

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

|                      |                                           |
|----------------------|-------------------------------------------|
| <b>Part Number:</b>  | MPSA06,412                                |
| <b>Manufacturer:</b> | NXP USA Inc.                              |
| <b>Package:</b>      | TO-226-3, TO-92-3 (TO-226AA) Formed Leads |
| <b>Availability:</b> | Please confirm with sales                 |

#### Product Page:

<https://antrexco.com/product/details/nxp-usa-inc/mpsa06-412.html>

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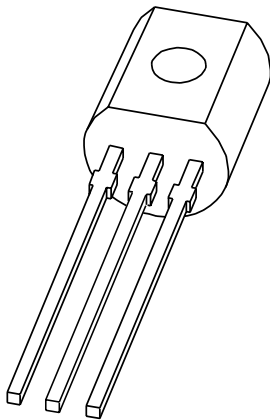
Secure sourcing support for OEM / EMS projects

#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

# DATA SHEET



**MPSA06**

**NPN general purpose transistor**

Product specification  
Supersedes data of 1999 Apr 27

2004 Oct 11

## NPN general purpose transistor

## MPSA06

## FEATURES

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

## APPLICATIONS

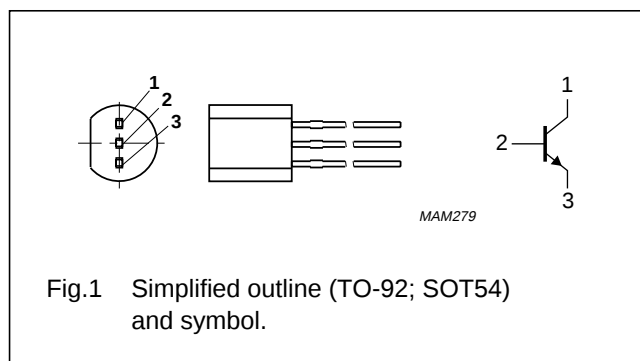
- General purpose switching and amplification.

## DESCRIPTION

NPN transistor in a TO-92; SOT54 plastic package.  
PNP complement: MPSA56.

## PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | collector   |
| 2   | base        |
| 3   | emitter     |



## ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |                                                             |         |
|-------------|---------|-------------------------------------------------------------|---------|
|             | NAME    | DESCRIPTION                                                 | VERSION |
| MPSA06      | 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                         | —    | 80   | V    |
| $V_{CEO}$ | collector-emitter voltage | open base                            | —    | 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   | $T_{amb} \leq 25\text{ °C}$ ; 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.

## NPN general purpose transistor

## MPSA06

## 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

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

| SYMBOL      | PARAMETER                            | CONDITIONS                                                    | MIN. | MAX. | UNIT |
|-------------|--------------------------------------|---------------------------------------------------------------|------|------|------|
| $I_{CBO}$   | collector-base cut-off current       | $V_{CB} = 80\text{ V}; I_E = 0\text{ A}$                      | –    | 50   | nA   |
| $I_{EBO}$   | emitter-base cut-off current         | $V_{EB} = 5\text{ V}; I_C = 0\text{ A}$                       | –    | 50   | nA   |
| $h_{FE}$    | DC current gain                      | $V_{CE} = 1\text{ V}; I_C = 10\text{ mA}$                     | 100  | –    |      |
|             |                                      | $V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$                    | 100  | –    |      |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C = 100\text{ mA}; I_B = 10\text{ mA}$                     | –    | 250  | mV   |
| $V_{BE}$    | base-emitter voltage                 | $V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$                    | –    | 1.2  | V    |
| $f_T$       | transition frequency                 | $V_{CE} = 2\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}$ | 100  | –    | MHz  |

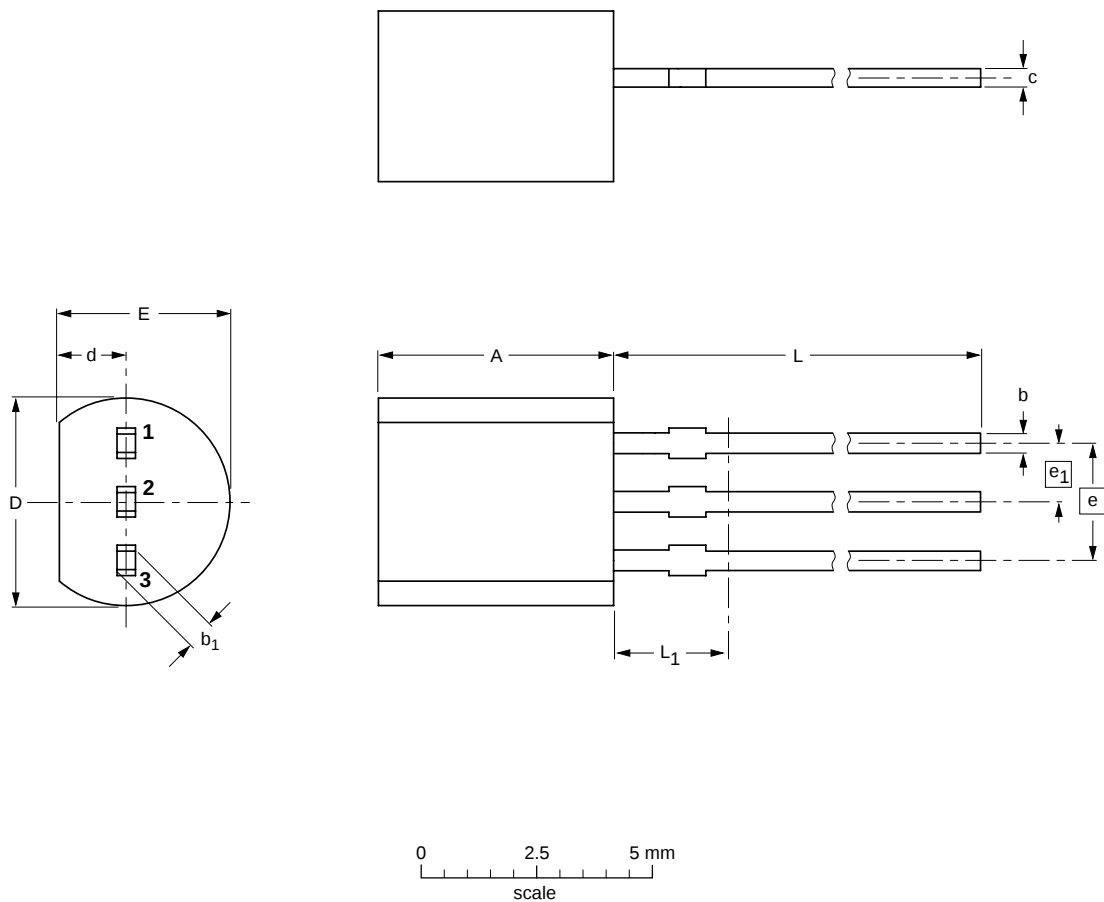
NPN general purpose transistor

MPSA06

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><br>max. |
|------|------------|--------------|----------------|--------------|------------|------------|------------|------|----------------|--------------|---------------------------------------|
| mm   | 5.2<br>5.0 | 0.48<br>0.40 | 0.66<br>0.55   | 0.45<br>0.38 | 4.8<br>4.4 | 1.7<br>1.4 | 4.2<br>3.6 | 2.54 | 1.27           | 14.5<br>12.7 | 2.5                                   |

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

| OUTLINE<br>VERSION | REFERENCES |       |        |  | EUROPEAN<br>PROJECTION                                                                | ISSUE DATE            |
|--------------------|------------|-------|--------|--|---------------------------------------------------------------------------------------|-----------------------|
|                    | IEC        | JEDEC | JEITA  |  |                                                                                       |                       |
| SOT54              |            | TO-92 | SC-43A |  |  | -97-02-28<br>04-06-28 |

## NPN general purpose transistor

## MPSA06

## DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)(3)</sup> | DEFINITION                                                                                                                                                                                                                                                                                     |
|-------|----------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I     | Objective data                   | Development                      | This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.                                                                                                    |
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**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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