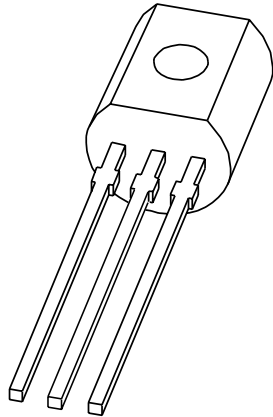


DATA SHEET



MPSA05; MPSA06 NPN general purpose transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Mar 26

NPN general purpose transistors

MPSA05; MPSA06

FEATURES

- Low current (max. 500 mA)
- Low voltage (max. 80 V).

APPLICATIONS

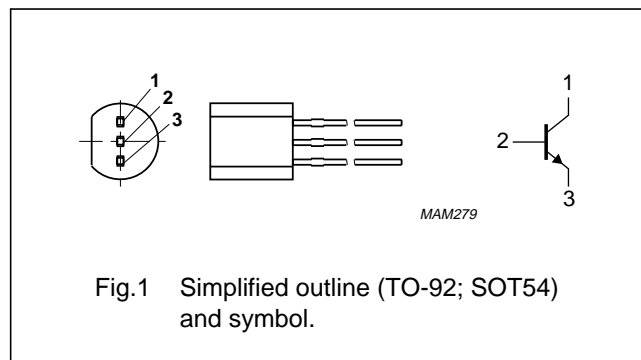
- General purpose switching and amplification.

DESCRIPTION

NPN transistor in a TO-92; SOT54 plastic package.
PNP complements: MPSA55 and MPSA56.

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	MPSA05		–	60	V
	MPSA06		–	80	V
V_{CEO}	collector-emitter voltage	open base			
	MPSA05		–	60	V
	MPSA06		–	80	V
I_{CM}	peak collector current		–	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	625	mW
h_{FE}	DC current gain	$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}$	100	–	
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 2\text{ V}; f = 100\text{ MHz}$	100	–	MHz

NPN general purpose transistors

MPSA05; MPSA06

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			
	MPSA05		–	60	V
	MPSA06		–	80	V
V _{CEO}	collector-emitter voltage	open base			
	MPSA05		–	60	V
	MPSA06		–	80	V
V _{EBO}	emitter-base voltage	open collector	–	5	V
I _C	collector current (DC)		–	500	mA
I _{CM}	peak collector current		–	1	A
I _{BM}	peak base current		–	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	625	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.

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_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector cut-off current				
	MPSA05	I _E = 0; V _{CB} = 60 V	–	100	mA
	MPSA06	I _E = 0; V _{CB} = 80 V	–	100	mA
I _{EBO}	emitter cut-off current	I _C = 0; V _{EB} = 5 V	–	50	nA
h _{FE}	DC current gain	I _C = 10 mA; V _{CE} = 1 V	100	–	
		I _C = 100 mA; V _{CE} = 1 V	100	–	
V _{CEsat}	collector-emitter saturation voltage	I _C = 100 mA; I _B = 10 mA	–	250	mV
V _{BE}	base-emitter voltage	I _C = 100 mA; V _{CE} = 1 V	–	1.2	V
f _T	transition frequency	I _C = 10 mA; V _{CE} = 2 V; f = 100 MHz	100	–	MHz

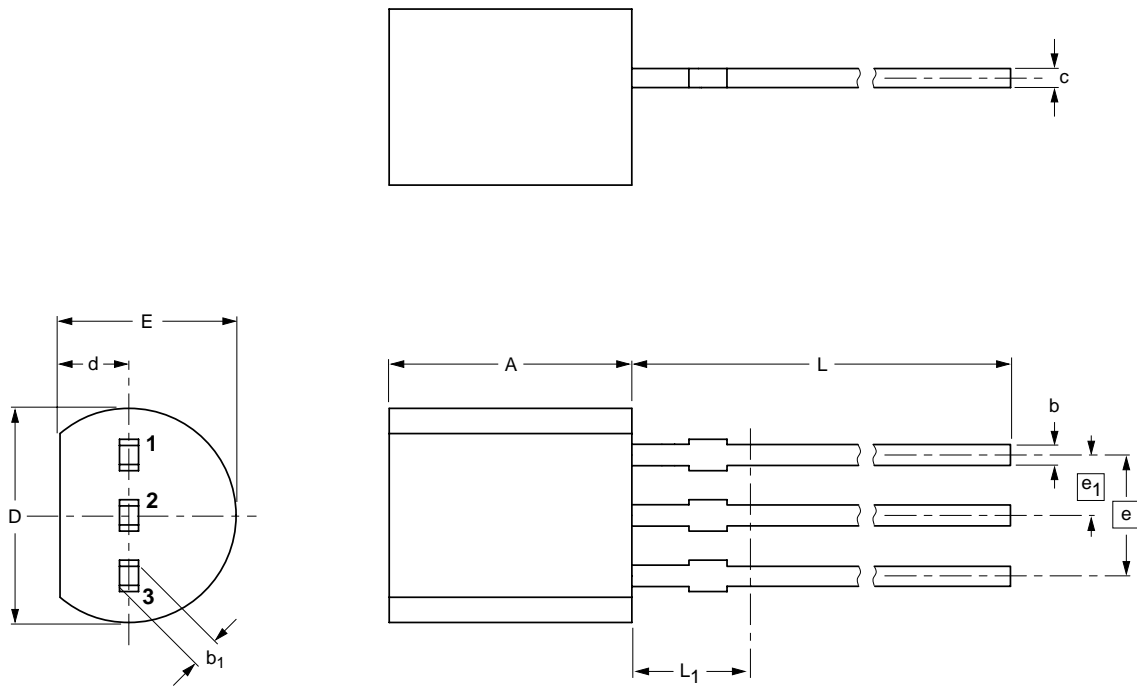
NPN general purpose transistors

MPSA05; MPSA06

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	0.48	0.66	0.45	4.8	1.7	4.2	2.54	1.27	14.5	2.5
	5.0	0.40	0.56	0.40	4.4	1.4	3.6				

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

NPN general purpose transistors

MPSA05; MPSA06

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.	

LIFE SUPPORT APPLICATIONS

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NPN general purpose transistors

MPSA05; MPSA06

NOTES

NPN general purpose transistors

MPSA05; MPSA06

NOTES

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