

N-CHANNEL JUNCTION FIELD-EFFECT TRANSISTOR

Symmetrical n-channel, depletion type, silicon junction field-effect transistor, designed primarily for small-signal general purpose high-frequency amplifier applications. The 2N3822 features low gate leakage current and low input capacitance.

QUICK REFERENCE DATA

Drain-source voltage	$\pm V_{DS}$	max.	50 V
Gate-source voltage	$-V_{GS}$	max.	50 V
Total power dissipation up to $T_{amb} = 25^{\circ}\text{C}$	P_{tot}	max.	250 mW
Drain current			
$V_{DS} = 15 \text{ V}; V_{GS} = 0$	I_{DSS}		2 to 10 mA
Transfer admittance			
$V_{DS} = 15 \text{ V}; V_{GS} = 0; f = 1 \text{ kHz}$	$ Y_{fs} $		3,0 to 6,5 mS
$V_{DS} = 15 \text{ V}; V_{GS} = 0; f = 100 \text{ MHz}$	$ Y_{fs} $	>	3,0 mS

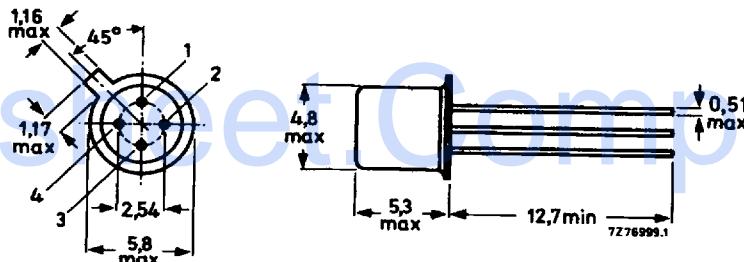
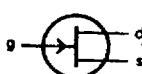
MECHANICAL DATA

Fig. 1 TO-72.

Dimensions in mm

Pinning

- 1 = source
- 2 = drain
- 3 = gate
- 4 = shield lead connected to case



Note: Drain and source are interchangeable.

Accessories: 56246 (distance disc).

RATINGS

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

Drain-source voltage	$\pm V_{DS}$	max.	50 V
Drain-gate voltage	V_{DG}	max.	50 V
Gate-source voltage	$-V_{GS}$	max.	50 V
Gate current (d.c.)	I_G	max.	10 mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	$P_{tot.}$	max.	250 mW
Storage temperature range	T_{stg}	-65 to + 175	$^\circ\text{C}$
Junction temperature	T_j	max.	175 $^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th j-a}$	=	590 K/W
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CHARACTERISTICS with source connected to case for all measurements $T_{amb} = 25^\circ\text{C}$ unless otherwise specified

Gate cut-off current

$-V_{GS} = 30 \text{ V}; V_{DS} = 0$	$-I_{GSS}$	<	0,1 nA
$-V_{GS} = 30 \text{ V}; V_{DS} = 0; T_{amb} = 150^\circ\text{C}$	$-I_{GSS}$	<	0,1 μA

Drain current *

$V_{DS} = 15 \text{ V}; V_{GS} = 0$	I_{DSS}	2 to 10	mA
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Gate-source breakdown voltage

$-I_G = 1 \mu\text{A}; V_{DS} = 0$	$-V_{(BR)GS}$	>	50 V
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Gate-source voltage

$V_{DS} = 15 \text{ V}; I_D = 200 \mu\text{A}$	$-V_{GS}$	1 to 4	V
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Gate-source cut-off voltage

$V_{DS} = 15 \text{ V}; I_D = 0,5 \text{ nA}$	$-V_{(P)GS}$	<	6 V
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Small-signal common source characteristics

$V_{DS} = 15 \text{ V}; V_{GS} = 0$			
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Transfer admittance *

$f = 1 \text{ kHz}$	$ Y_{fs} $	3,0 to 6,5	mS
$f = 100 \text{ MHz}$	$ Y_{fs} $	>	3,0 mS

Output admittance at $f = 1 \text{ kHz}$ *

$ Y_{os} $	<	20 μS
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Input capacitance at $f = 1 \text{ MHz}$

C_{iss}	<	6 pF
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Feedback capacitance at $f = 1 \text{ MHz}$

C_{rss}	<	3 pF
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Noise figure

$V_{DS} = 15 \text{ V}; V_{GS} = 0; R_G = 1 \text{ M}\Omega$	$ Y_{fs} $	3,0 to 6,5	mS
$f = 10 \text{ Hz}; B = 5 \text{ Hz}$	F	<	5 dB

Equivalent input noise voltage

$V_{DS} = 15 \text{ V}; V_{GS} = 0$	V_n	<	$200 \text{ nV}/\sqrt{\text{Hz}}$
$f = 10 \text{ Hz}; B = 5 \text{ Hz}$			

* Measured under pulse conditions: $t_p = 100 \text{ ms}; \delta \leq 0,1$.