

**FM IF Amplifier and Demodulator for TV Sound Application**

**Technology:** Bipolar

**Features**

- Outstanding limiting qualities
- Very few external components
- Wide supply voltage range
- High ripple rejection
- Minimum IF passage to audio output
- High IF residual carrier rejection
- U828B with integrated de-emphasis resistor

**Case:** 8-pin dual-inline plastic

**Absolute Maximum Ratings**

Reference point Pin 3

Parameters	Symbol	Value	Unit
Supply voltage Pin 7	$V_S$	18	V
Power dissipation $T_{amb} = 70^\circ\text{C}$	$P_{tot}$	550	mW
Junction temperature	$T_i$	125	$^\circ\text{C}$
Ambient-temperature range	$T_{amb}$	-15 to +70	$^\circ\text{C}$
Storage-temperature range	$T_{stg}$	-25 to +125	$^\circ\text{C}$

**Thermal Resistance**

Parameters	Symbol	Maximum	Unit
Junction ambient	$R_{thJA}$	100	K/W

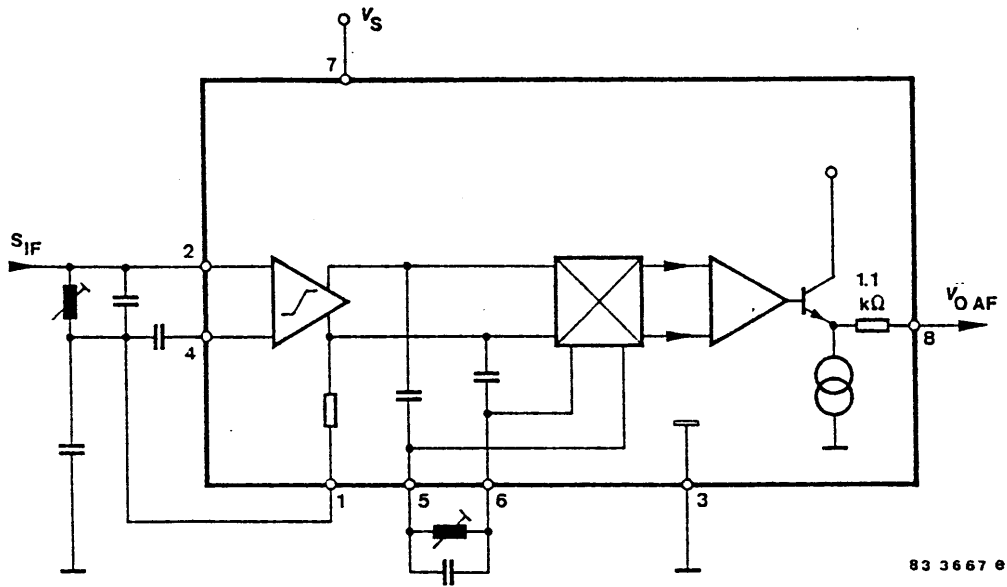


Figure 1. Block diagram U828B

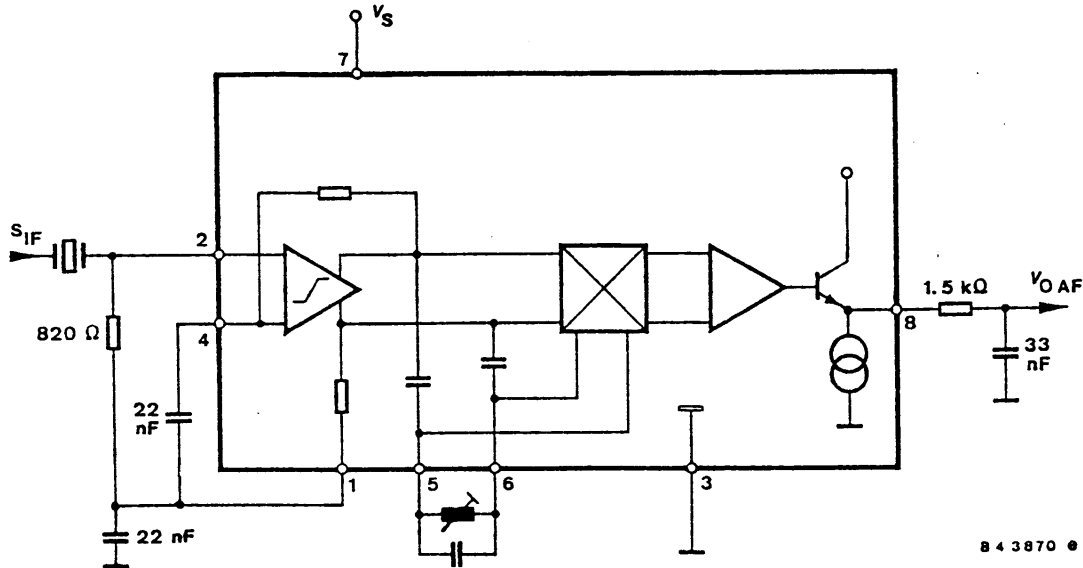


Figure 2. Block diagram U829B

## Electrical Characteristics

$V_S = 12\text{ V}$ , reference point Pin 3,  $T_{\text{amb}} = 25^\circ\text{C}$ , unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	Pin 7	$V_S$	10		18	V
Supply current	Pin 7	$I_S$	9.5	14	17.5	mA
Frequency range		f			12	MHz
Input voltage for limitation	f = 5.5 MHz, $\Delta f = \pm 50\text{ kHz}$ , $f_{\text{mod}} = 1\text{ kHz}$ , $Q^{1)} = 45$					
	Pin 2	$v_i$		75	90	$\mu\text{V}$
Input impedance	Pin 2	$R_i$	15	40		$\text{k}\Omega$
		$C_i$		4.5	6	pF
Output impedance		$R_o$			200	$\Omega$
AM rejection	f = 5.5 MHz, $\Delta f = \pm 50\text{ kHz}$ , m = 30%, $Q^{1)} = 45$ , $V_i = 500\ \mu\text{V}$	$k_{\text{AM}}$	50	60		dB
DC voltage at AF output	$V_i = 0$ Pin 8					
	<b>U828B</b>	$V_O$		5.6		V
	<b>U829B</b>	$V_O$		4.0		V
Ripple rejection	Pin 7,8	$k_{\text{hum}}$		35		dB
IF residual voltage without $C_D$	Pin 8	$V_{\text{OIF}}$		20		mV
AF output voltage	$V_i = 10\text{ mV}$ , f = 5.5 MHz, $\Delta f = \pm 50\text{ kHz}$ , $f_{\text{mod}} = 1\text{ kHz}$ , $Q^{1)} = 45$ Pin 8					
	<b>U828B</b>	$V_{\text{OAF}}$	0.8		1.3	V
Group 0	= <b>U829B</b>	$V_{\text{OAF}}$	1.0		1.90	V
Group 1	= <b>U829BS</b>	$V_{\text{OAF}}$	1.0		1.25	V
Group 2	= <b>U829BS</b>	$V_{\text{OAF}}$	1.22		1.55	V
Group 3	= <b>U829BS</b>	$V_{\text{OAF}}$	1.52		1.90	V
$Q^{1)} = 20$	<b>U828B</b>	$V_{\text{OAF}}$		0.65		V
	<b>U829B</b>	$V_{\text{OAF}}$		0.8		V
Distortion	Pin 8 f = 5.5 MHz, $V_i = 10\text{ mV}$ , FM-Hub = 50 kHz, $f_{\text{mod}} = 1\text{ kHz}$					
$Q^{1)} = 45$		d		3.0		%
$Q^{1)} = 20$		d		1.0		%
Signal-to-noise ratio	$V_i = 10\text{ mV}$ (unmodulated), according to DIN 45 405 (A-weighted) Pin 8		70	80		dB
Mute function						
Switching current		$I_{\text{sw}}$			400	$\mu\text{A}$
Switching voltage		$V_{\text{mute}}$	3			V

<sup>1)</sup> Operation quality factor for the demodulator circuit

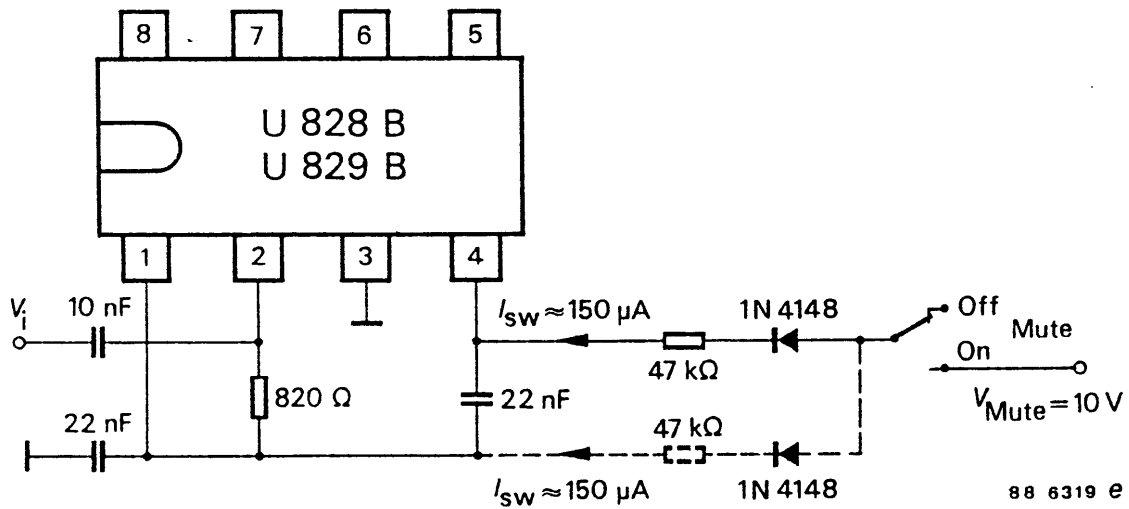


Figure 3.

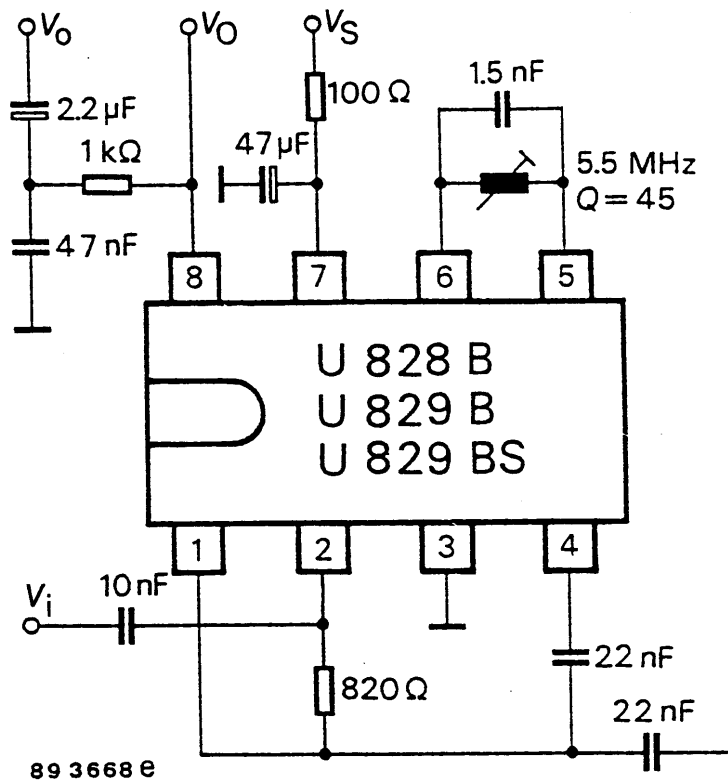
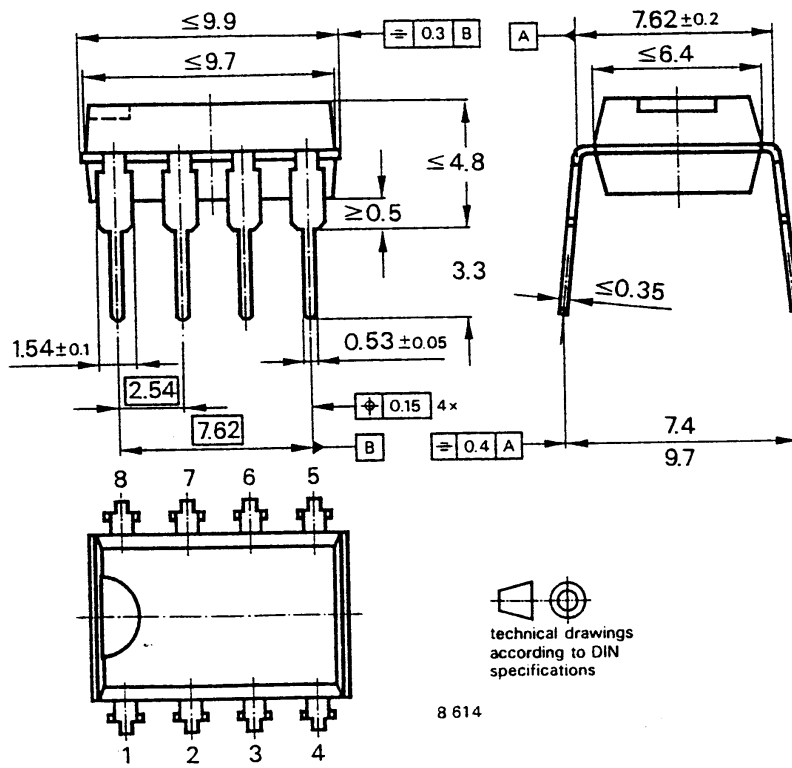


Figure 4. Test circuit

(The supply voltage must be disconnected before inserting the integrated circuit in the socket.)

**Dimensions in mm**

Package: DIP8



## 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.**

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TEMIC TELEFUNKEN microelectronic GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany  
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423