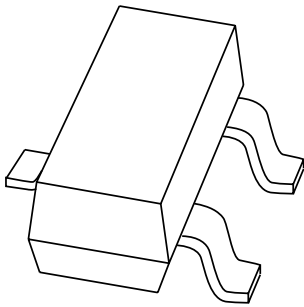


# DATA SHEET



## **MMBTA42** NPN high-voltage transistor

Product specification

2000 Apr 11

# NPN high-voltage transistor

# MMBTA42

### FEATURES

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

### APPLICATIONS

- Telephony
- Professional communication equipment.

### DESCRIPTION

NPN high-voltage transistor in a SOT23 plastic package.  
PNP complement: MMBTA92.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
MMBTA42	7D*

### Note

- \* = p: made in Hong Kong.  
\* = t: made in Malaysia.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

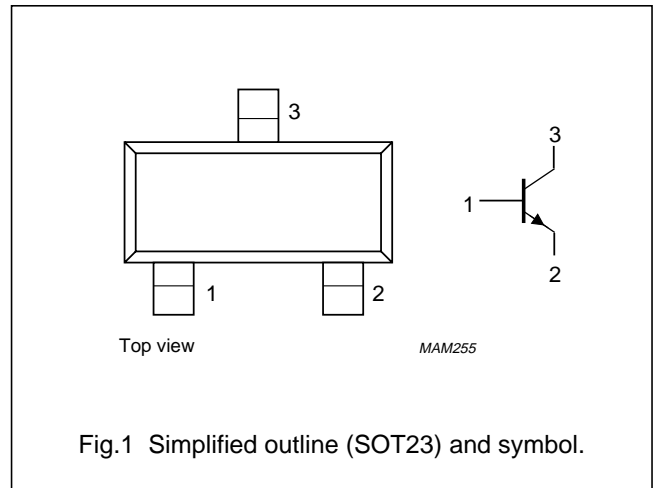


Fig.1 Simplified outline (SOT23) and symbol.

### 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	–	300	V
$V_{CEO}$	collector-emitter voltage	open base	–	300	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	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	250	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C

### Note

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

## NPN high-voltage transistor

## MMBTA42

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	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 cut-off current	$I_E = 0$ ; $V_{CB} = 200\text{ V}$	–	100	nA
$I_{EBO}$	emitter cut-off current	$I_C = 0$ ; $V_{EB} = 6\text{ V}$	–	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 10\text{ V}$ $I_C = 1\text{ mA}$ $I_C = 10\text{ mA}$ $I_C = 30\text{ mA}$	25 40 40	– – –	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 20\text{ mA}$ ; $I_B = 2\text{ mA}$	–	500	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 20\text{ mA}$ ; $I_B = 2\text{ mA}$	–	900	mV
$C_{re}$	feedback capacitance	$I_C = i_c = 0$ ; $V_{CB} = 20\text{ V}$ ; $f = 1\text{ MHz}$	–	3	pF
$f_T$	transition frequency	$I_C = 10\text{ mA}$ ; $V_{CE} = 20\text{ V}$ ; $f = 100\text{ MHz}$	50	–	MHz

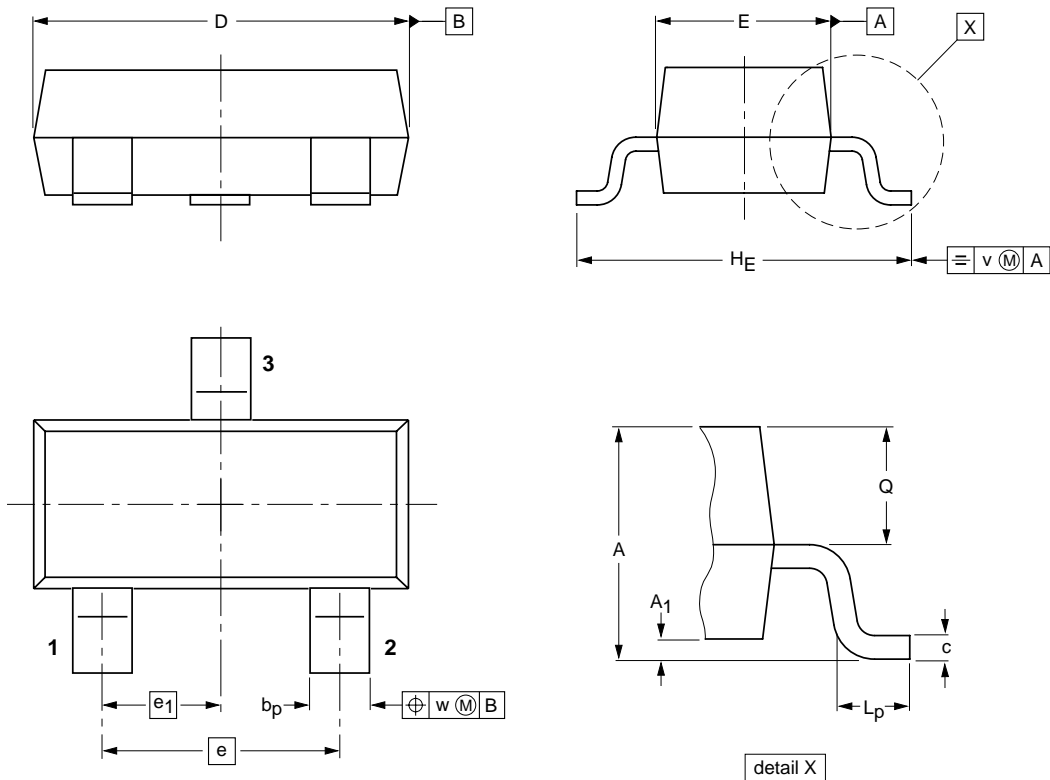
NPN high-voltage transistor

MMBTA42

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				97-02-28- 99-09-13