

TEMIC
Semiconductors

U828B/ U829B/ U829BS

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 dc-emphasis resistor

Case: 8-pin dual-inline plastic

Absolute Maximum Ratings

Reference point Pin 2

Parameters	Symbol	Value	Unit
Supply voltage	V_S	18	V
Power dissipation	P_{tot}	550	mW
Junction temperature	T_j	125	°C
Ambient-temperature range	T_{amb}	-15 to +70	°C
Storage-temperature range	T_{stg}	25 to +125	°C

Thermal Resistance

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

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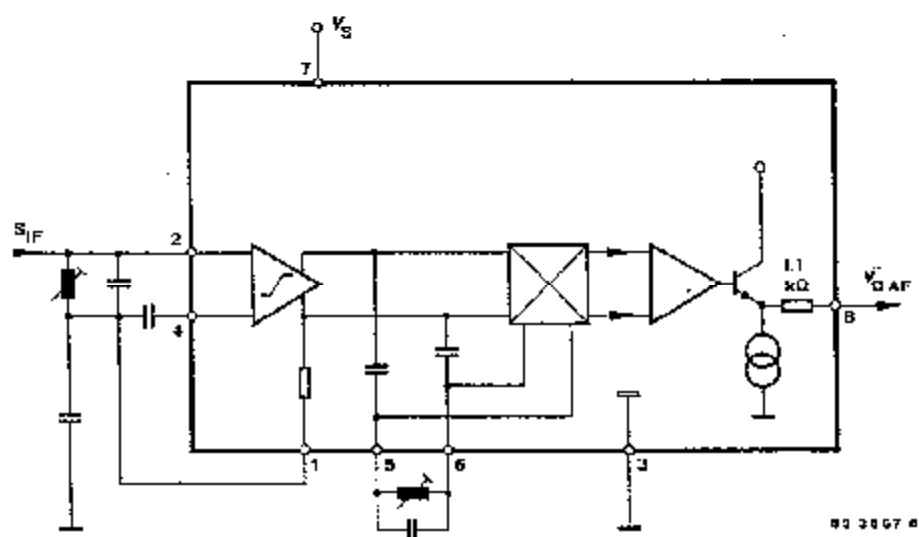


Figure 1. Block diagram: U828B

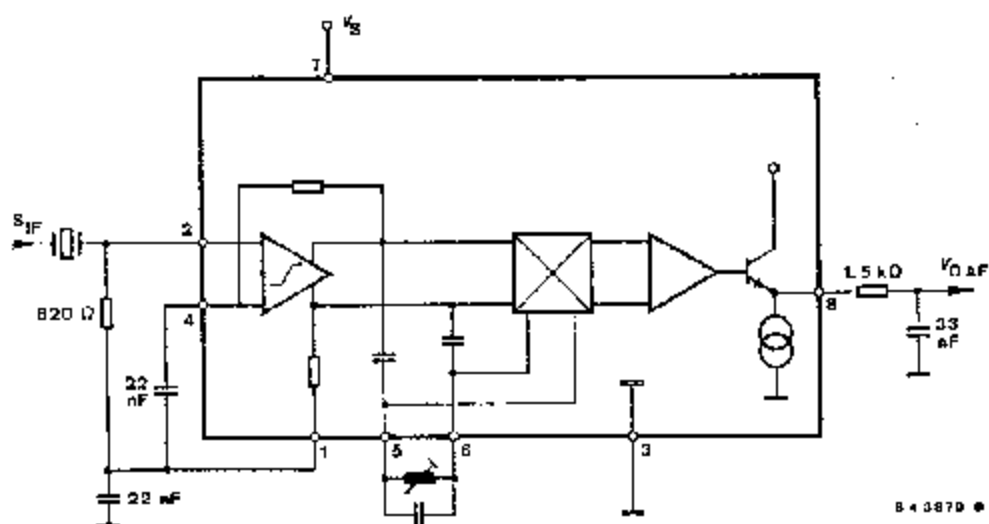


Figure 2. Block diagram U829B

Electrical Characteristics

$V_S = 12$ V, reference point Pin 3; $T_{amb} = 25^\circ\text{C}$, 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, $\Delta f = \pm 50$ kHz, $f_{mod} = 1$ kHz, $Q^{(1)} = 45$					
Input impedance	Pin 2	v_i		75	90	μV
	Pin 2	R	15	40		k Ω
		C		4.5	6	pF
Output impedance		R_o			200	Ω
AM rejection	$f = 5.5$ MHz, $\Delta f = \pm 50$ kHz, $m = 30\%$, $Q^{(1)} = 45$, $V_i = 500$ μV					
		k_{AM}	50	60		dB
DC voltage at AF output	$V_i = 0$ Pin 8					
	U828B	V_O		5.6		V
	U829B	V_O		4.0		V
Ripple rejection	Pin 7,8	k_{RRM}		35		dB
IT residual voltage without C_D	Pin 8	V_{off}		20		mV
AF output voltage	$V_i = 10$ mV, $f = 5.5$ MHz, $\Delta f = \pm 50$ kHz, $f_{mod} = 1$ kHz, $Q^{(1)} = 45$ Pin 8					
	U828B	V_{oAF}	0.8		1.3	V
Group 0	= U829B	V_{oAI}	1.0		1.90	V
Group 1	= U829BS	V_{oAF}	1.0		1.25	V
Group 2	= U829BS	V_{oAI}	1.22		1.55	V
Group 3 $Q^{(1)} = 20$	= U829BS	V_{oAI}	1.5 ²⁾		1.90	V
	U828B	V_{oAF}		0.65		V
	U829B	V_{oAI}		0.8		V
Distortion $Q^{(1)} = 45$ $Q^{(1)} = 20$	Pin 8 $f = 5.5$ MHz, $V_i = 10$ mV, DM-Hub = 50 kHz, $f_{mod} = 1$ kHz					
		d		3.0		%
		d		1.0		%
Signal-to-noise ratio	$V_i = 10$ mV (unmodulated), according to DIN 45 405 (A weighted) Pin 8		70	80		dB
Mute function						
Switching current		I_{sw}			400	μA
Switching voltage		V_{mute}	3			V

¹⁾ Operation quality factor for the demodulator circuit

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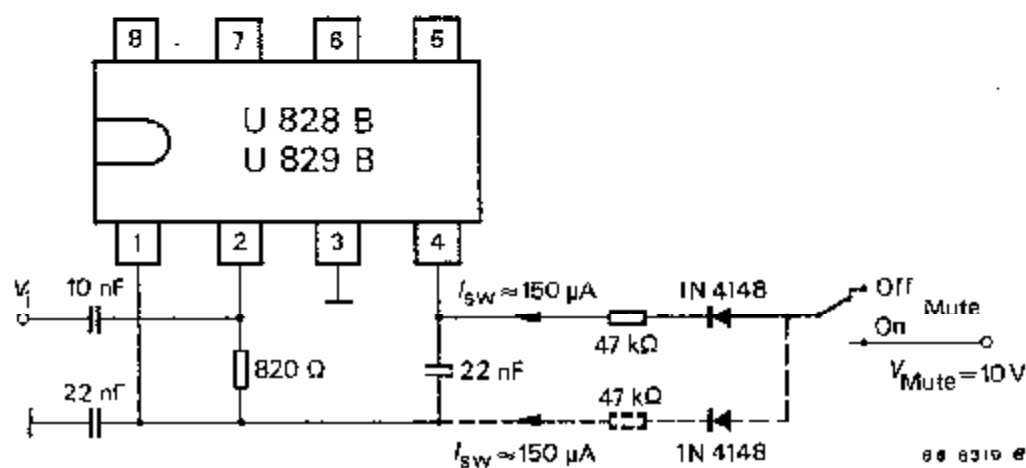


Figure 3.

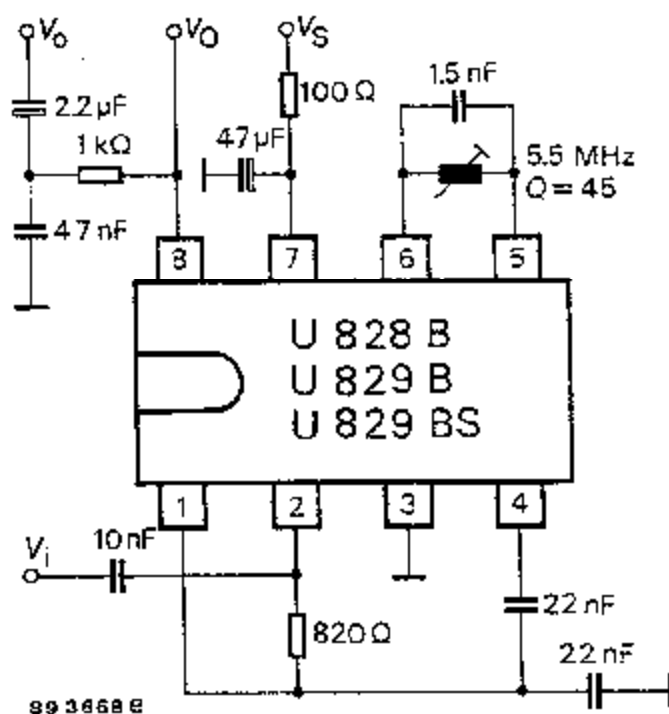


Figure 4. Test circuit

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

Dimensions in mm

Package: DIP8

