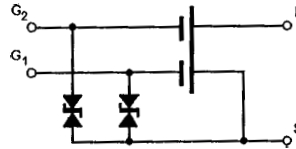# TEMIC

TELEFUNKEN Semiconductors

N-channel dual gate MOS-fieldeffect tetrode. Depletion mode.

Electrostatic sensitive device.
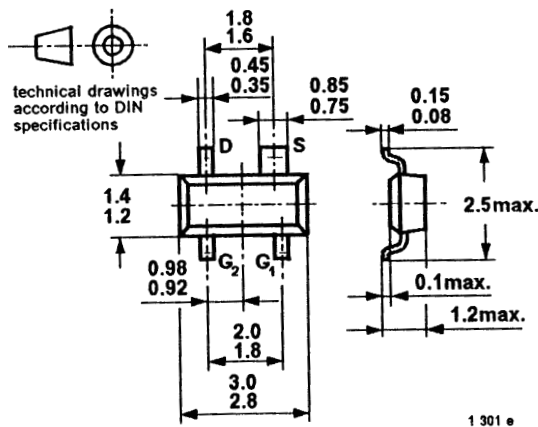Observe precautions for handling.

Applications

Input- and mixerstages in UHF- and VHF-tuner**.**

Features

- Integrated gate protection diodes
- Low noise figure
- Low feedback capacitance
- High cross modulation performance

- Low input capacitance
- High AGC-range
- High gain

Dimensions in mm

Plastic case (SOT 143) Marking: MO

Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Drain source voltage	V_{DS}	12	V
Drain current	I_D	30	mA
Gate 1/gate 2-source peak current	$\pm I_{G1/G2SM}$	10	mA
Gate 1/gate 2-source voltage	$\pm V_{G1S/G2S}$	7	V
Total power dissipation $T_{amb} \leq 60\ °C$	P_{tot}	200	mW
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	–65 to +150	°C

Maximum Thermal Resistance

Parameters	Symbol	Maximum	Unit
Channel ambient on glass fibre printed board (25 x 20 x l.5) mm^3 plated with 35 μm Cu	R_{thChA}	450	K/W

Electrical DC Characteristics

$T_{amb} = 25°C$

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage $I_D = 10\ \mu A$, $-V_{G1S} = -V_{G2S} = 4\ V$	$V_{(BR)DS}$	12			V
Gate 1-source breakdown voltage $\pm I_{G1S} = 10\ mA$, $V_{G2S} = V_{DS} = 0\ V$	$\pm V_{(BR)G1SS}$	8		14	V
Gate 2-source breakdown voltage $\pm I_{G2S} = 10\ mA$, $V_{G1S} = V_{DS} = 0\ V$	$\pm V_{(BR)G2SS}$	8		14	V
Gate 1-source cut-off current $\pm V_{G1S} = 5\ V$, $V_{G2S} = V_{DS} = 0\ V$	I_{G1SS}			20	nA
Gate 2-source cut-off current $\pm V_{G2S} = 5\ V$, $V_{G1S} = V_{DS} = 0\ V$	I_{G2SS}			20	nA
Drain current $V_{DS} = 8\ V$, $V_{G1S} = 0\ V$, $V_{G2S} = 4\ V$	I_{DSS}	4		13.5	mA
Gate 1-source cut-off voltage $V_{DS} = 8\ V$, $V_{G2S} = 4\ V$, $I_D = 20\ \mu A$	$-V_{G1S(OFF)}$			2.5	V
Gate 2-source cut-off voltage $V_{DS} = 8\ V$, $V_{G1S} = 0\ V$, $I_D = 20\ \mu A$	$-V_{G2S(OFF)}$			2.0	V

Electrical AC Characteristics

$V_{DS} = 8\ V$, $I_D = 10\ mA$, $V_{G2S} = 4\ V$, $f = 1\ MHz$, $T_{amb} = 25°C$

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward transadmittance	$\|y_{21s}\|$	20	24		mS
Gate 1 input capacitance	C_{issg1}	1.7	2.1	2.8	pF
Gate 2 input capacitance $V_{G1S} = 0\ V$, $V_{G2S} = 4\ V$	C_{issg2}		1.2		pF
Feedback capacitance	C_{rss}		25		fF
Output capacitance	C_{oss}		1.05	1.5	pF
Power gain $g_G = 2\ mS$, $g_L = 0.5\ mS$, $f = 200\ MHz$ $g_G = 3.3\ mS$, $g_L = 1\ mS$, $f = 800\ MHz$	G_{ps} G_{ps}	 19	28 20		dB dB
AGC range $V_{G2S} = 4\ V$ to $-2\ V$, $f = 800\ MHz$	ΔG_{ps}	40			dB
Noise figure $g_G = 2\ mS$, $g_L = 0.5\ mS$, $f = 200\ MHz$ $g_G = 3.3\ mS$, $g_L = 1\ mS$, $f = 800\ MHz$	F F		0.8 1.2	 2.5	dB dB

Caution for Gate 1 switch off mode

No external DC-voltage on Gate 1!
Switch off at Gate 1 only with connection to ground.
At using open collector switching transistor (PLL), use 10 kΩ collector resistor.

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