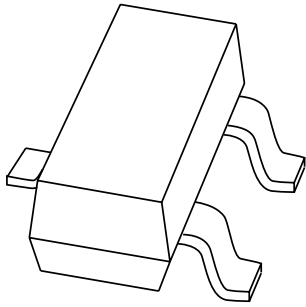


# DATA SHEET



**BF862**

**N-channel junction FET**

Product specification  
Supersedes data of 1999 Jun 29

2000 Jan 05

# N-channel junction FET

# BF862

### FEATURES

- High transition frequency for excellent sensitivity in AM car radios
- High transfer admittance.

### APPLICATIONS

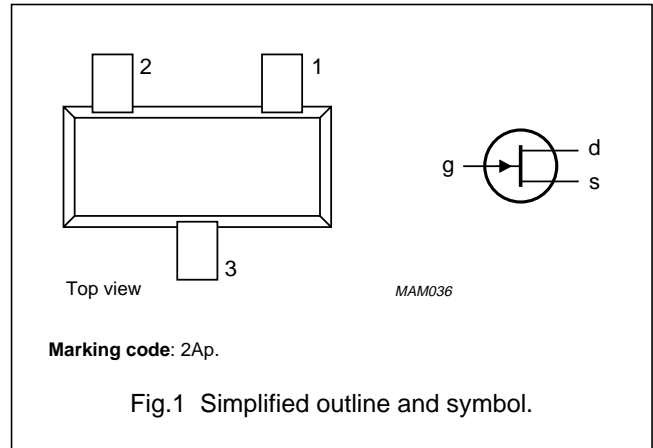
- Pre-amplifiers in AM car radios.

### DESCRIPTION

Silicon N-channel symmetrical junction field-effect transistor in a SOT23 package. Drain and source are interchangeable.

### PINNING SOT23

PIN	DESCRIPTION
1	source
2	drain
3	gate



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{DS}$	drain-source voltage		–	–	20	V
$V_{GSoff}$	gate-source cut-off voltage		–0.3	–0.8	–1.2	V
$I_{DSS}$	drain-source current		10	–	25	mA
$P_{tot}$	total power dissipation	$T_s \leq 90\text{ }^\circ\text{C}$	–	–	300	mW
$ y_{fs} $	transfer admittance		35	45	–	mS
$T_j$	junction temperature		–	–	150	$^\circ\text{C}$

### CAUTION

This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling. For further information, refer to Philips specs.: SNW-EQ-608, SNW-FQ-302A and SNW-FQ-302B.

# N-channel junction FET

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## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{DS}$	drain-source voltage		–	20	V
$V_{DG}$	drain-gate voltage		–	20	V
$V_{GS}$	gate-source voltage		–	–20	V
$I_{DS}$	drain-source current		–	40	mA
$I_G$	forward gate current		–	10	mA
$P_{tot}$	total power dissipation	$T_s \leq 90\text{ }^\circ\text{C}$ ; note 1	–	300	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$

### Note

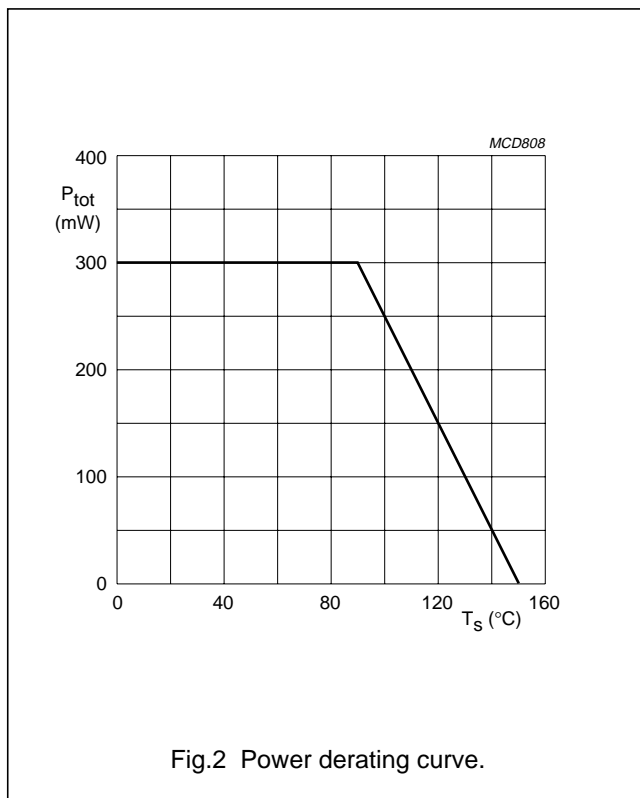
1. Main heat transfer is via the gate lead.

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	note 1	200	K/W

### Note

1. Soldering point of the gate lead.



## N-channel junction FET

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**STATIC CHARACTERISTICS** $T_j = 25\text{ °C}$ ; unless otherwise specified.

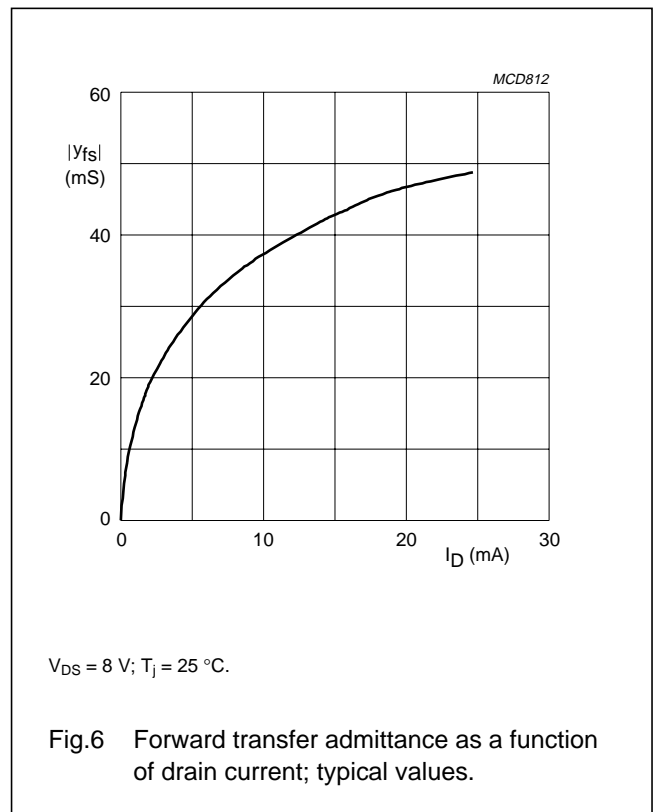
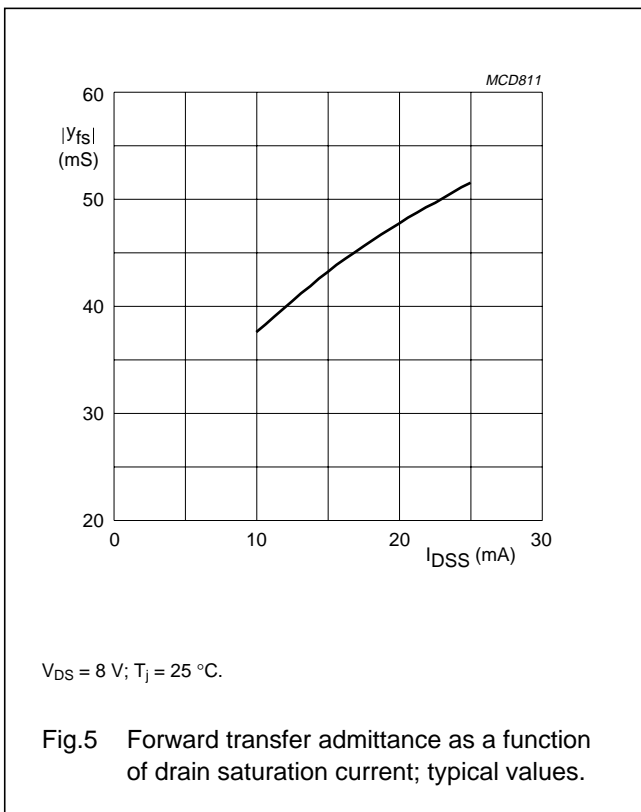
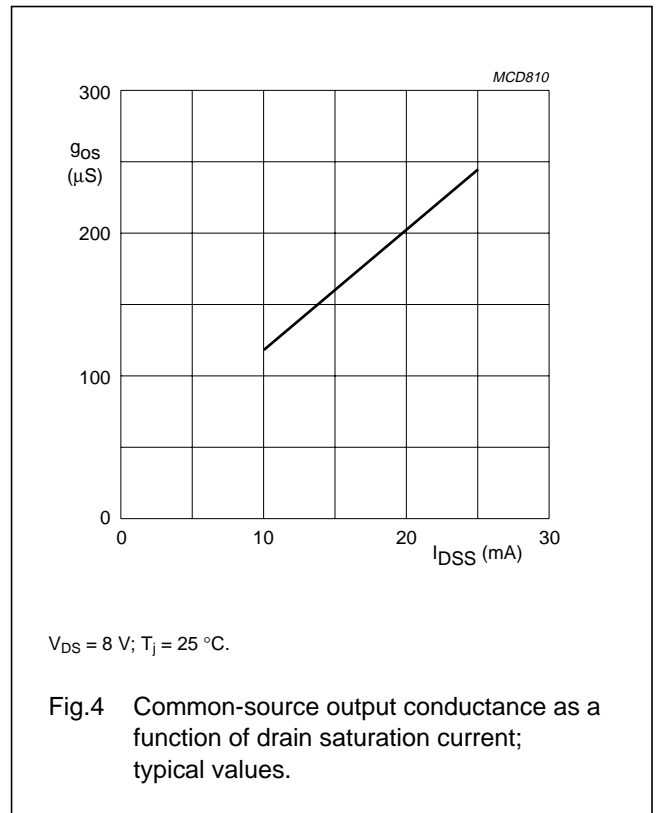
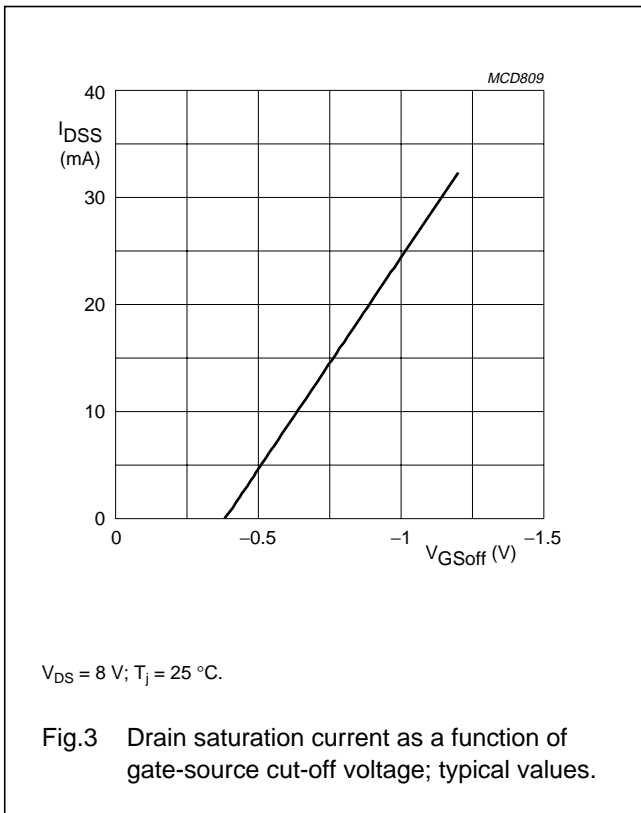
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)GSS}$	gate-source breakdown voltage	$I_{GS} = -1\ \mu\text{A}$ ; $V_{DS} = 0$	-20	-	-	V
$V_{GS}$	gate-source forward voltage	$V_{DS} = 0$ ; $I_G = 1\ \text{mA}$	-	-	1	V
$V_{GSoff}$	gate-source cut-off voltage	$V_{DS} = 8\ \text{V}$ ; $I_D = 1\ \mu\text{A}$	-0.3	-0.8	-1.2	V
$I_{GSS}$	reverse gate current	$V_{GS} = -15\ \text{V}$ ; $V_{DS} = 0$	-	-	-1	nA
$I_{DSS}$	drain-source current	$V_{GS} = 0$ ; $V_{DS} = 8\ \text{V}$	10	-	25	mA

**DYNAMIC CHARACTERISTICS**Common source;  $T_{amb} = 25\text{ °C}$ ;  $V_{GS} = 0$ ;  $V_{DS} = 8\ \text{V}$ ; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$ y_{fs} $	common source forward transfer admittance	$T_j = 25\text{ °C}$	35	45	-	mS
$g_{os}$	common source output conductance	$T_j = 25\text{ °C}$	-	180	400	$\mu\text{S}$
$C_{iss}$	input capacitance	$f = 1\ \text{MHz}$	-	10	-	pF
$C_{rss}$	reverse transfer capacitance	$f = 1\ \text{MHz}$	-	1.9	-	pF
$e_n$	equivalent noise input voltage	$f = 100\ \text{kHz}$	-	0.8	-	$\text{nV}/\sqrt{\text{Hz}}$
$f_T$	transition frequency		-	715	-	MHz

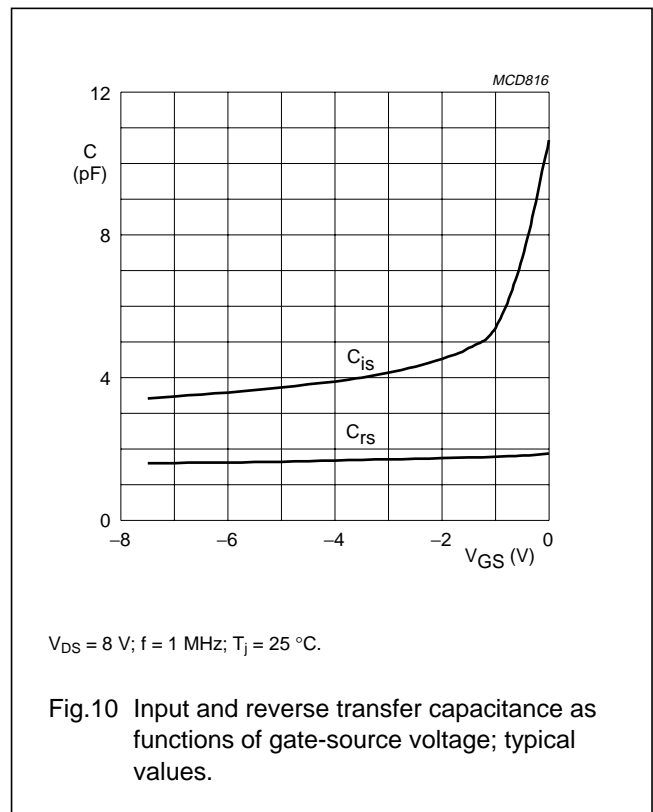
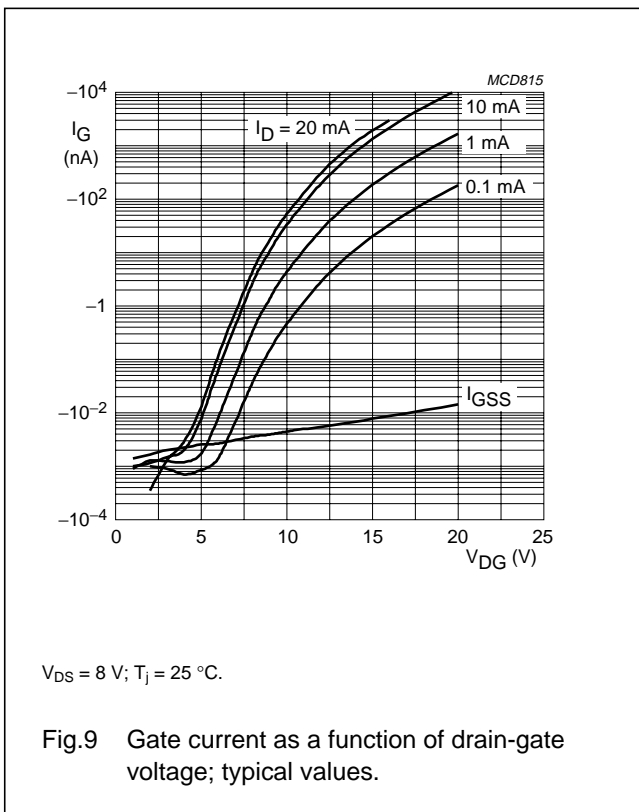
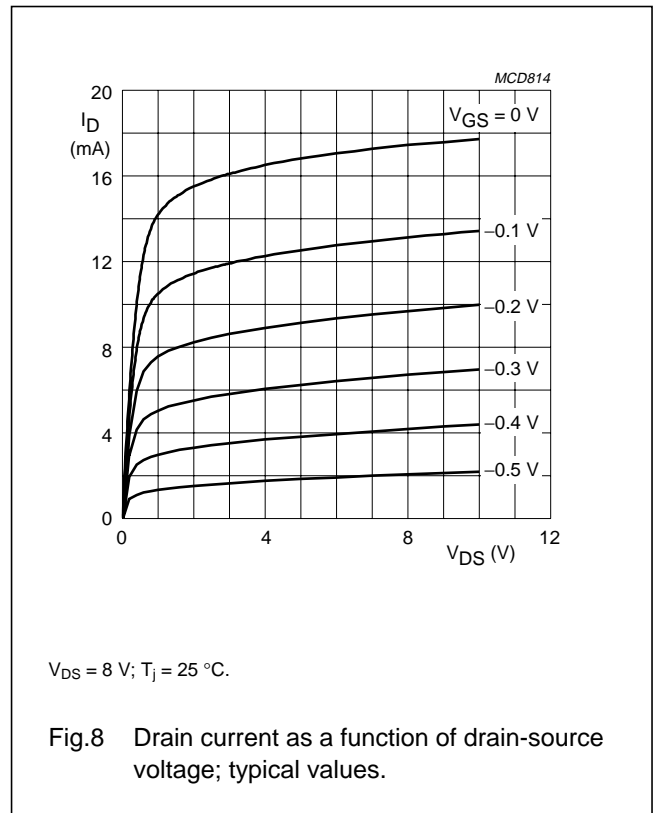
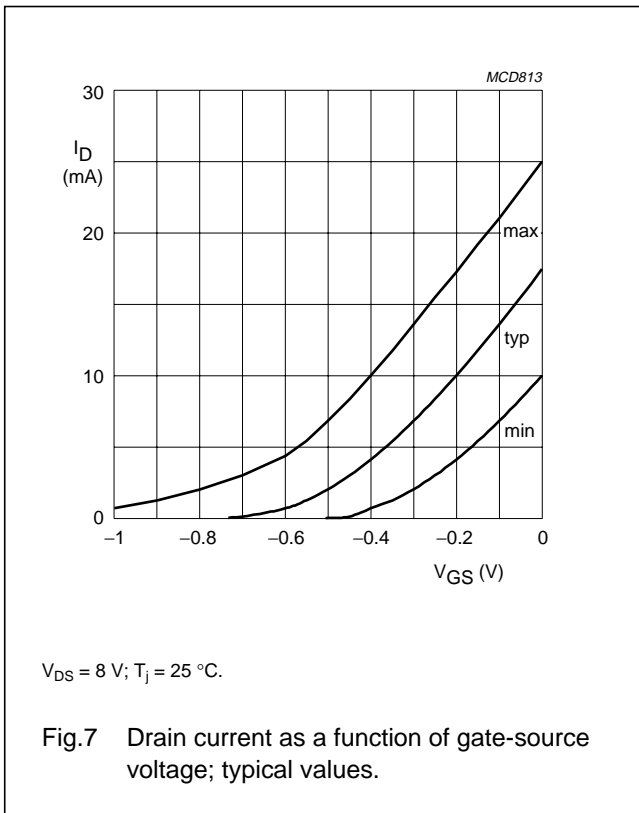
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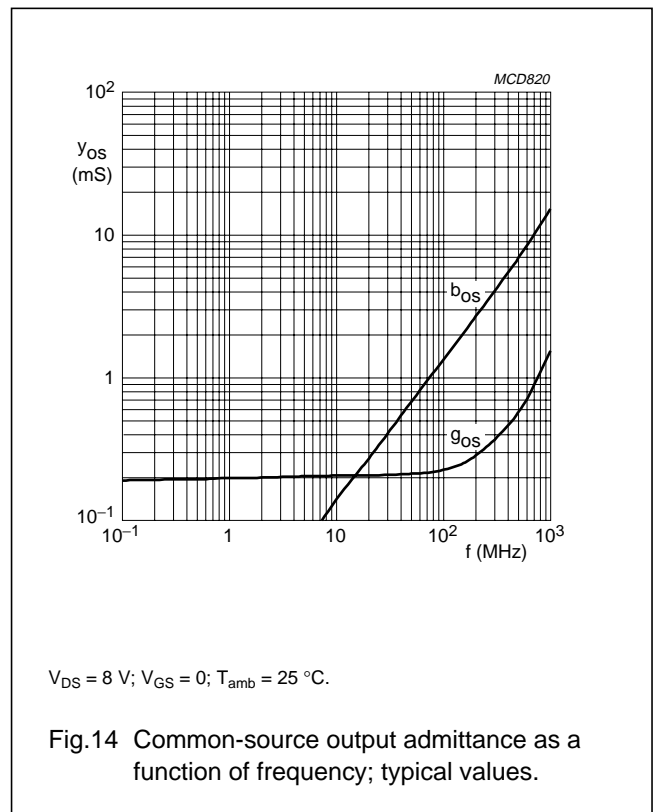
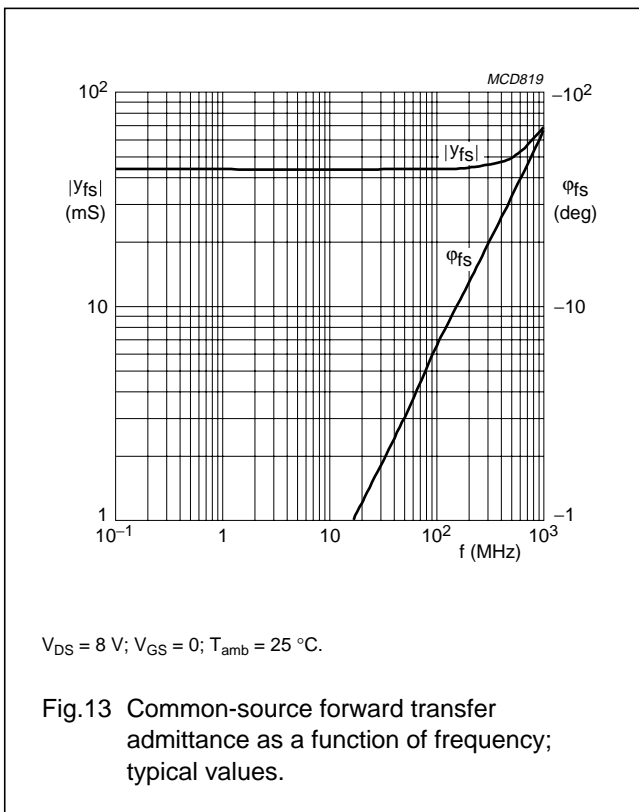
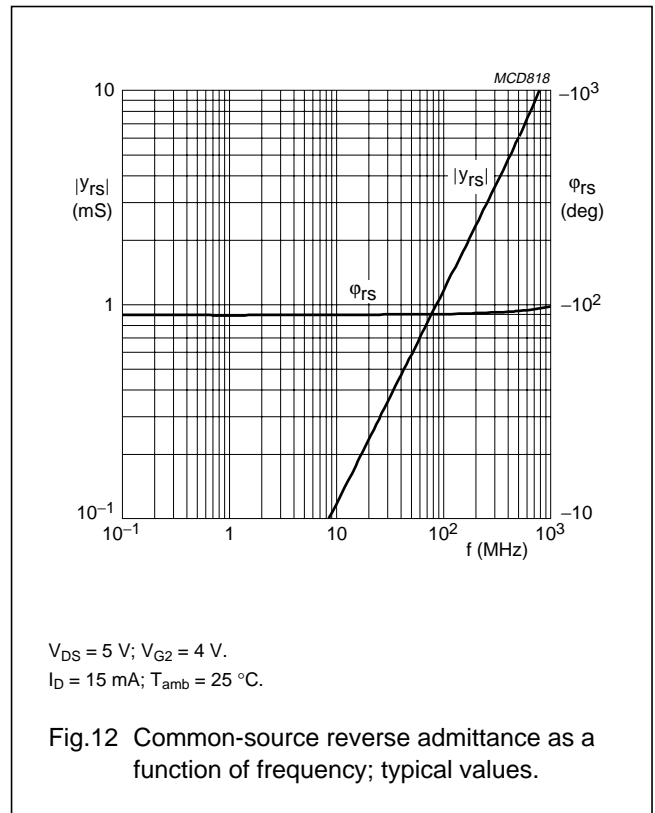
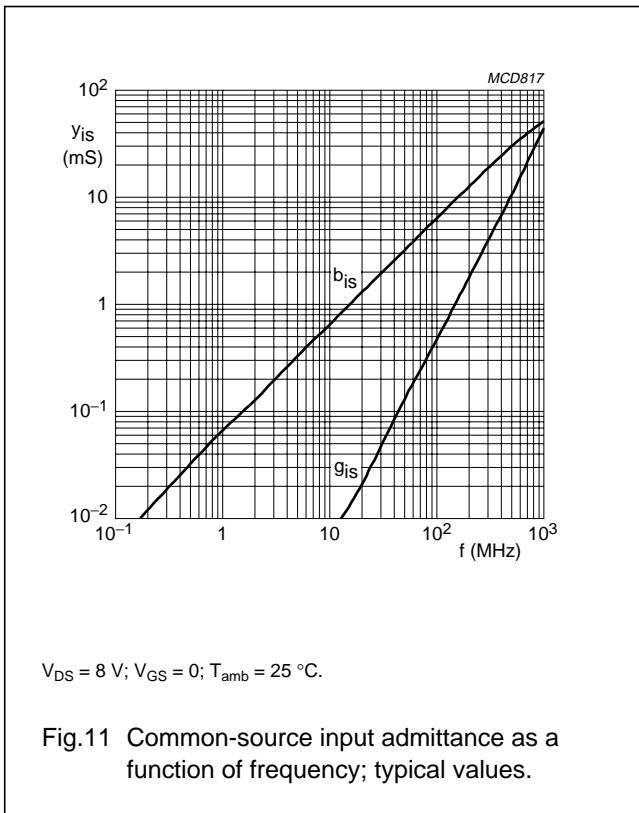
N-channel junction FET

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N-channel junction FET

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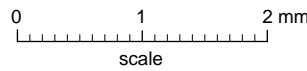
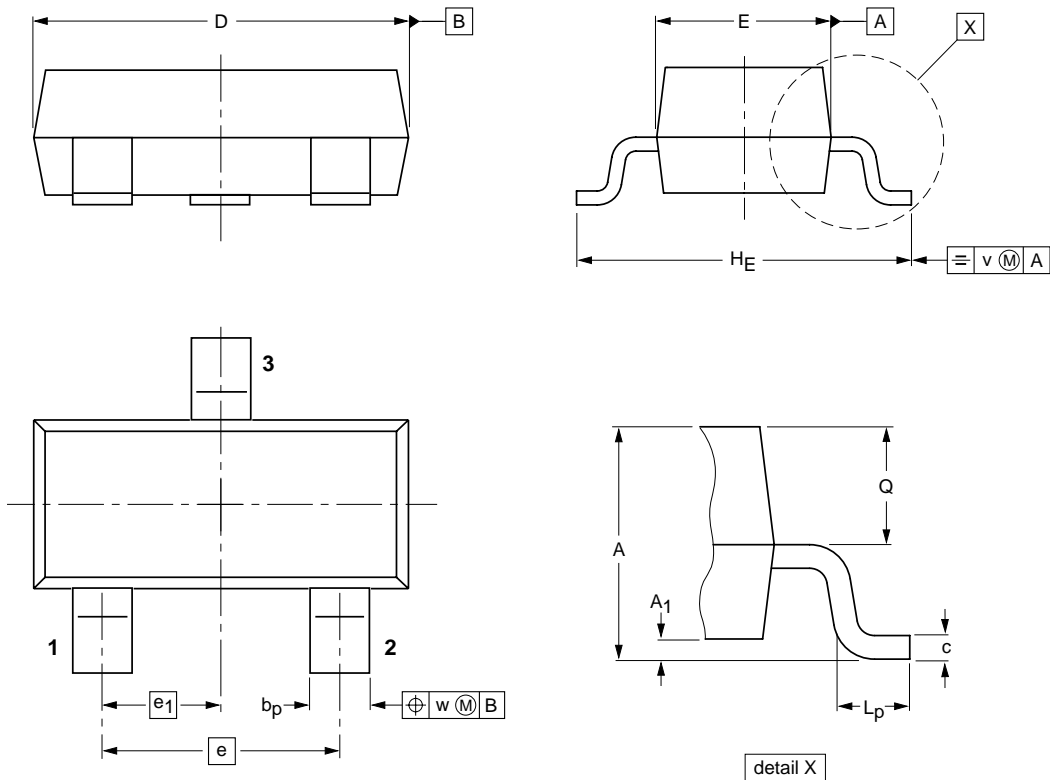
# N-channel junction FET

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## 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



## N-channel junction FET

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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.
<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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**NOTES**

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**NOTES**

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