

1.2-GHz Prescaler for PLLs in CATV and SAT TV Tuners

Technology: Bipolar

Features

- ECL output stage
- U810BS: ÷ 64
- U811BS: ÷ 128
- U812BS: ÷ 256
- High input sensitivity
- Low output impedance
- Low power consumption
- Electrostatic protection according to MIL-STD. 883

Case: TO50 plastic

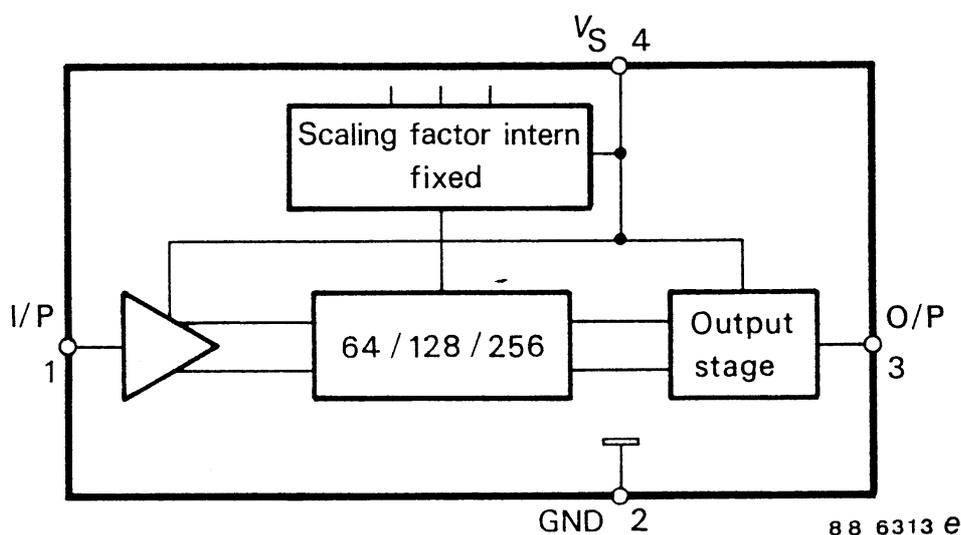


Figure 1. Block diagram

Absolute Maximum Ratings

Reference point Pin 2

Parameters	Symbol	Value	Unit
Supply voltage	Pin 4 V_S	6	V
Input voltage range	Pin 1 V_i	0 to V_S	V
Junction temperature	T_j	125	°C
Storage-temperature range	T_{stg}	-40 to +125	°C
Ambient-temperature range	T_{amb}	-25 to +70	°C

Thermal Resistance

Parameters	Symbol	Value	Unit
Junction ambient 35- μ m one-sided, Cu-coated epoxy PCB 40 \times 35 mm, thickness 1.5 mm	R_{thJA}	130	K/W

Notes:

In order to avoid damage, the IC must be handled as a MOS device.

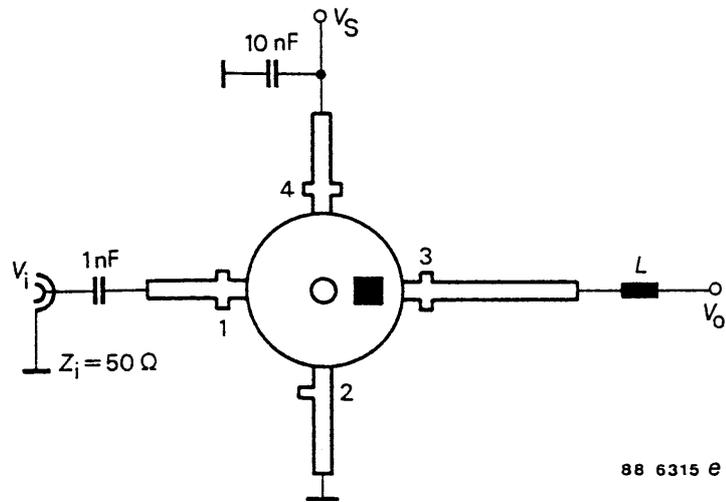
The device is self-oscillating without input signal.

Electrical Characteristics

$V_S = 4.5$ to 5.5 V, $T_{amb} = 0$ to $+70^\circ\text{C}$, unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min.	Typ.	Max.	Unit
Supply current	$V_S = 5$ V Pin 4	I_S		40	48	mA
Input sensitivity ¹⁾	$f_i = 70$ to 1200 MHz, $R_G = 50 \Omega$ Pin 1	V_i			20	mV
Large-signal compatibility	$R_G = 50 \Omega$ Pin 1	V_i	250			mV
Frequency range		f_{imin} f_{imax}	1200		70	MHz MHz
Output stage						
ECL output-voltage swing	$R_L = 10$ K/ 13 pF Pin 3	V_O	0.8			V_{PP}
Output impedance		Z_O		500		Ω

¹⁾ RMS voltage calculated from the available power measured



$L = 150 \text{ nH}$ (6 turns CuL 0.45 mm \varnothing on 4 mm \varnothing)

Figure 2. Test circuit

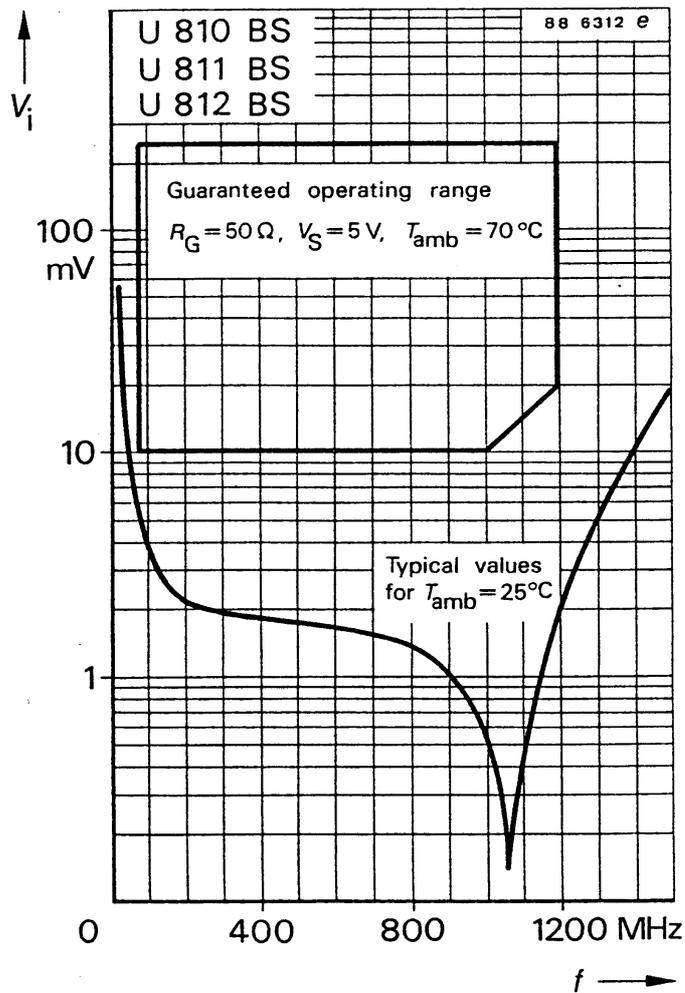


Figure 3. Input sensitivity

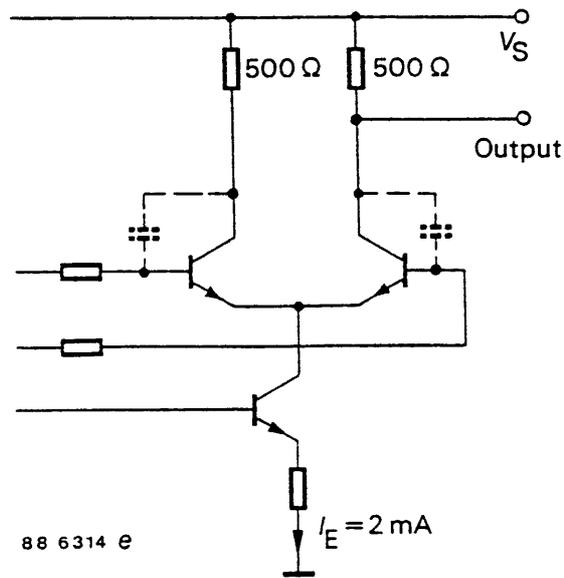
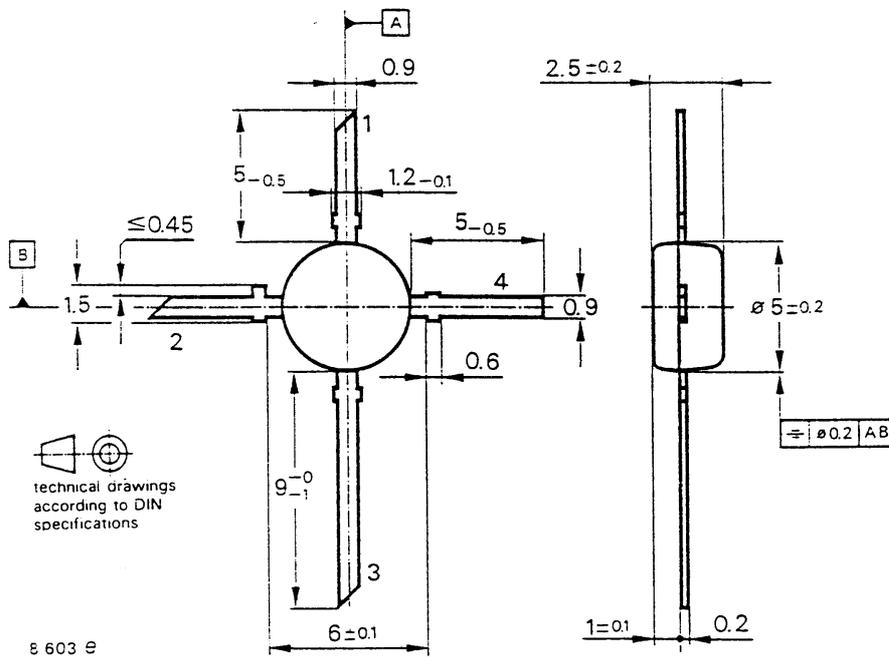


Figure 4. ECL output circuit

Dimensions in mm



Case
50 B 4 DIN 41867
JEDEC TO 50

Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic 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.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division 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.

TEMIC 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 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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