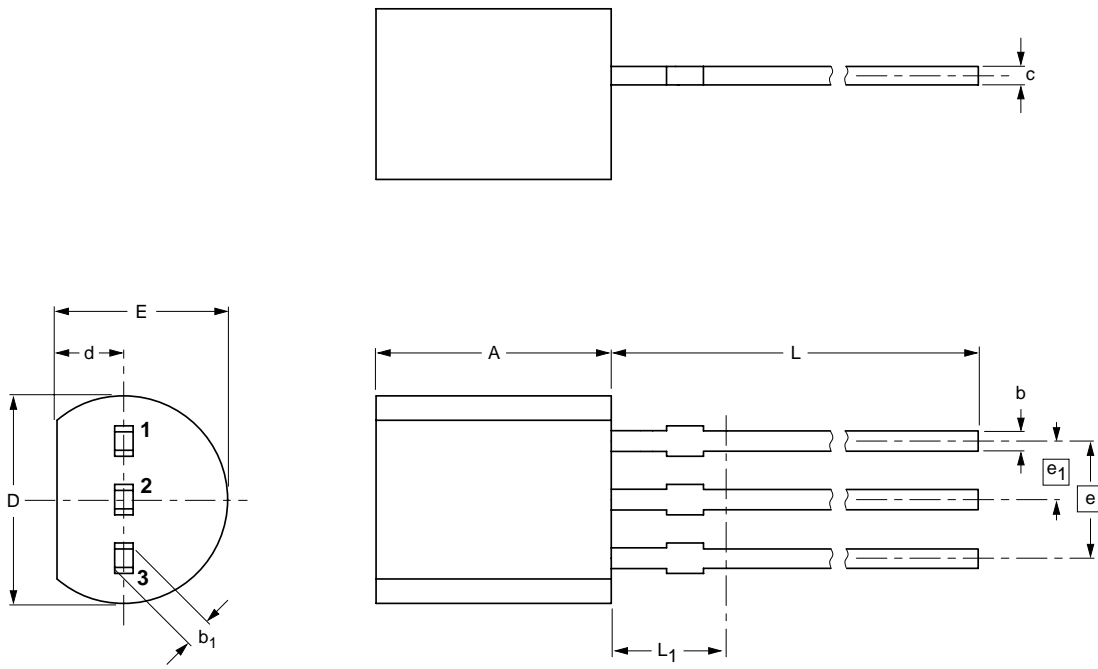
NPN high-voltage transistor

MPSA44

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⁾ 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 transistor

MPSA44

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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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.

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