

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

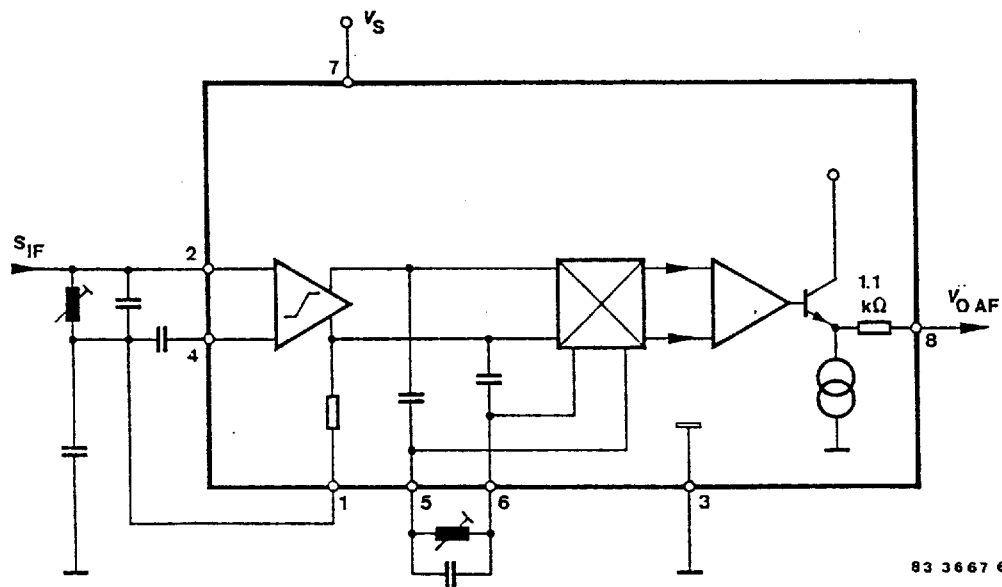


Figure 1. Block diagram U828B

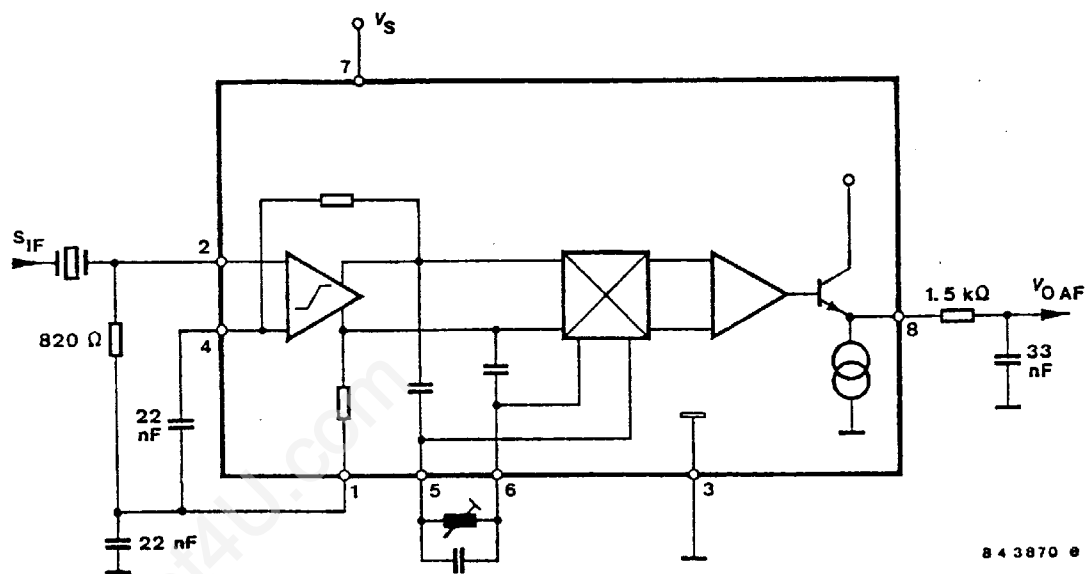


Figure 2. Block diagram U829B

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	$f = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $f_{\text{mod}} = 1\text{ kHz}$, $Q^{1)} = 45$					
	Pin 2	v_i		75	90	μV
Input impedance	Pin 2	R_i	15	40		$\text{k}\Omega$
		C_i		4.5	6	pF
Output impedance		R_o			200	Ω
AM rejection	$f = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $m = 30\%$, $Q^{1)} = 45$, $V_i = 500\text{ }\mu\text{V}$	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_{hum}		35		dB
IF residual voltage without C_D	Pin 8	V_{oIF}		20		mV
AF output voltage	$V_i = 10\text{ mV}$, $f = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $f_{\text{mod}} = 1\text{ kHz}$, $Q^{1)} = 45$ Pin 8					
	U828B	V_{oAF}	0.8		1.3	V
Group 0	= U829B	V_{oAF}	1.0		1.90	V
Group 1	= U829BS	V_{oAF}	1.0		1.25	V
Group 2	= U829BS	V_{oAF}	1.22		1.55	V
Group 3	= U829BS	V_{oAF}	1.52		1.90	V
$Q^{1)} = 20$	U828B	V_{oAF}		0.65		V
	U829B	V_{oAF}		0.8		V
Distortion	Pin 8					
	$f = 5.5\text{ MHz}$, $V_i = 10\text{ mV}$, 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_{sw}			400	μA
Switching voltage		V_{mute}	3			V

¹⁾ Operation quality factor for the demodulator circuit

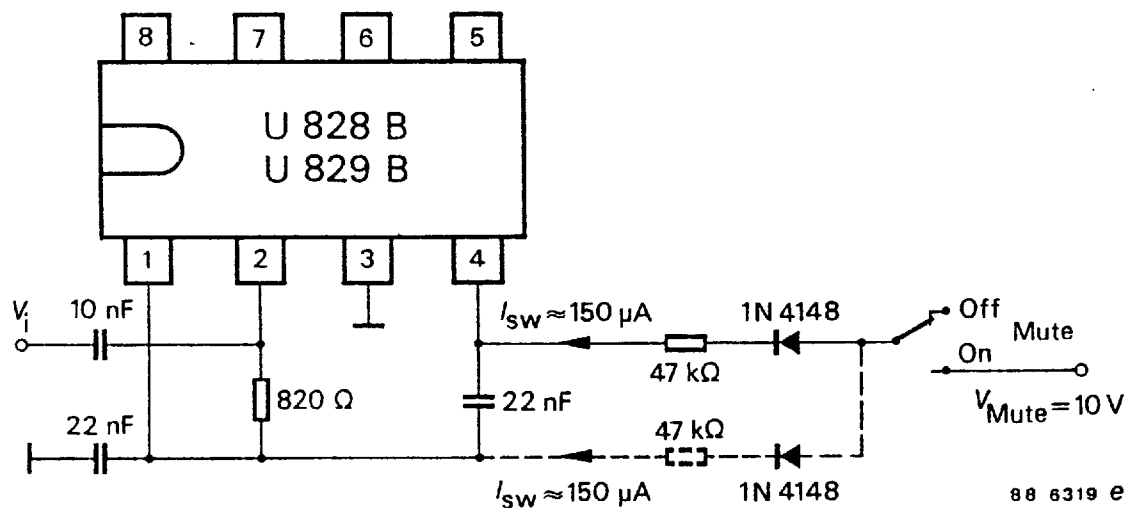


Figure 3.

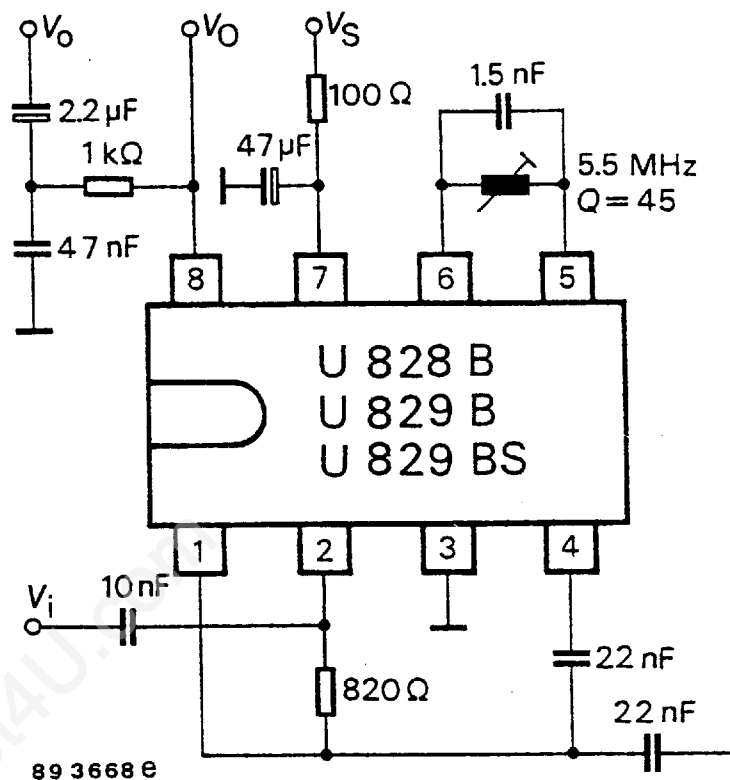


Figure 4. Test circuit

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

Dimensions in mm

Package: DIP8

