

Vishay Telefunken

MOSMIC[®] for TV–Tuner Prestage with 9 V Supply Voltage

MOSMIC - MOS Monolithic Integrated Circuit

Applications

Low noise gain controlled input stages in UHF-and VHF- tuner with 9 V supply voltage.



Features

- Easy Gate 1 switch-off with PNP switching transistors inside PLL
- High AGC-range with less steep slope
- Integrated gate protection diodes



S974T Marking: 974 Plastic case (SOT 143) 1 = Source, 2 = Drain, 3 = Gate 2, 4 = Gate 1



S974TRW Marking: W97 Plastic case (SOT 343R) 1 = Source, 2 = Drain, 3 = Gate 2, 4 = Gate 1 • Low noise figure

Electrostatic sensitive device. Observe precautions for handling.

- High gain
- Improved cross modulation at gain reduction
- SMD package



S974TR Marking: 97R Plastic case (SOT 143R) 1 = Source, 2 = Drain, 3 = Gate 2, 4 = Gate 1

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Absolute Maximum Ratings

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

Parameter	Test Conditions	Symbol	Value	Unit
Drain - source voltage		V _{DS}	12	V
Drain current		I _D	30	mA
Gate 1/Gate 2 - source peak current		±IG1/G2SM	10	mA
Gate 1/Gate 2 - source voltage		±V _{G1/G2SM}	6	V
Total power dissipation	T _{amb} ≤ 60 °C	P _{tot}	200	mW
Channel temperature		T _{Ch}	150	°C
Storage temperature range		T _{stg}	-55 to +150	°C

Maximum Thermal Resistance

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

Parameter	Test Conditions	Symbol	Value	Unit
Channel ambient	on glass fibre printed board (25 x 20 x 1.5) mm^3 plated with 35 μ m Cu	R _{thChA}	450	K/W

Electrical DC Characteristics

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

Parameter	Test Conditions	Symbol	Min	Тур	Max	Unit
Drain - source breakdown voltage	$\pm I_{G1S} = 10 \ \mu A, \ V_{G2S} = V_{G1S} = 0$	$\pm V_{(BR)DSS}$	15			V
Gate 1 - source breakdown voltage	$\pm I_{G1S}$ = 10 mA, V_{G2S} = V_{DS} = 0	$\pm V_{(BR)G1SS}$	7		10	V
Gate 2 - source breakdown voltage	$\pm I_{G2S}$ = 10 mA, V_{G1S} = V_{DS} = 0	$\pm V_{(BR)G2SS}$	7		10	V
Gate 1 - source leakage current	$+V_{G1S} = 5 V, V_{G2S} = V_{DS} = 0$	+I _{G1SS}			20	nA
Gate 2 - source leakage current	$\pm V_{G2S} = 5 \text{ V}, \ V_{G1S} = V_{DS} = 0$	±I _{G2SS}			20	nA
Drain - source operating current	$V_{DS} = V_{RG1} = 9 \text{ V}, V_{G2S} = 4 \text{ V}, R_{G1} = 390 \text{ k}\Omega$	I _{DSO}	8	12	16	mA
Gate 1 - source cut-off voltage	$V_{DS} = V_{RG1} = 9 \text{ V}, V_{G2S} = 4 \text{ V}, I_D = 100 \mu\text{A}$	V _{G1S(OFF)}	0.4		1.2	V
Gate 2 - source cut-off voltage	V _{DS} = V _{RG1} = 9 V, R _{G1} = 390 kΩ, I _D = 100 μA	V _{G2S} (OFF)		1.0		V

Remark on improving intermodulation behavior:

By setting R_{G1} = 300 k Ω instead of 390 k Ω , typical value of I_{DSO} will raise up to about 15 mA and improved intermodulation behavior will be performed.



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Electrical AC Characteristics

$V_{DS} = 9 V, V_{G2S} = 4 V, I_{D} = 12$	2 mA, f = 1 MHz , T _{amt}	_b = 25°C, unless	otherwise specified
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Parameter	Test Conditions	Symbol	Min	Тур	Max	Unit
Forward transadmittance		y _{21s}	28		35	mS
Gate 1 input capacitance		C _{issg1}		2.3	2.7	рF
Feedback capacitance		C _{rss}		25		fF
Output capacitance		C _{oss}		1.1		pF
Power gain	G _S = 2 mS, G _L = 0.5 mS, f = 200 MHz	G _{ps}		28		dB
	G _S = 3,3 mS, G _L = 1 mS, f = 800 MHz	G _{ps}	17	21		dB
AGC range	$V_{DS} = 9 V, V_{G2S} = 1 \text{ to } 4 V, f = 800 \text{ MHz}$	ΔG_{ps}	45			dB
Noise figure	G _S = 2 mS, G _L = 0.5 mS, f = 200 MHz	F		1		dB
	G _S = 3,3 mS, G _L = 1 mS, f = 800 MHz	F		1.3		dB

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Dimensions of S974T in mm





5 ±0.1 \sim

96 12240







96 12239



technical drawings according to DIN specifications

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Dimensions of S974TRW in mm







technical drawings according to DIN specifications

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Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

- 1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
- 2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
- 3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design and may do so 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 Vishay-Telefunken products for any unintended or unauthorized application, the buyer shall indemnify Vishay-Telefunken 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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