

## 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 in television tuners and professional communication equipment.

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

## QUICK REFERENCE DATA

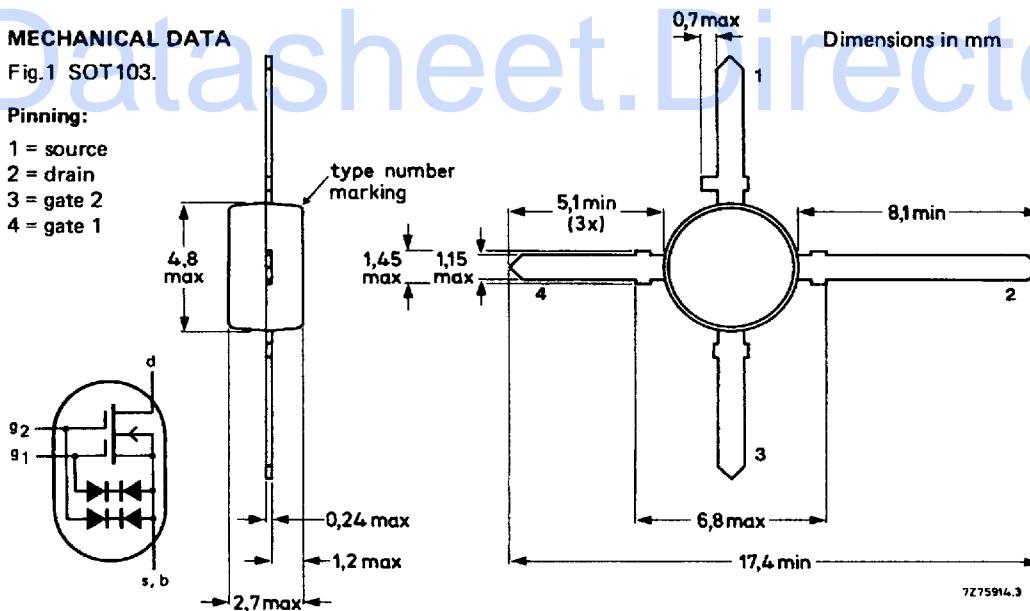
Drain-source voltage	$V_{DS}$	max.	20 V
Drain current	$I_D$	max.	30 mA
Total power dissipation up to $T_{amb} = 75^\circ\text{C}$	$P_{tot}$	max.	225 mW
Junction temperature	$T_j$	max.	150 °C
Transfer admittance at $f = 1 \text{ kHz}$ $I_D = 10 \text{ mA}; V_{DS} = 15 \text{ V}; + V_{G2-S} = 4 \text{ V}$	$ Y_{fs} $	typ.	18 mS
Input capacitance at gate 1; $f = 1 \text{ MHz}$ $I_D = 10 \text{ mA}; V_{DS} = 15 \text{ V}; + V_{G2-S} = 4 \text{ V}$	$C_{ig1-s}$	typ. max.	2.3 pF 2.6 pF
Feedback capacitance at $f = 1 \text{ MHz}$ $I_D = 10 \text{ mA}; V_{DS} = 15 \text{ V}; + V_{G2-S} = 4 \text{ V}$	$C_{rs}$	typ.	25 fF
Noise figure at $G_S = 3.3 \text{ mS}; B_S = B_{S \text{ opt}}$ $I_D = 10 \text{ mA}; V_{DS} = 15 \text{ V}; + V_{G2-S} = 4 \text{ V}; f = 800 \text{ MHz}$	$F$	typ.	1.8 dB

## MECHANICAL DATA

Fig.1 SOT103.

## Pinning:

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



December 1988

305

■ 6653931 0035934 997 ■

**RATINGS**

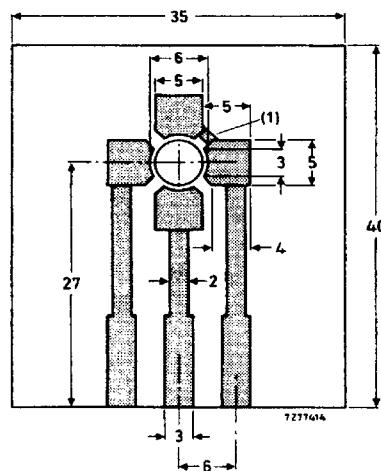
Limiting values in accordance with the Absolute Maximum System (IEC 134)

Drain-source voltage	$V_{DS}$	max.	20 V
Drain current (DC or average)	$I_D$	max.	30 mA
Gate 1 - source current	$\pm I_{G1-S}$	max.	10 mA
Gate 2 - source current	$\pm I_{G2-S}$	max.	10 mA
Total power dissipation up to $T_{amb} = 75^\circ\text{C}$	$P_{tot}$	max.	225 mW
Storage temperature range	$T_{stg}$	-	-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)

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



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

Fig.2 Single-sided 35  $\mu\text{m}$  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.





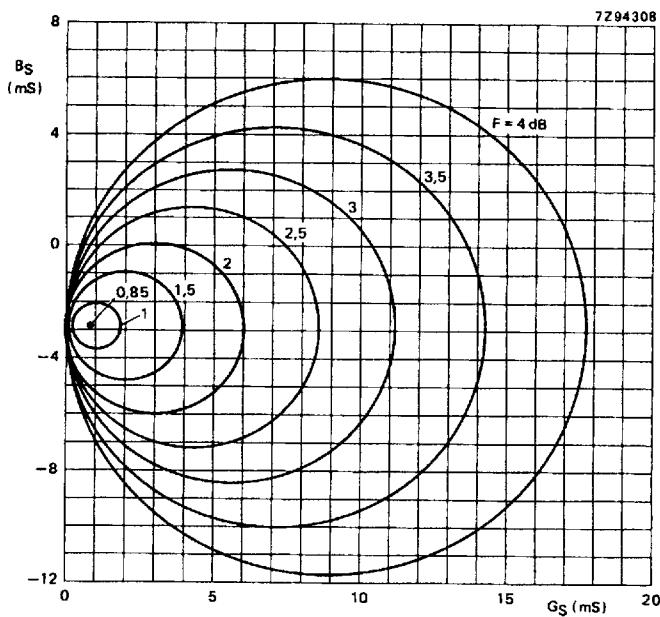


Fig. 11  $V_{G2-S} = 4 \text{ V}$ ;  $V_{DS} = 15 \text{ V}$ ;  $I_D = 10 \text{ mA}$ ;  
 $f = 200 \text{ MHz}$ ;  $T_{amb} = 25^\circ\text{C}$ ; typical values.

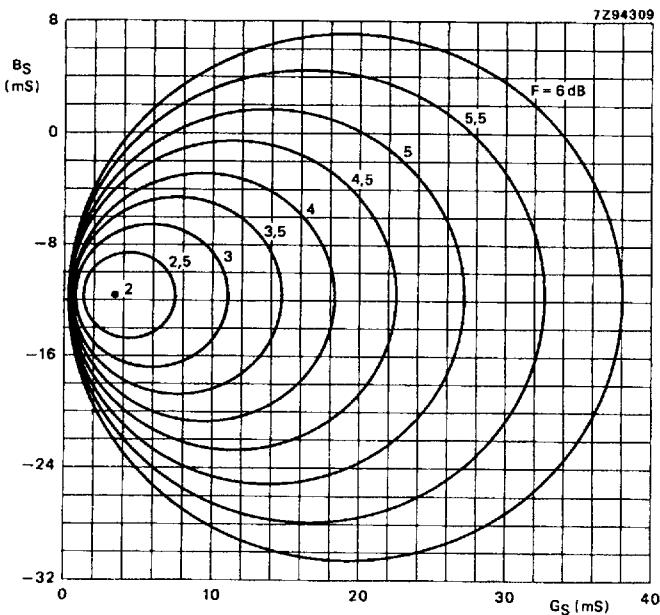


Fig. 12  $V_{G2-S} = 4 \text{ V}$ ;  $V_{DS} = 15 \text{ V}$ ;  $I_D = 10 \text{ mA}$ ;  
 $f = 800 \text{ MHz}$ ;  $T_{amb} = 25^\circ\text{C}$ ; typical values.