

# DATA SHEET

## **BFT46** N-channel silicon FET

Product specification  
File under Discrete Semiconductors, SC07

December 1997

# N-channel silicon FET

# BFT46

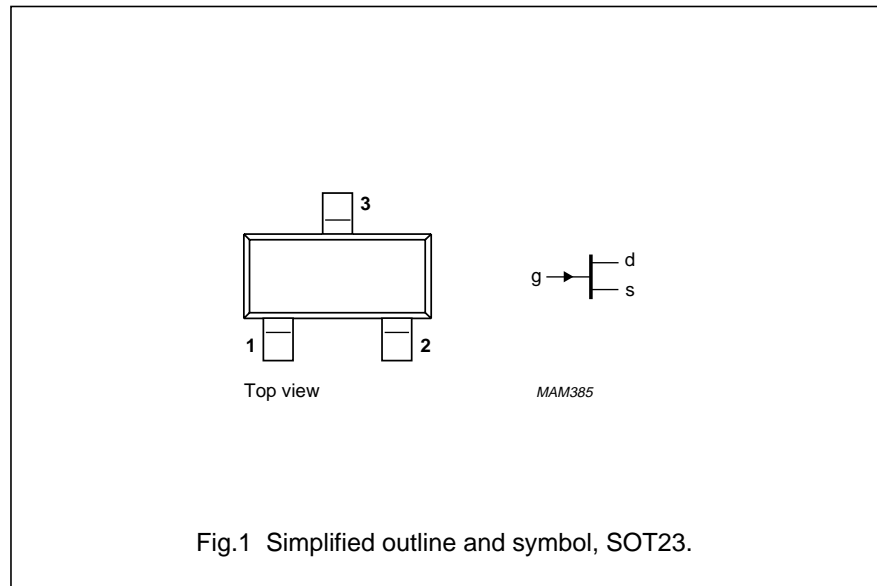
### DESCRIPTION

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 $\mu\text{V}$

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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 $T_{amb} = 40\text{ °C}^{(1)}$	$P_{tot}$	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 <sup>(1)</sup>	$R_{th\ j-a}$	=	430 K/W
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**Note**

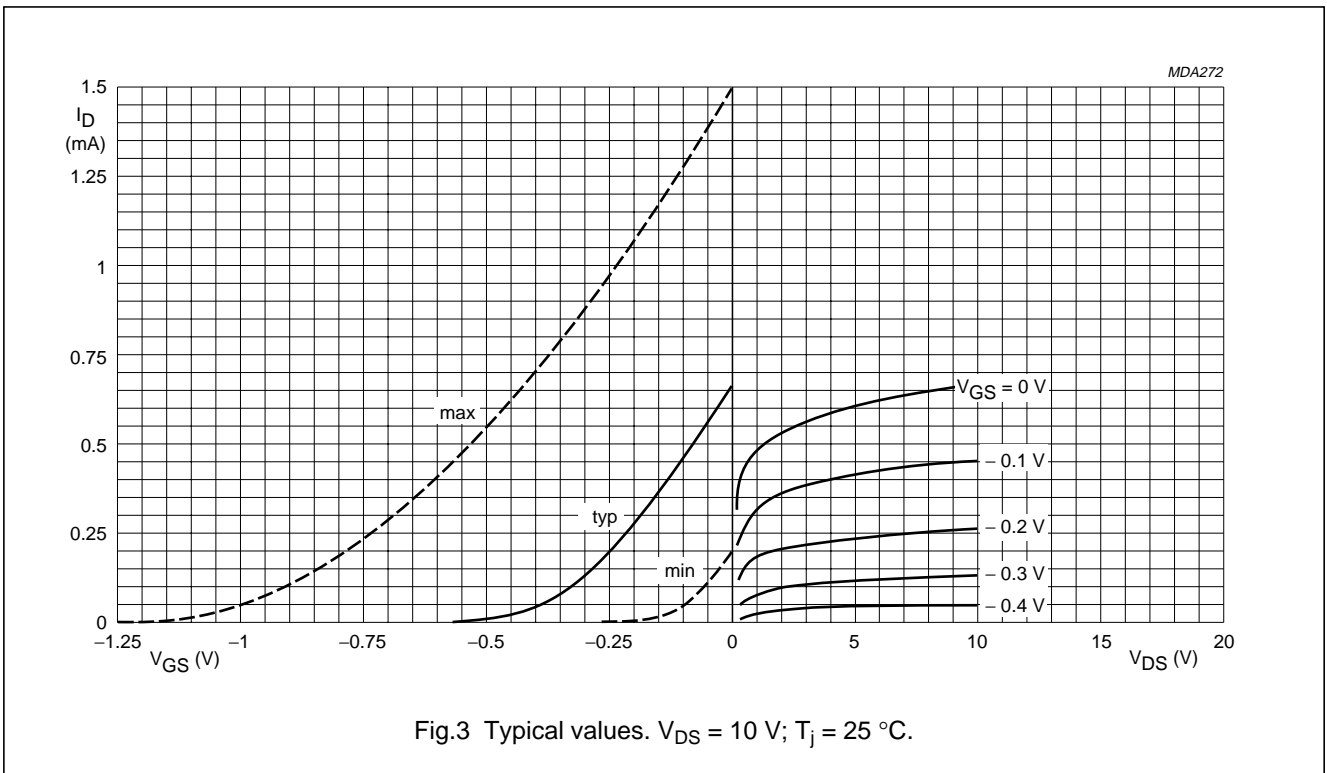
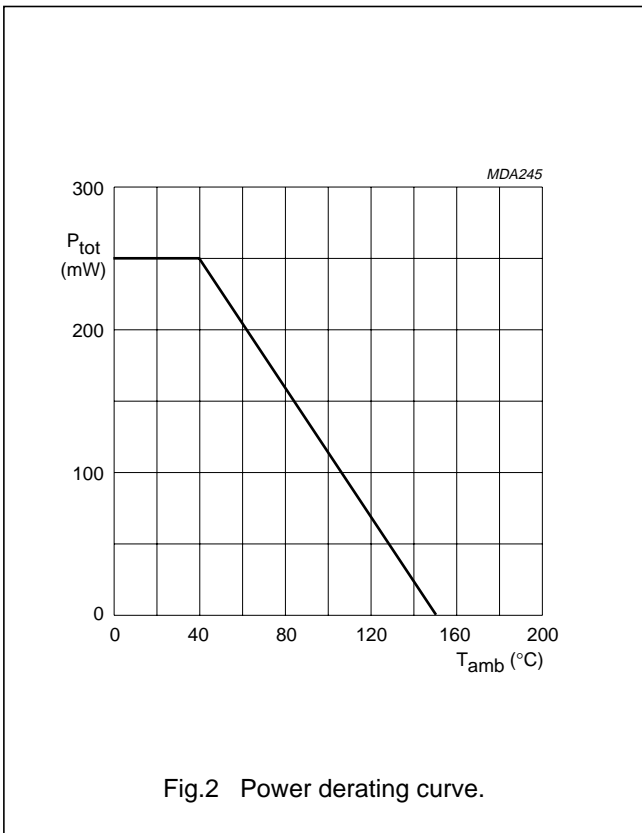
1. Mounted on a ceramic substrate of 8 mm × 10 mm × 0,7 mm.

**CHARACTERISTICS** $T_j = 25\text{ °C}$  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 $f = 1\text{ kHz}$ ; $V_{DS} = 10\text{ V}; V_{GS} = 0; T_{amb} = 25\text{ °C}$	$ y_{fs} $	>	1,0 mS
Transfer admittance	$ y_{os} $	<	10 $\mu\text{S}$
$V_{DS} = 10\text{ V}; I_D = 200\text{ }\mu\text{A}; T_{amb} = 25\text{ °C}$	$ y_{fs} $	>	0,5 mS
Transfer admittance	$ y_{os} $	<	5 $\mu\text{S}$
Output admittance			
Input capacitance at $f = 1\text{ MHz}$ ; $V_{DS} = 10\text{ V}; V_{GS} = 0; T_{amb} = 25\text{ °C}$	$C_{is}$	<	5 pF
Feedback capacitance at $f = 1\text{ MHz}$ ; $V_{DS} = 10\text{ V}; V_{GS} = 0; T_{amb} = 25\text{ °C}$	$C_{rs}$	<	1,5 pF
Equivalent noise voltage $V_{DS} = 10\text{ V}; I_D = 200\text{ }\mu\text{A}; T_{amb} = 25\text{ °C}$ $B = 0,6\text{ to }100\text{ Hz}$	$V_n$	<	0,5 $\mu\text{V}$

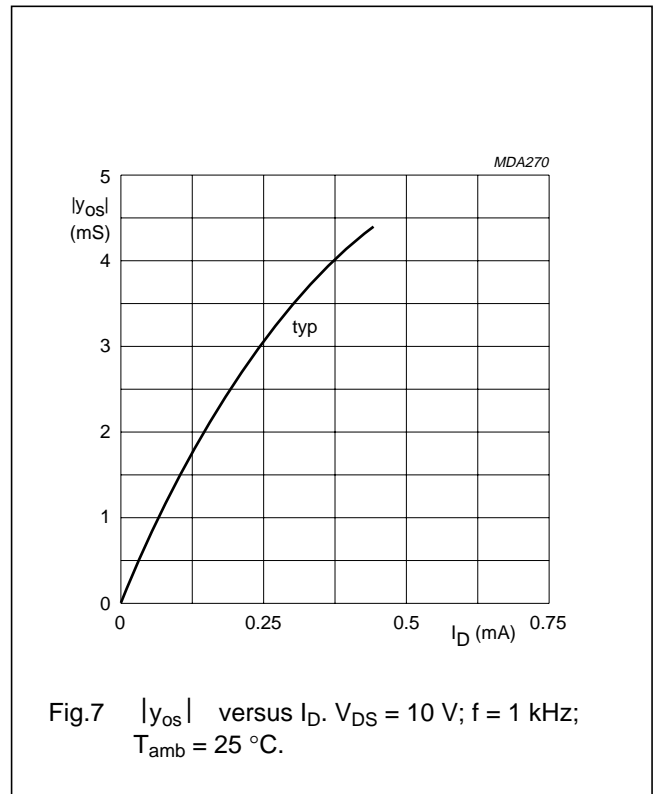
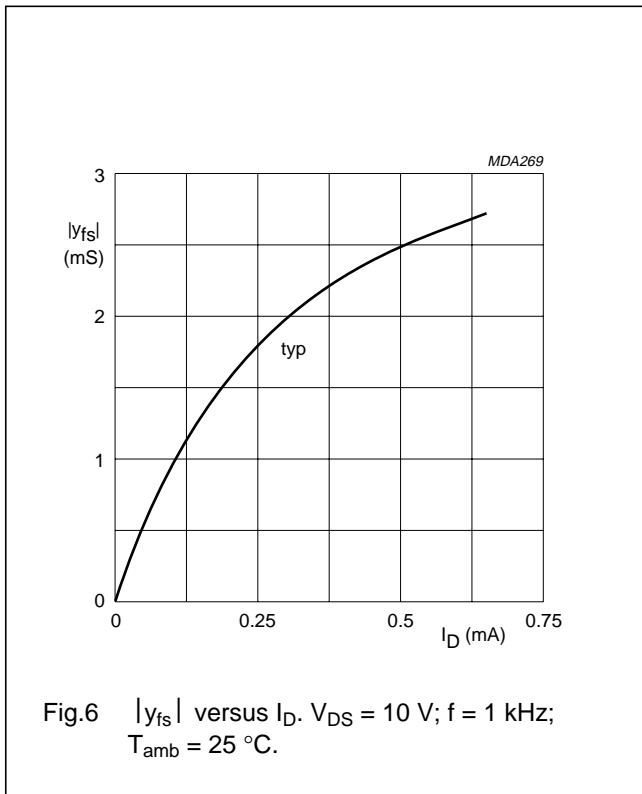
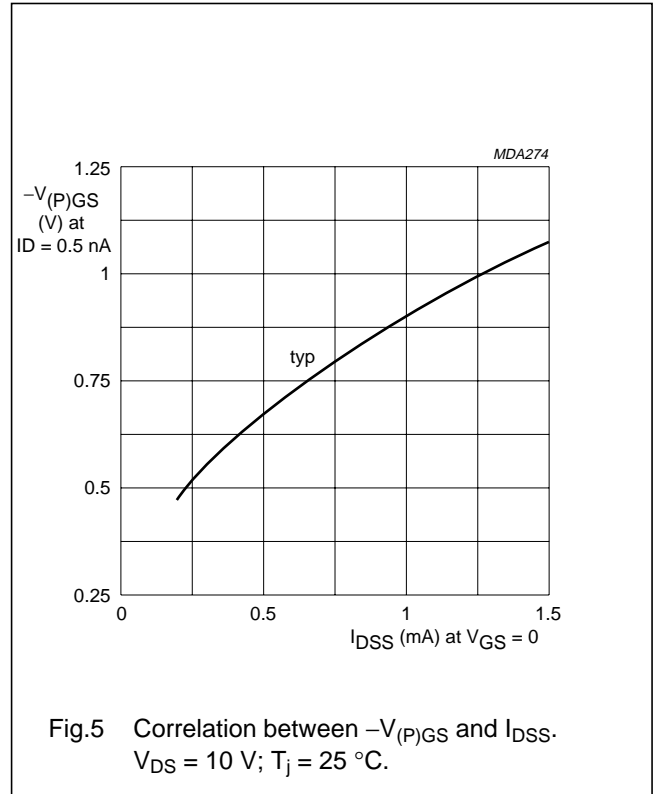
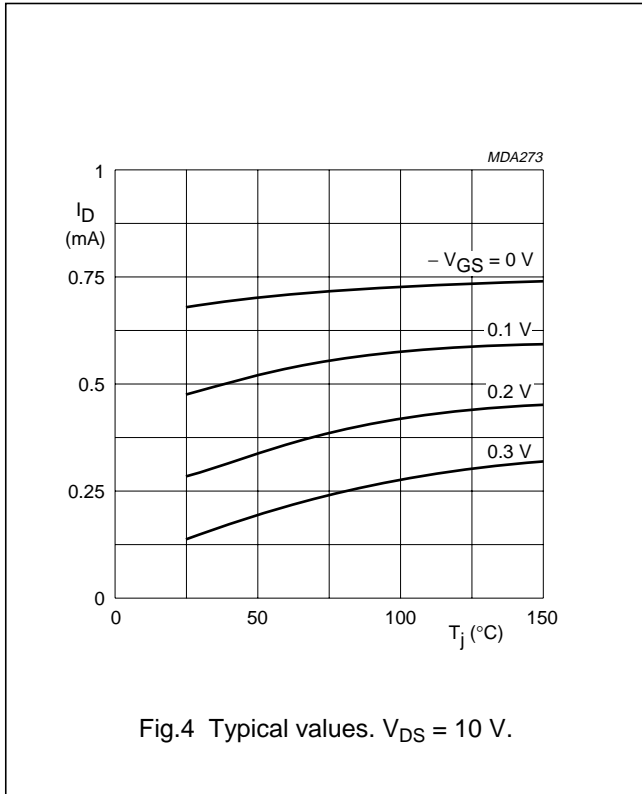
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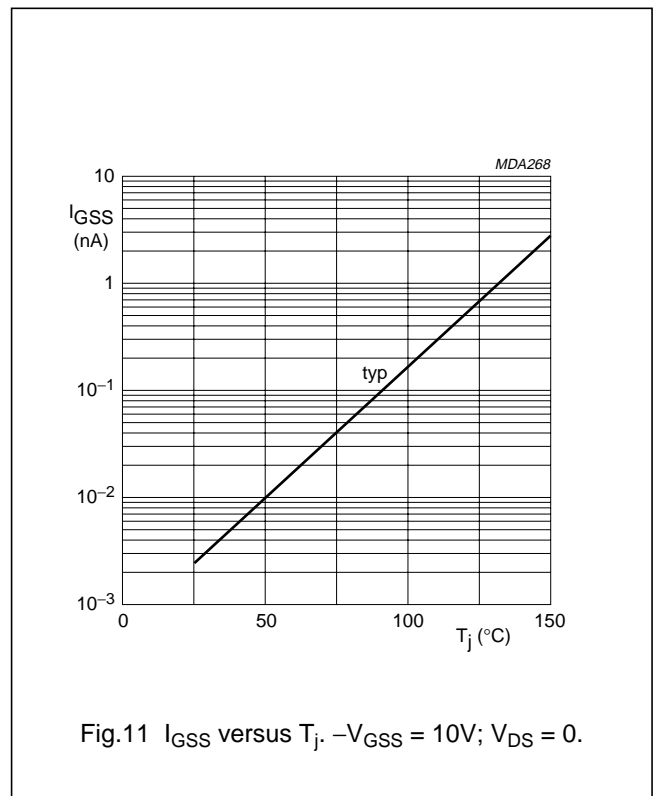
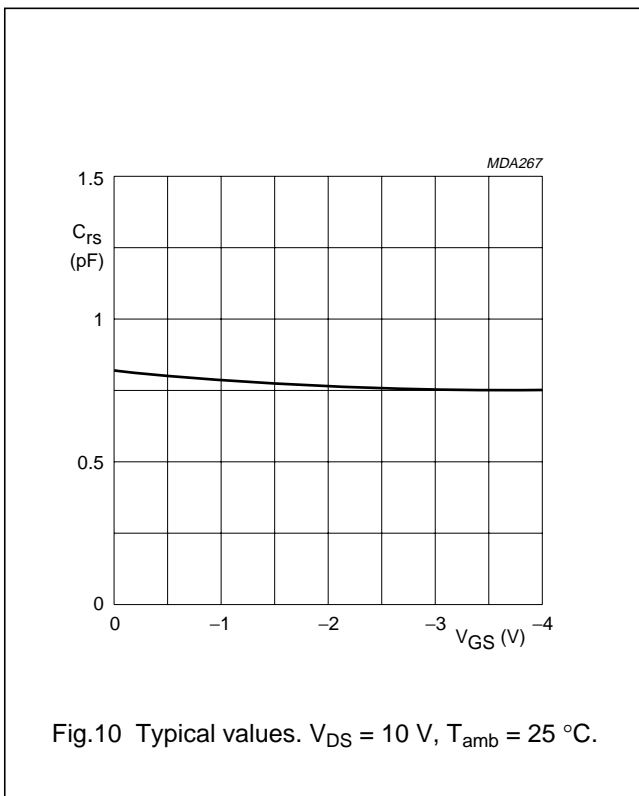
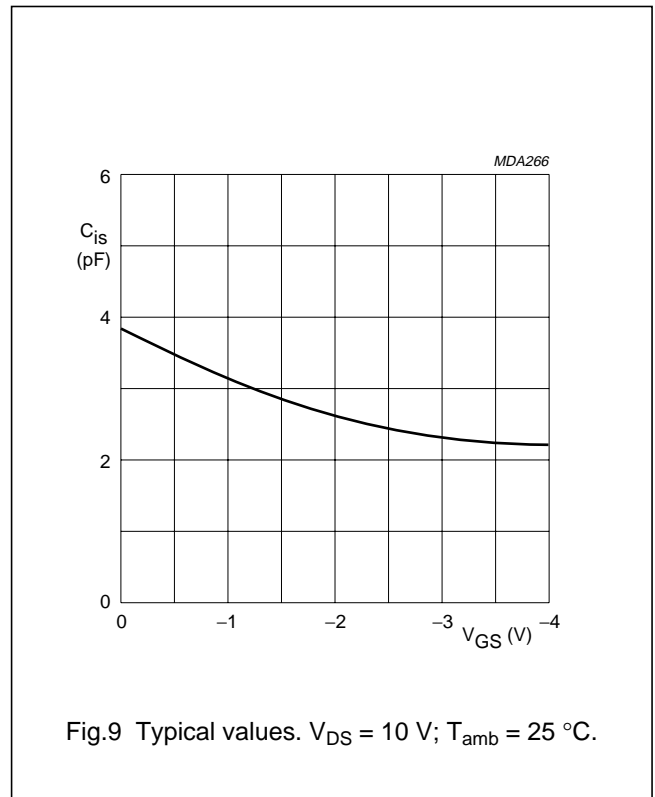
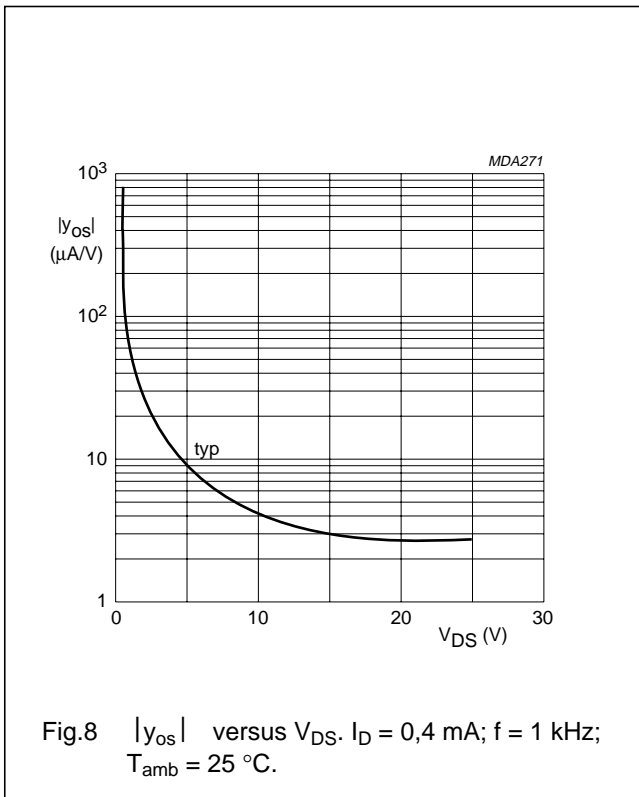
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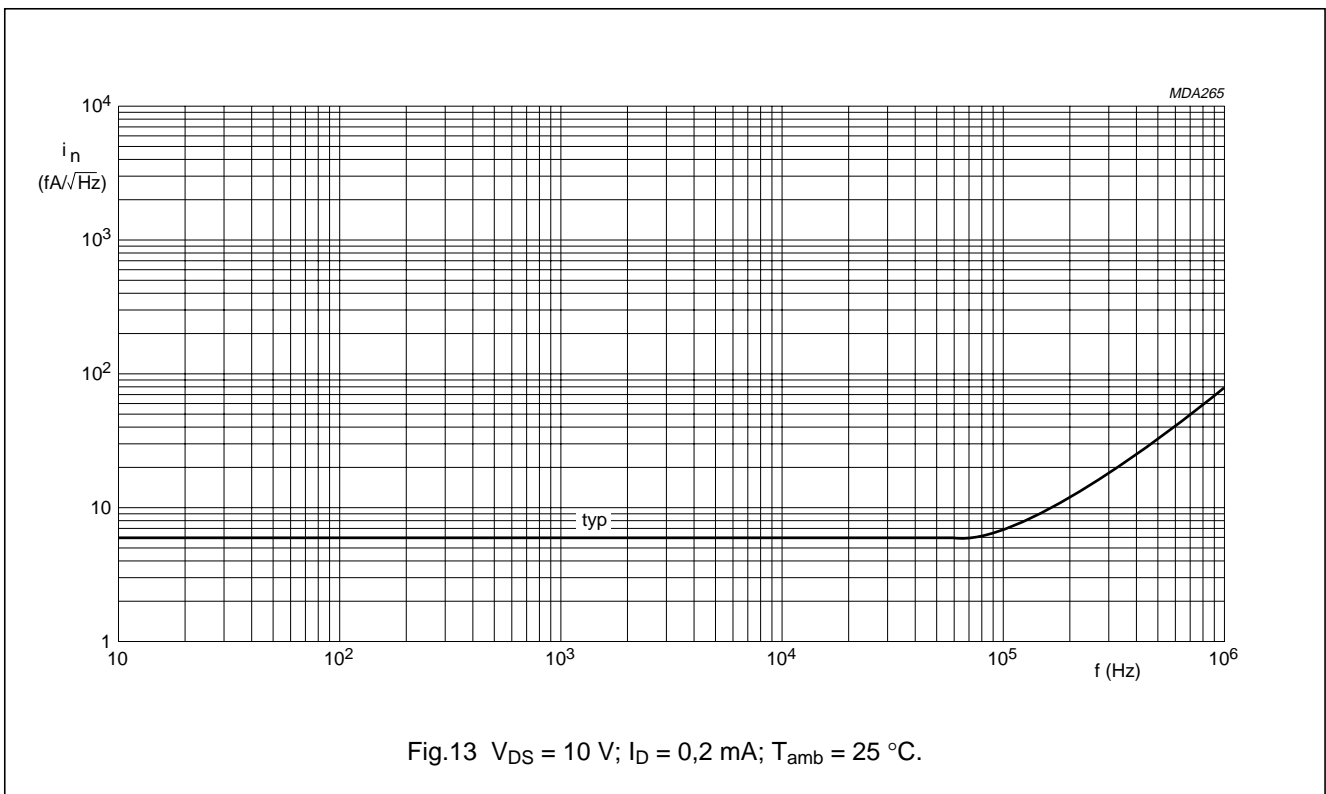
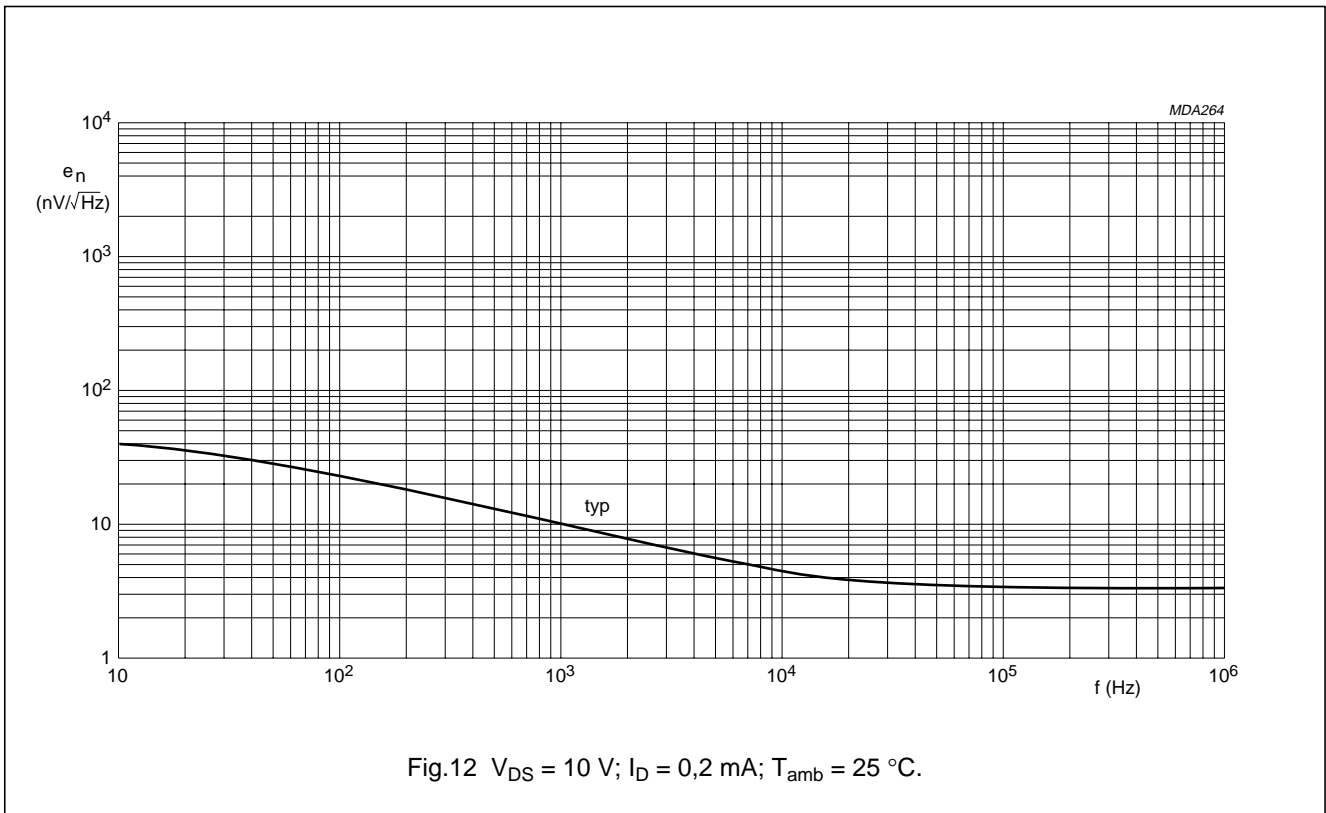
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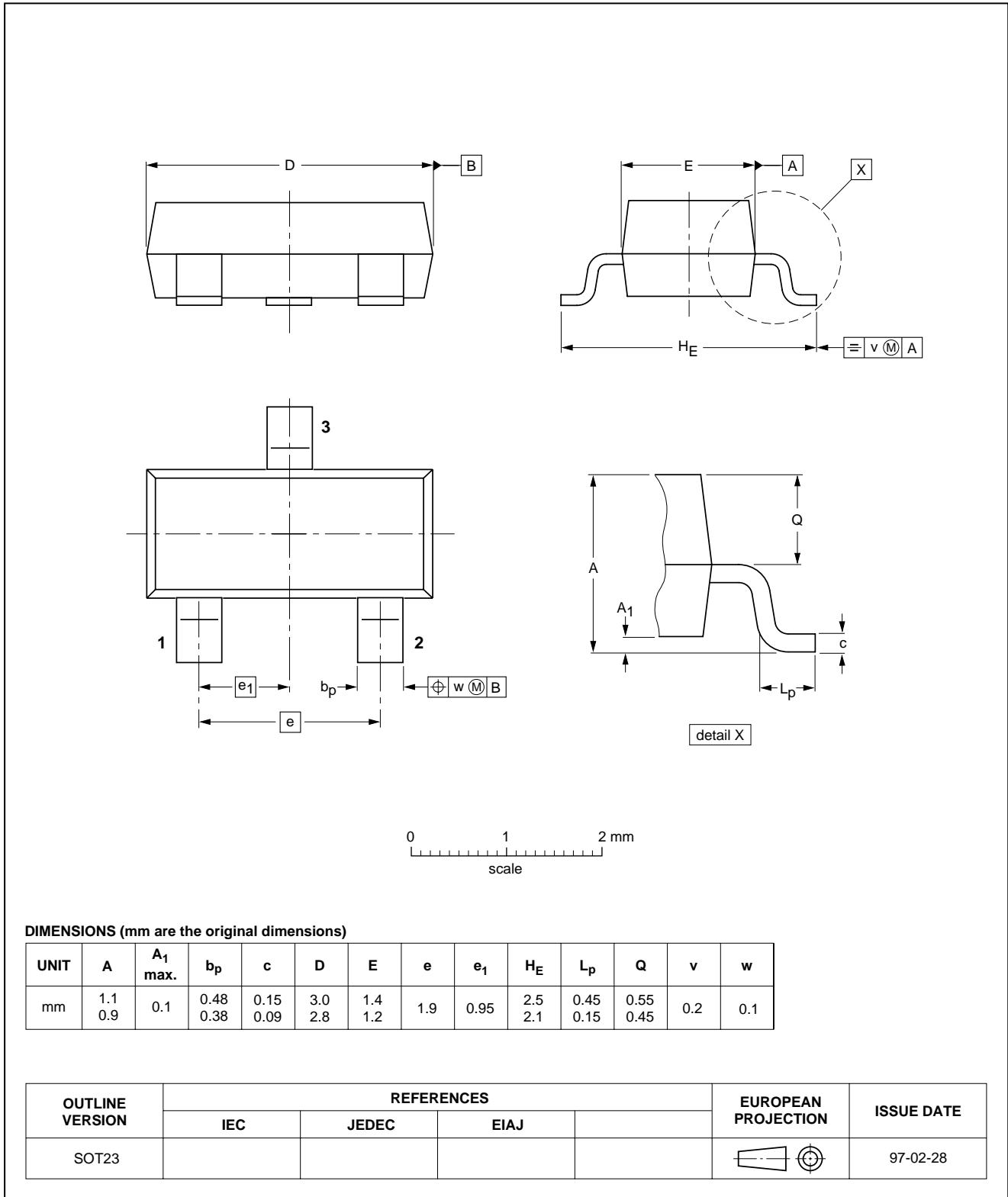
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## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23





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**DEFINITIONS**

<b>Data sheet status</b>	
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.
Short-form specification	The data in this specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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