

SILICON N-CHANNEL DUAL GATE MOS-FET

Depletion type field-effect transistor in a plastic X-package with source and substrate interconnected, intended for u.h.f. applications, such as u.h.f. television tuners, with 12 V supply voltage.

This MOS-FET tetrede is protected against excessive input voltage surges by integrated back-to-back diodes between gates and source.

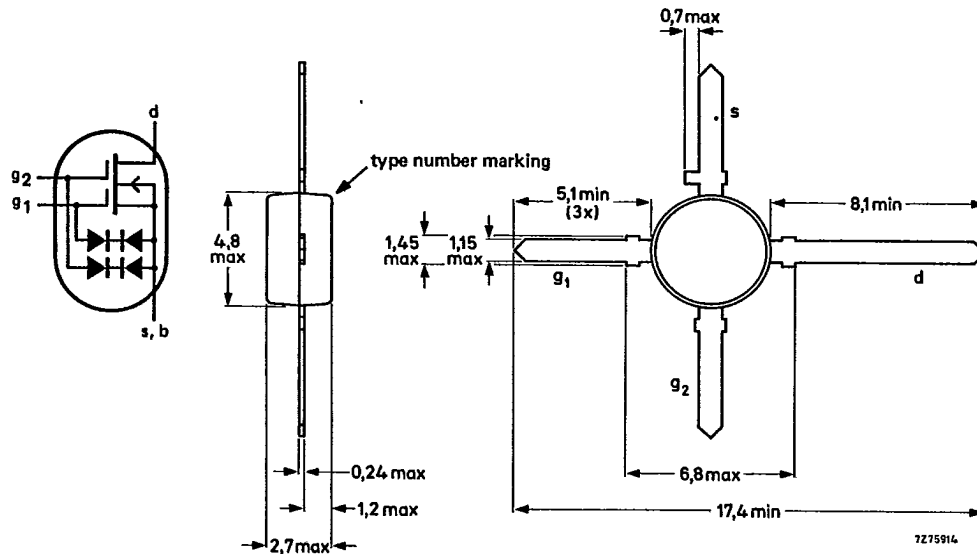
QUICK REFERENCE DATA

Drain-source voltage	V_{DS}	max.	18 V
Drain current	I_D	max.	30 mA
Total power dissipation up to $T_{amb} = 75^\circ C$	P_{tot}	max.	225 mW
Junction temperature	T_j	max.	150 $^\circ C$
Transfer admittance at $f = 1$ kHz $I_D = 10$ mA; $V_{DS} = 10$ V; $+V_{G2-S} = 4$ V	$ y_{fs} $	typ.	19 mS
Feedback capacitance at $f = 1$ MHz $I_D = 10$ mA; $V_{DS} = 10$ V; $+V_{G2-S} = 4$ V	C_{rs}	typ.	25 fF
Noise figure at $G_S = 5$ mS; $B_S = B_S$ opt $I_D = 10$ mA; $V_{DS} = 10$ V; $+V_{G2-S} = 4$ V; $f = 800$ MHz	F	typ.	2,8 dB

MECHANICAL DATA

Dimensions in mm

Fig. 1 SOT-103.



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RATINGS

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

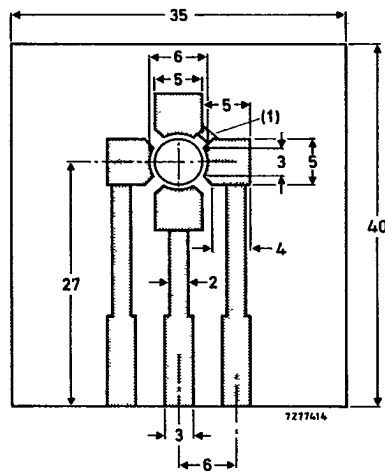
Drain-source voltage	V _{DS}	max.	18 V
Drain current (d.c. or average)	I _D	max.	30 mA
Gate 1 - source current	±I _{G1-S}	max.	10 mA
Gate 2 - source current	±I _{G2-S}	max.	10 mA
Total power dissipation up to T _{amb} = 75 °C	P _{tot}	max.	225 mW
Storage temperature	T _{stg}	-65 to +150	°C
Junction temperature	T _j	max.	150 °C

THERMAL RESISTANCE

From junction to ambient in free air
mounted on the printed-circuit board (see Fig. 2)

R_{th j-a} = 335 K/W

Dimensions in mm



(1) Connection made by a strip or Cu wire.

Fig. 2 Single-sided 35 μm Cu-clad epoxy fibre-glass printed-circuit board, thickness 1,5 mm. Tracks are fully tin-lead plated. Board in horizontal position for R_{th} measurement.

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STATIC CHARACTERISTICS $T_{amb} = 25\text{ }^{\circ}\text{C}$ **Gate cut-off currents**

$\pm V_{G1-S} = 7\text{ V}; V_{G2-S} = V_{DS} = 0$	$\pm I_{G1-SS}$	<	25 nA
$\pm V_{G2-S} = 7\text{ V}; V_{G1-S} = V_{DS} = 0$	$\pm I_{G2-SS}$	<	25 nA

Gate-source breakdown voltages

$\pm I_{G1-SS} = 10\text{ mA}; V_{G2-S} = V_{DS} = 0$	$\pm V_{(BR)G1-SS}$	>	8 V
$\pm I_{G2-SS} = 10\text{ mA}; V_{G1-S} = V_{DS} = 0$	$\pm V_{(BR)G2-SS}$	>	8 V

Gate-source cut-off voltages

$I_D = 20\text{ }\mu\text{A}; V_{DS} = 10\text{ V}; +V_{G2-S} = 4\text{ V}$	$-V_{(P)G1-S}$	<	1,3 V
		>	0,2 V
$I_D = 20\text{ }\mu\text{A}; V_{DS} = 10\text{ V}; V_{G1-S} = 0$	$-V_{(P)G2-S}$	<	1,1 V
		>	0,2 V

DYNAMIC CHARACTERISTICSMeasuring conditions (common source): $I_D = 10\text{ mA}; V_{DS} = 10\text{ V}; +V_{G2-S} = 4\text{ V}; T_{amb} = 25\text{ }^{\circ}\text{C}$

Transfer admittance at $f = 1\text{ kHz}$	$ y_{fs} $	>	17 mS
		typ.	19 mS
Input capacitance at gate 1; $f = 1\text{ MHz}$	C_{ig1-s}	<	3,0 pF
		typ.	2,6 pF
Feedback capacitance at $f = 1\text{ MHz}$	C_{rs}	<	35 fF
		typ.	25 fF
Output capacitance at $f = 1\text{ MHz}$	C_{os}	<	1,3 pF
		typ.	1,1 pF
Noise figure at $f = 800\text{ MHz}; G_S = 5\text{ mS}; B_S = B_S\text{ opt}$	F	<	3,9 dB
		typ.	2,8 dB