

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

Electrostatic sensitive device.
Observe precautions for handling.



Applications

Input- and mixerstages especially for UHF TV-tuners.

Features

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

Dimensions in mm

Absolute Maximum Ratings

| Parameters | Symbol | Value | Unit |
|--|------------------|-------------|------------------|
| Drain source voltage | V_{DS} | 20 | V |
| Drain current | I_D | 30 | mA |
| Gate 1/gate 2-source peak current | $\pm I_{G1/2SM}$ | 10 | mA |
| Total power dissipation $T_{amb} = 60^\circ\text{C}$ | P_{tot} | 200 | mW |
| Channel temperature | T_C | 150 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Maximum Thermal Resistance

| Parameters | Symbol | Value | Unit |
|---|-------------|-------|------|
| Channel ambient on glass fibre printed board (40 x 25 x 1.5) mm ³ plated with 35 μm Cu | R_{thChA} | 450 | K/W |

Electrical DC Characteristics

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

| Parameters / Test Conditions | Symbol | Min. | Typ. | Max. | Unit |
|---|--------------------|------|------|------|------|
| Drain-source breakdown voltage $I_D = 10 \mu\text{A}$, $-V_{G1S} = -V_{G2S} = 4 \text{ V}$ | $V_{(BR)DS}$ | 20 | | | V |
| Gate 1-source breakdown voltage $\pm I_{G1S} = 10 \text{ mA}$, $V_{G2S} = V_{DS} = 0 \text{ V}$ | $\pm V_{(BR)G1SS}$ | 6 | | 20 | V |
| Gate 2-source breakdown voltage $\pm I_{G2S} = 10 \text{ mA}$, $V_{G1S} = V_{DS} = 0 \text{ V}$ | $\pm V_{(BR)G2SS}$ | 6 | | 20 | V |
| Gate 1-source cut-off current $\pm V_{G1S} = 5 \text{ V}$, $V_{G2S} = V_{DS} = 0 \text{ V}$ | I_{G1SS} | | | 50 | nA |
| Gate 2-source cut-off current $\pm V_{G2S} = 5 \text{ V}$, $V_{G1S} = V_{DS} = 0 \text{ V}$ | I_{G2SS} | | | 50 | nA |
| Drain current $V_{DS} = 15 \text{ V}$, $V_{G1S} = 0 \text{ V}$, $V_{G2S} = 4 \text{ V}$ | I_{DSS} | 0.5 | | 8 | mA |
| Gate 1-source cut-off voltage $V_{DS} = 10 \text{ V}$, $V_{G2S} = 4 \text{ V}$, $I_D = 10 \mu\text{A}$ | $-V_{G1S(OFF)}$ | | | 2.0 | V |
| Gate 2-source cut-off voltage $V_{DS} = 10 \text{ V}$, $V_{G1S} = 4 \text{ V}$, $I_D = 10 \mu\text{A}$ | $-V_{G2S(OFF)}$ | | | 0.7 | V |

Electrical AC Characteristics

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

| Parameters / Test Conditions | Symbol | Min. | Typ. | Max. | Unit |
|--|----------------|------|------|------|------|
| Forward transadmittance | $ y_{21} $ | 18 | 21 | | mS |
| Gate 1-input capacitance | C_{issg1} | | 2.2 | 2.6 | pF |
| Gate 2-input capacitance $V_{G1S} = 0 \text{ V}$, $V_{G2S} = 4 \text{ V}$ | C_{issg2} | | 1.1 | | pF |
| Feedback capacitance | $C_{rss}^{1)}$ | | 25 | 35 | fF |
| Output capacitance | C_{oss} | | 0.8 | 1.2 | pF |
| Power gain $V_{DS} = 10 \text{ V}$, $I_D = 10 \text{ mA}$, $V_{G2S} = 4 \text{ V}$, $g_G = 3.3 \text{ mS}$, $g_L = 1 \text{ mS}$, $f = 800 \text{ MHz}$ | G_{ps} | | 19 | | dB |
| Noise figure $V_{DS} = 10 \text{ V}$, $I_D = 10 \text{ mA}$, $V_{G2S} = 4 \text{ V}$, $g_G = 2 \text{ mS}$, $f = 800 \text{ MHz}$ | F | | 3.0 | | dB |

1) G_2 and S grounded

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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