TEMIC

TELEFUNKEN Semiconductors

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

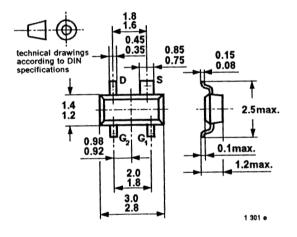
Applications

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

Features

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

Dimensions in mm



Plastic case (SOT 143) Marking: MO

Absolute Maximum Ratings

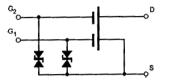
Parameters	Symbol	Value	Unit
Drain source voltage	V _{DS}	12	V
Drain current	ID	30	mA
Gate 1/gate 2-source peak current	$\pm I_{G1/G2SM}$	10	mA
Gate 1/gate 2-source voltage	±V _{G1S/G2S}		
Total power dissipation $T_{amb} \le 60 ^{\circ}\text{C}$	P _{tot}	200	mW
Channel temperature	T _{Ch}	T _{Ch} 150	
Storage temperature range	T _{stg}	-65 to +150	°C

Maximum Thermal Resistance

Parameters	Symbol	Maximum	Unit
Channel ambient on glass fibre printed board $(25 \times 20 \times 1.5) \text{ mm}^3$ plated with 35 µm Cu	R _{thChA}	450	K/W

Electrostatic sensitive device. Observe precautions for handling.





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

Electrical DC Characteristics

 $T_{amb} = 25^{\circ}C$

Parameters / Test Conditions	Symbol	Min.	Тур.	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	±V _{(BR)G1SS}	8		14	V
Gate 2-source breakdown voltage $\pm I_{G2S} = 10$ mA, $V_{G1S} = V_{DS} = 0$ V	±V _{(BR)G2SS}	8		14	V
Gate 1-source cut-off current $\pm V_{G1S} = 5 \text{ V}, V_{G2S} = V_{DS} = 0 \text{ V}$	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

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

Parameters / Test Conditions	Symbol	Min.	Тур.	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	Coss		1.05	1.5	pF
Power gain $g_G = 2 \text{ mS}, g_L = 0.5 \text{ mS}, f = 200 \text{ MHz}$ $g_G = 3.3 \text{ mS}, g_L = 1 \text{ mS}, f = 800 \text{ MHz}$	$egin{array}{c} G_{ m ps} \ G_{ m ps} \end{array}$	19	28 20		dB dB
AGC range $V_{G2S} = 4 V$ to $-2 V$, f = 800 MHz	ΔG_{ps}	40			dB
Noise figure $g_G = 2 \text{ mS}, g_L = 0.5 \text{ mS}, f = 200 \text{ MHz}$ $g_G = 3.3 \text{ mS}, g_L = 1 \text{ mS}, f = 800 \text{ MHz}$	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 k Ω collector resistor.

We reserve the right to make changes to improve technical design without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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