

DATA SHEET

BFT46

N-channel silicon FET

Product specification

December 1997



N-channel silicon FET

BFT46

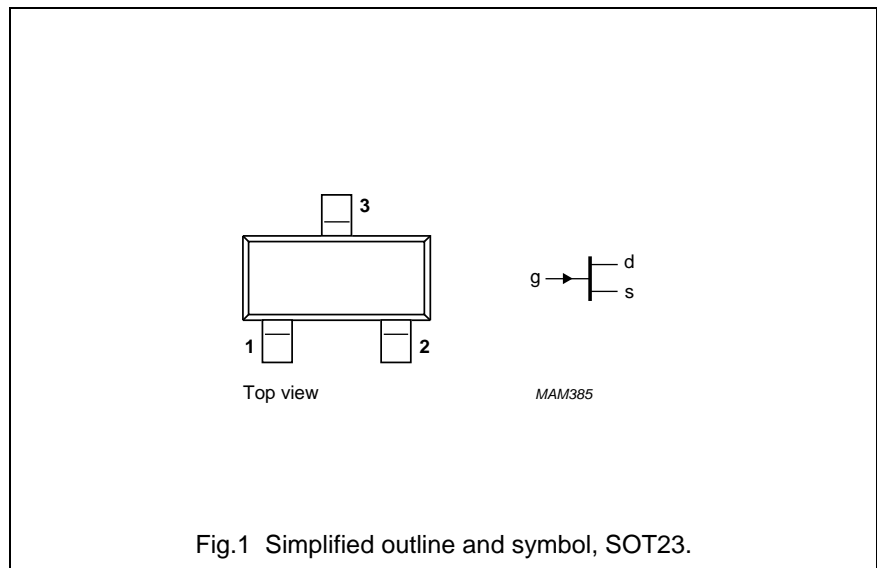
DESCRIPTION

Symmetrical n-channel silicon epitaxial planar junction field-effect transistor in a microminiature plastic envelope. The transistor is intended for low level general purpose amplifiers in thick and thin-film circuits.

PINNING

- 1 = drain
- 2 = source
- 3 = gate

Note : Drain and source are interchangeable.



Marking code

BFT46 = M3p

QUICK REFERENCE DATA

| | | | |
|---------------------------------------------------------------------------------------|--------------|------|-------------------|
| Drain-source voltage | $\pm V_{DS}$ | max. | 25 V |
| Gate-source voltage (open drain) | $-V_{GSO}$ | max. | 25 V |
| Total power dissipation up to $T_{amb} = 40\text{ }^{\circ}\text{C}$ | P_{tot} | max. | 250 mW |
| Drain current | | | |
| $V_{DS} = 10\text{ V}; V_{GS} = 0$ | I_{DSS} | > | 0,2 mA |
| | | < | 1,5 mA |
| Transfer admittance (common source) | | | |
| $I_D = 0,2\text{ mA}; V_{DS} = 10\text{ V}; f = 1\text{ kHz}$ | $ y_{fs} $ | > | 0,5 mS |
| Equivalent noise voltage | | | |
| $V_{DS} = 10\text{ V}; I_D = 200\text{ }\mu\text{A}; B = 0,6\text{ to }100\text{ Hz}$ | V_n | < | 0,5 μV |

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

| | | | |
|--------------------------------------------------------------------------|--------------|------|----------------|
| Drain-source voltage | $\pm V_{DS}$ | max. | 25 V |
| Drain-gate voltage (open source) | V_{DGO} | max. | 25 V |
| Gate-source voltage (open drain) | $-V_{GSO}$ | max. | 25 V |
| Drain current | I_D | max. | 10 mA |
| Gate current | I_G | max. | 5 mA |
| Total power dissipation up to $T_{amb} = 40\text{ }^\circ\text{C}^{(1)}$ | P_{tot} | max. | 250 mW |
| Storage temperature range | T_{stg} | | -65 to +150 °C |
| Junction temperature | T_j | max. | 150 °C |

THERMAL RESISTANCE

| | | | |
|-----------------------------------------|---------------|---|---------|
| From junction to ambient ⁽¹⁾ | $R_{th\ j-a}$ | = | 430 K/W |
|-----------------------------------------|---------------|---|---------|

Note

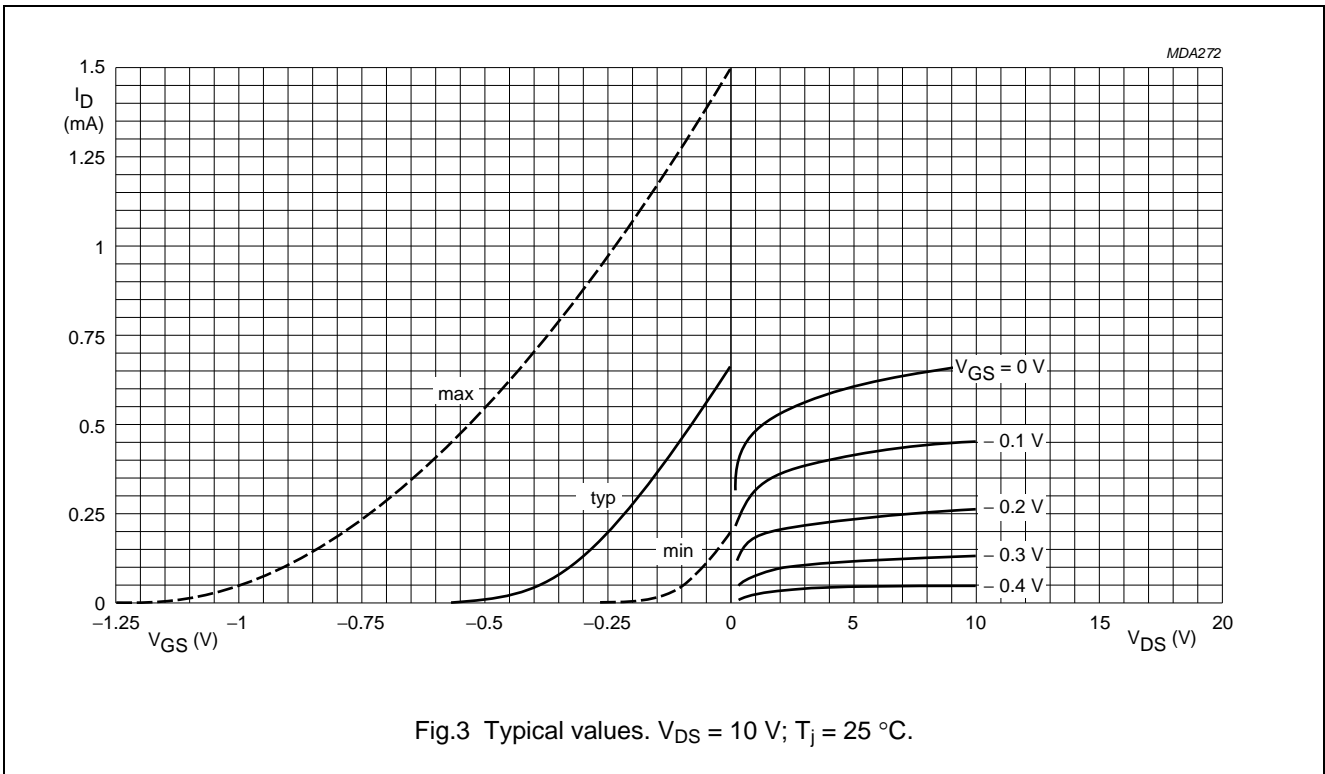
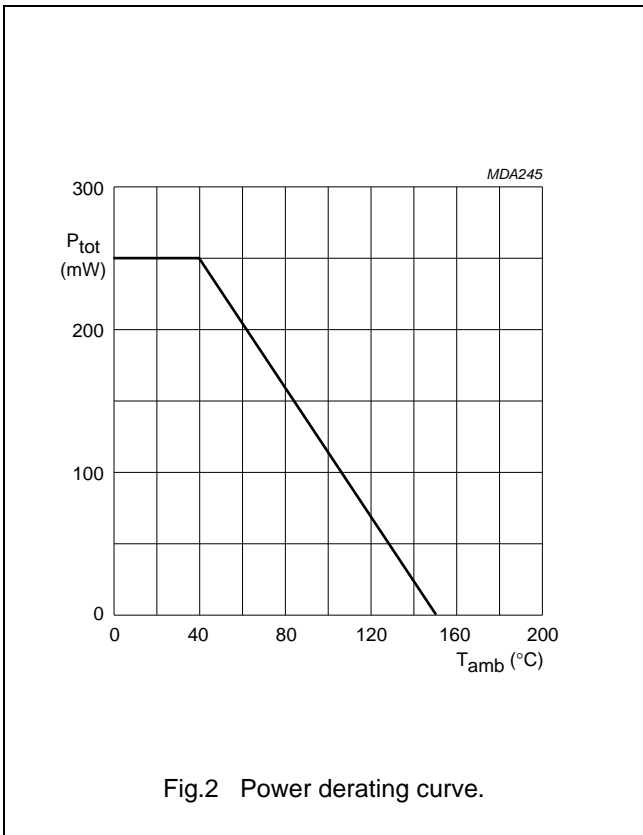
1. Mounted on a ceramic substrate of 8 mm × 10 mm × 0,7 mm.

CHARACTERISTICS $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---|-------------------|
| Gate cut-off current $-V_{GS} = 10\text{ V}; V_{DS} = 0$ | $-I_{GSS}$ | < | 0,2 nA |
| Drain current $V_{DS} = 10\text{ V}; V_{GS} = 0$ | I_{DSS} | > | 0,2 mA |
| | | < | 1,5 mA |
| Gate-source voltage $I_D = 50\text{ }\mu\text{A}; V_{DS} = 10\text{ V}$ | $-V_{GS}$ | > | 0,1 V |
| | | < | 1,0 V |
| Gate-source cut-off voltage $I_D = 0,5\text{ nA}; V_{DS} = 10\text{ V}$ | $-V_{(P)GS}$ | < | 1,2 V |
| y-parameters at $f = 1\text{ kHz}$; $V_{DS} = 10\text{ V}; V_{GS} = 0; T_{amb} = 25\text{ }^\circ\text{C}$ | $ y_{fs} $ | > | 1,0 mS |
| Transfer admittance | $ y_{os} $ | < | 10 μS |
| Output admittance $V_{DS} = 10\text{ V}; I_D = 200\text{ }\mu\text{A}; T_{amb} = 25\text{ }^\circ\text{C}$ | $ y_{fs} $ | > | 0,5 mS |
| Transfer admittance | $ y_{os} $ | < | 5 μS |
| Output admittance | | | |
| Input capacitance at $f = 1\text{ MHz}$; $V_{DS} = 10\text{ V}; V_{GS} = 0; T_{amb} = 25\text{ }^\circ\text{C}$ | C_{is} | < | 5 pF |
| Feedback capacitance at $f = 1\text{ MHz}$; $V_{DS} = 10\text{ V}; V_{GS} = 0; T_{amb} = 25\text{ }^\circ\text{C}$ | C_{fs} | < | 1,5 pF |
| Equivalent noise voltage $V_{DS} = 10\text{ V}; I_D = 200\text{ }\mu\text{A}; T_{amb} = 25\text{ }^\circ\text{C}$ $B = 0,6\text{ to }100\text{ Hz}$ | V_n | < | 0,5 μV |

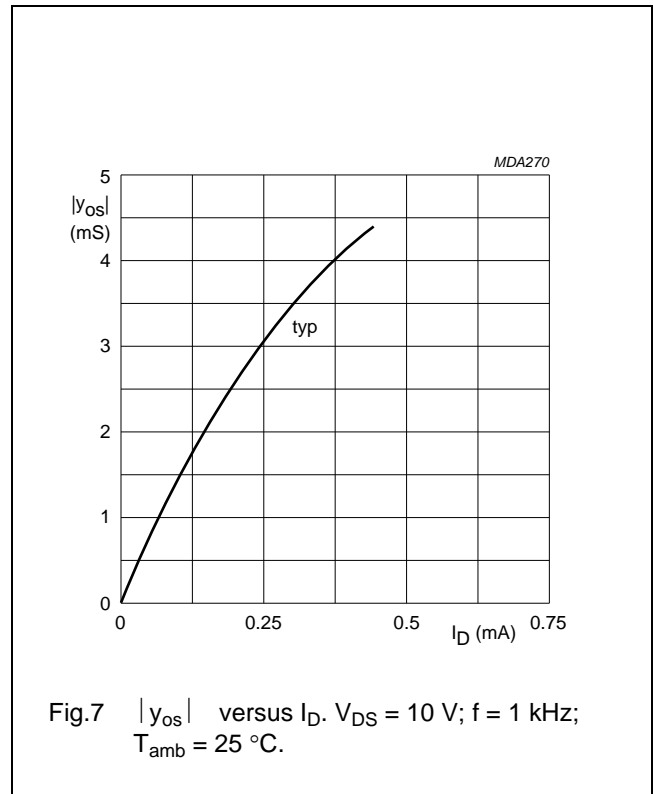
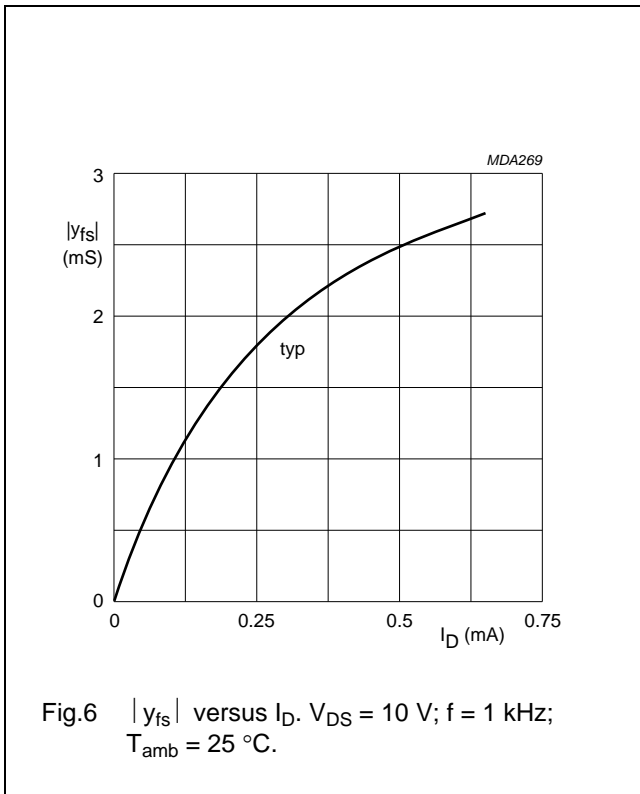
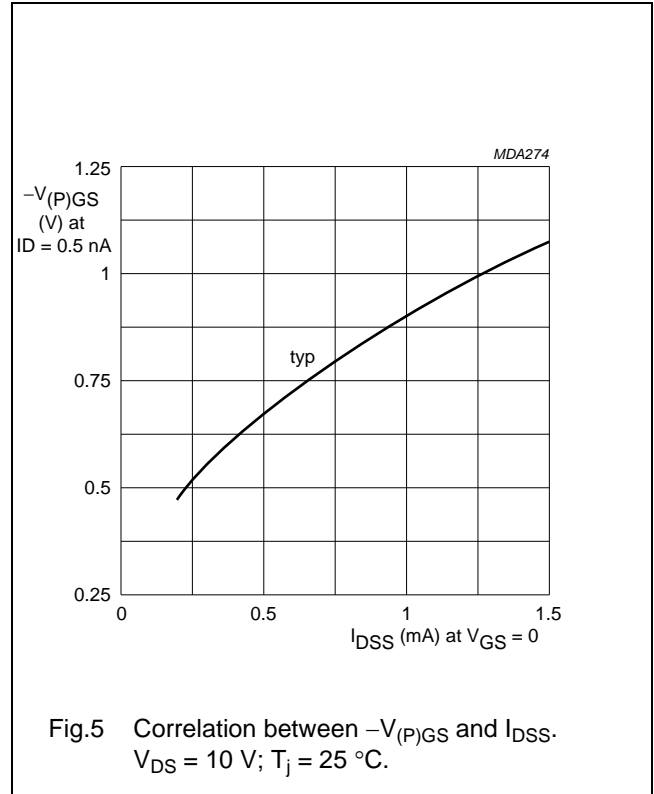
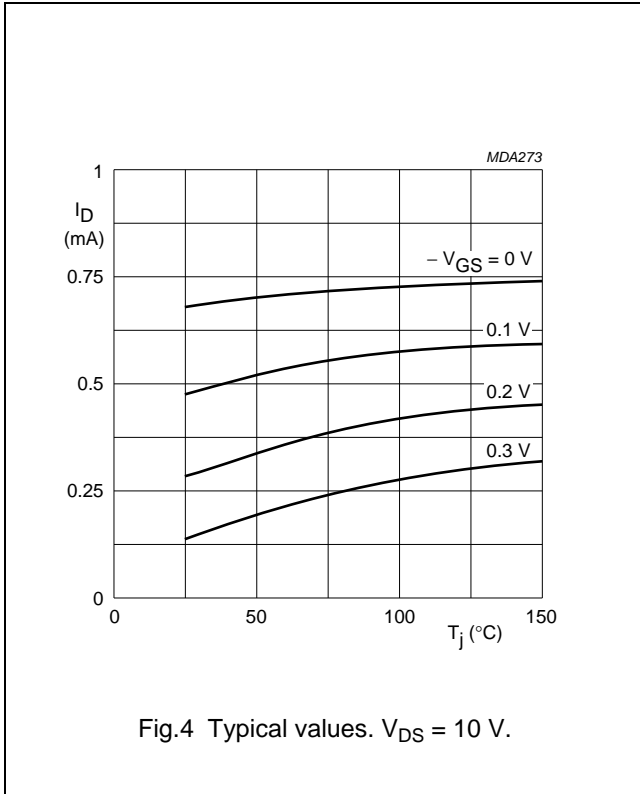
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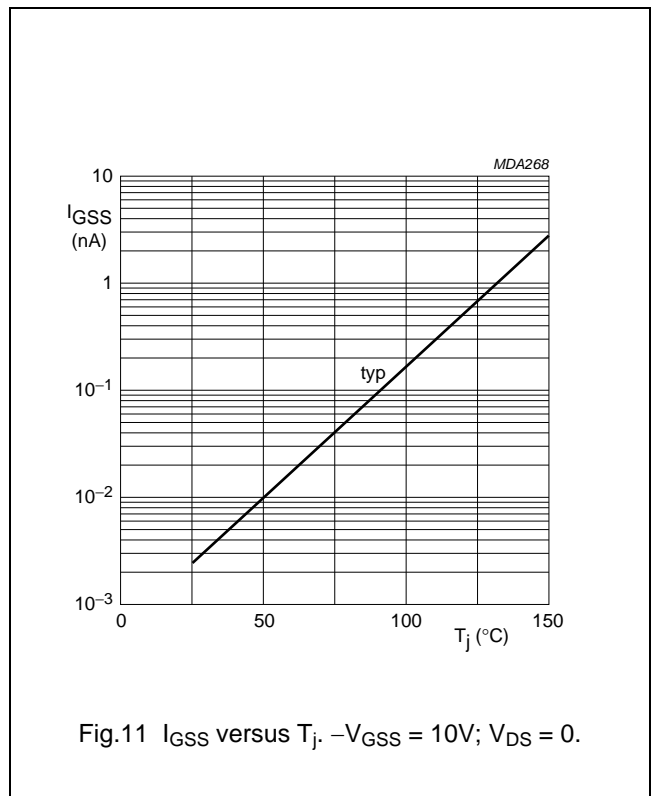
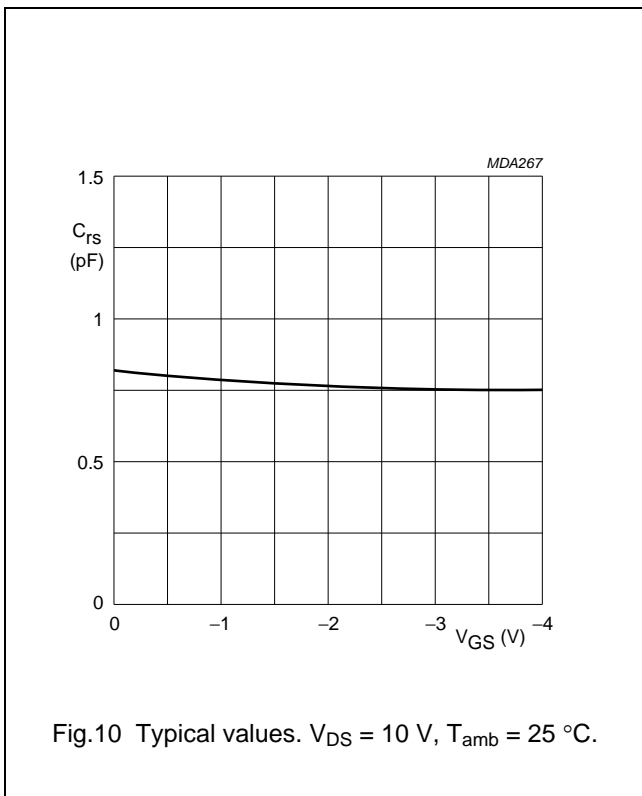
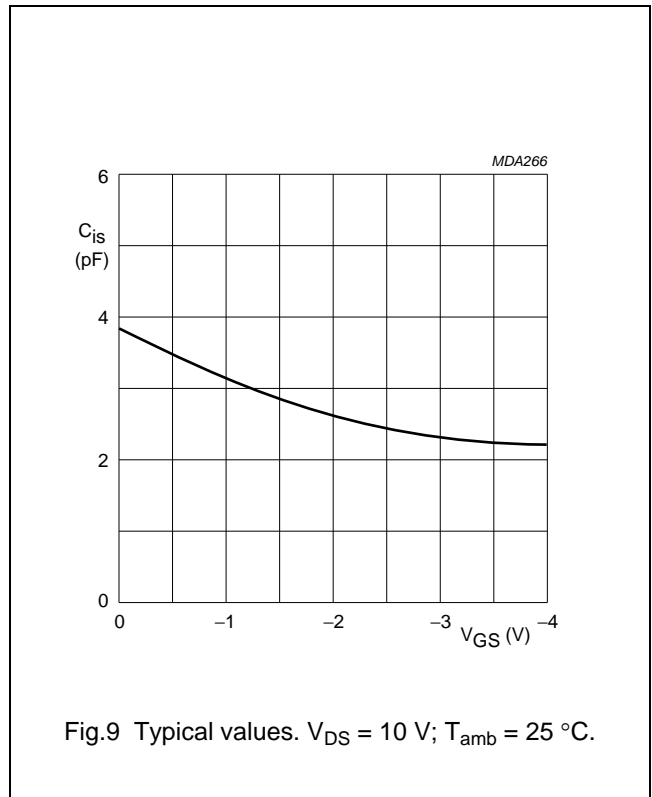
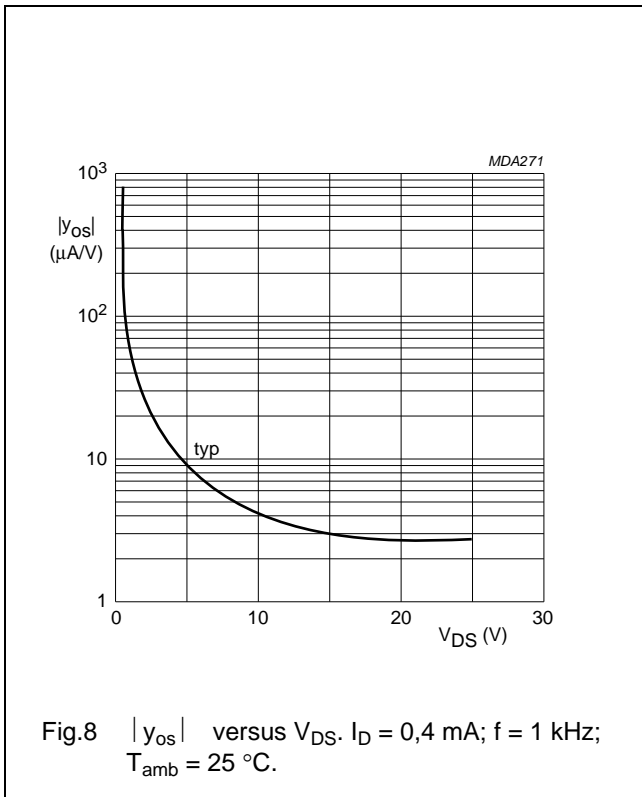
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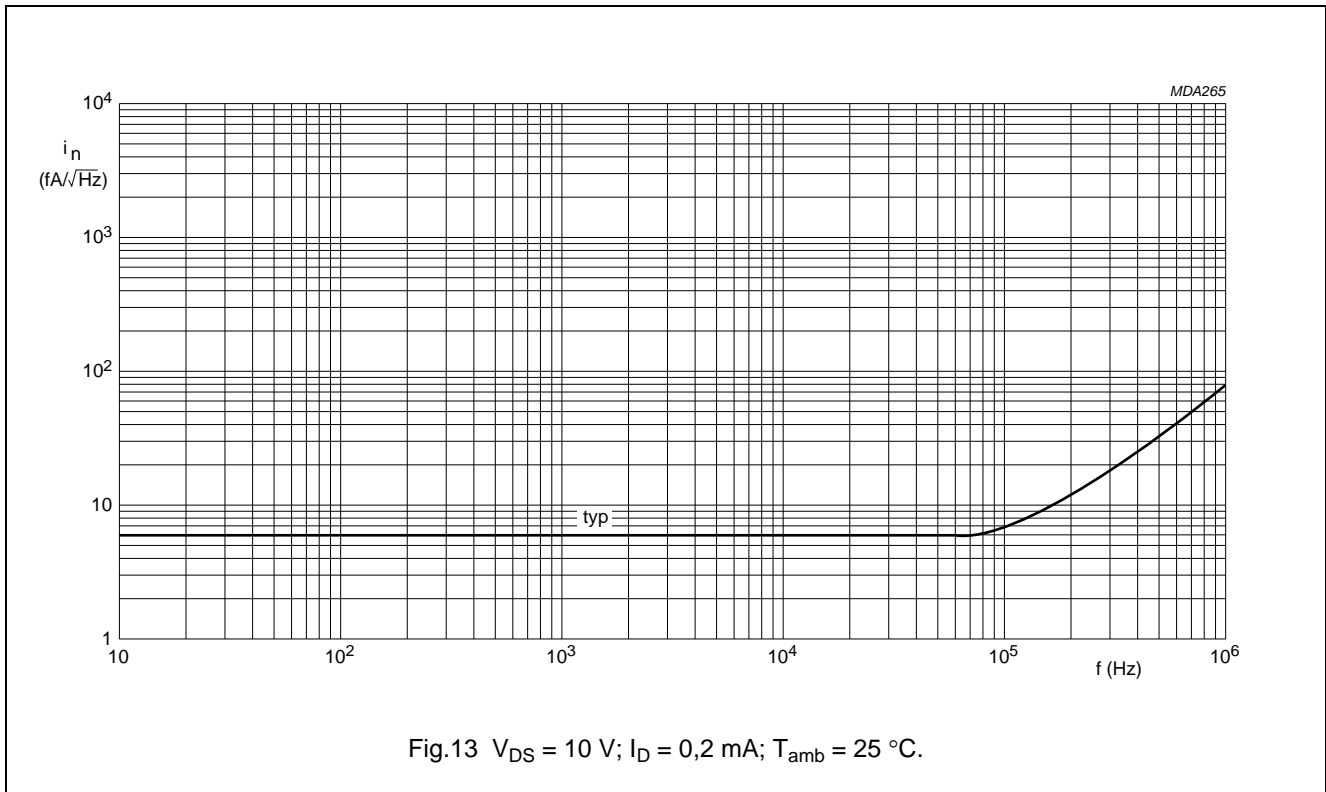
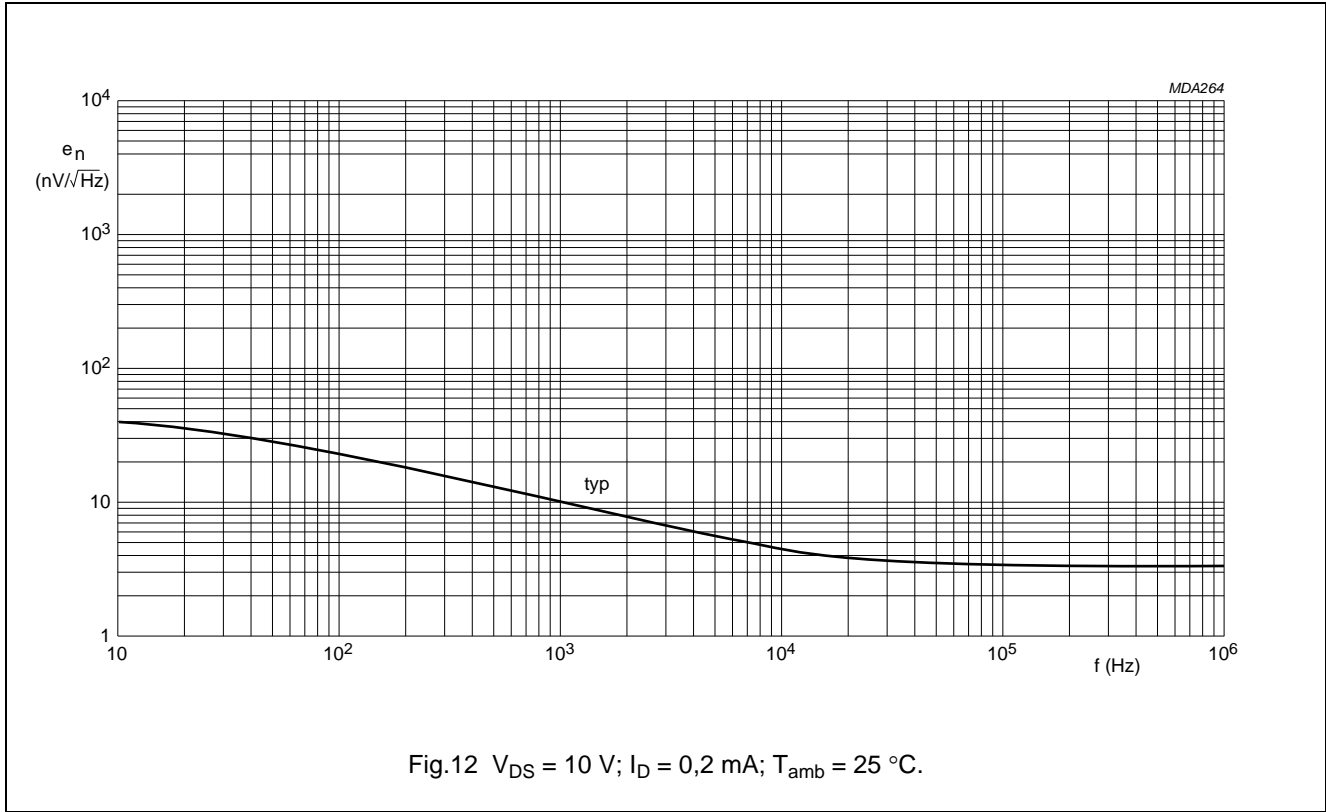
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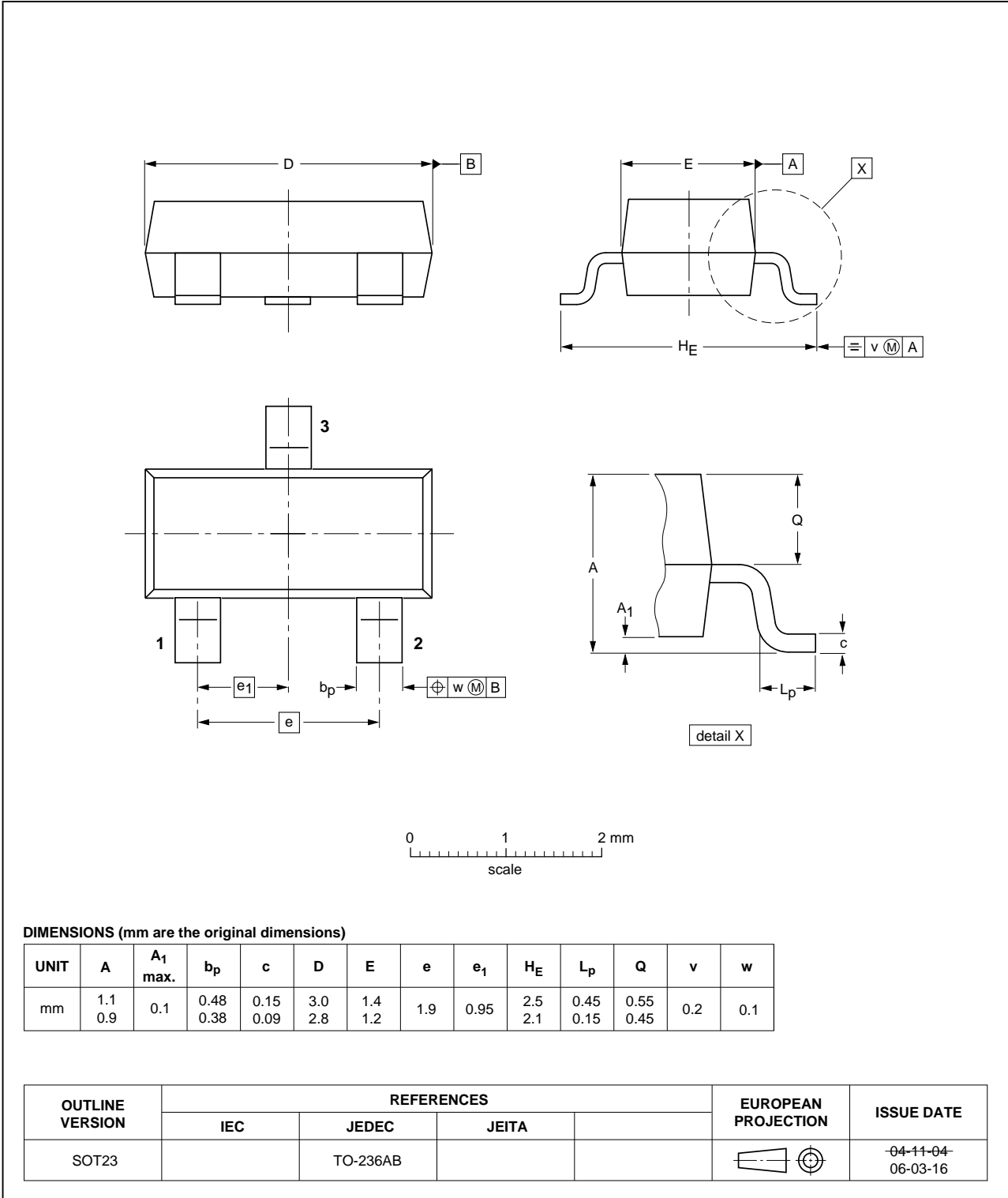
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PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



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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. |

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