

SANYO	No.2865	LA7535
	Monolithic Linear IC (VIF+SIF) Circuit for B/W TV Applications	

The LA7535 is an IC that contains the VIF section and SIF section on a single chip and has the RF AGC of forward type most suitable for B/W TV use. The LA7535 can be used in conjunction with the LA7806 or LA7808 to provide the B/W TV function. The LA7535 is provided with two pins for IF AGC, permitting higher AGC speed. Since the LA7535 has the AFT function, it may be also applied for use in low-cost CTV applications.

If you want to use a version with the RF AGC of reverse type, the LA7530N is available.

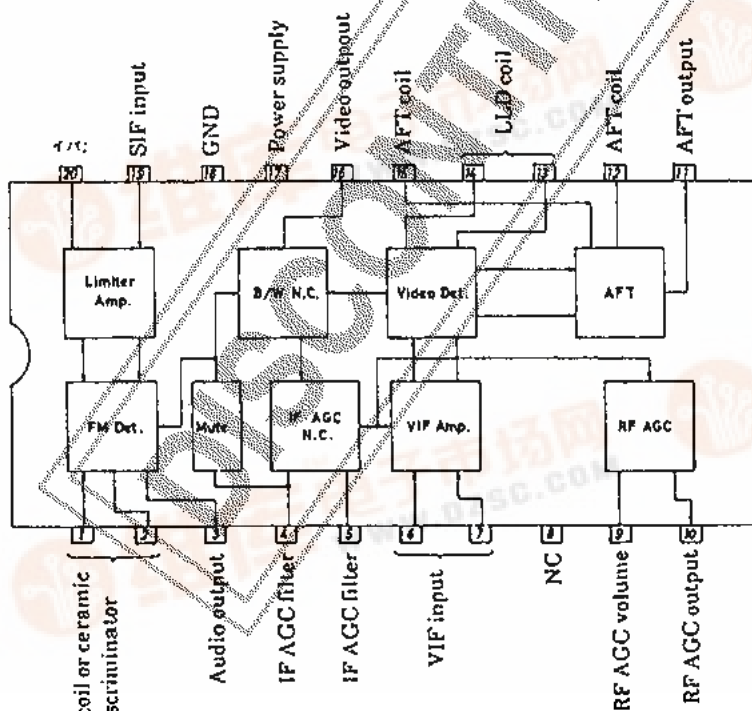
Functions

- VIF section: VIF amp, video detector, peak IF AGC, B/W noise canceler, RF AGC, AFT, video mute
- SIF section: SIF limiter amp, FM detector, SND mute

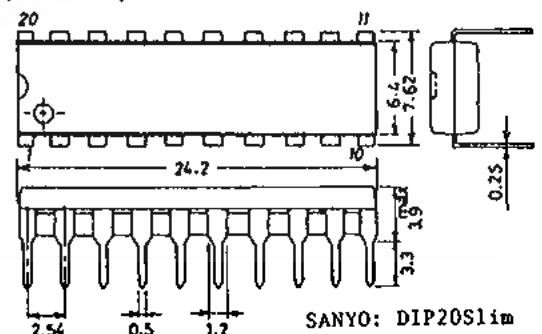
Features

- The RF AGC is of forward type most suitable for B/W TV use.
- High-gain VIF amp requiring no preamp
- Two pins for IF AGC permitting higher AGC speed
- The FM detector uses the quadrature detection method. The use of a ceramic discriminator eliminates the need for audio adjust process.
- Since the LA7535 has the AFT function, it may be also applied for use in low-cost CTV applications.
- Small-sized package and minimum number of external parts required. Capable of being operated from 9V supply.

Equivalent Circuit Block Diagram



Case Outline 3021B-D20SIC (unit:mm)



Specifications and information herein are subject to change without notice.

LA7535

Maximum Ratings at $T_a = 25^\circ\text{C}$, $V_{CC} = 12\text{V}$				unit
Maximum Supply Voltage	$V_{CC \text{ max}}$		14	V
Flow-out Current	$I_{16 \text{ max}}$		5	mA
Allowable Power Dissipation	$P_d \text{ max}$	$T_a \leq 40^\circ\text{C}$	1.1	W
Operating Temperature	T_{opg}		-20 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

Operating Conditions at $T_a = 25^\circ\text{C}$				unit
Recommended Supply Voltage	V_{CC}		12	V
Operating Voltage Range	$V_{CC \text{ op}}$		9 to 13.2	V

Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 12\text{V}$				min	typ	max	unit
Circuit Current	I_{17}	DC	47	58	74	mA	
Maximum RF AGC Voltage	V_{10H}	DC	10.2	10.6	11.0	V	
Minimum RF AGC Voltage	V_{10L}	DC		0	0.5	V	
Quiescent Video Output Voltage	V_{16}	DC	5.7	6.1	6.5	V	
Input Sensitivity	V_i	$f_m = 400\text{Hz}$, 40%AM, $V_o = 0.8\text{V}_{p-p}$	30	36	42	dBu	
AGC Range	GR	$f_m = 400\text{Hz}$, 40%AM, $V_o = 0.8\text{V}_{p-p}$	57	64		dB	
Maximum Allowable Input Video Output Amplitude	$V_i \text{ max}$	$f_m = 15\text{kHz}$, 78%AM, $V_o = 10\text{mV}_{rms}$	100	200		mV_{rms}	
Output S/N	S/N	10mV CW	48	54		dB	
SIF Output Signal Voltage	$V_o(\text{SIF})$	P/S = 20dB	80	140	210	mV_{rms}	
Frequency Characteristic	f_c	-3dB	5	7		MHz	
Input Resistance	r_i			1.5		$\text{k}\Omega$	
Input Capacitance	c_i			3.0		pF	
SIF Limiting Voltage	$V_i(\text{Lim})$	-3dB		200	500	μV_{rms}	
Detection Output Voltage	$V_o(\text{Det})$	$V_i = 100\text{mV}_{rms}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$	450	680	850	mV_{rms}	
Total Harmonic Distortion	THD(Det)	$V_i = 100\text{mV}_{rms}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$		0.5	1.3	%	
AM Rejection	AMR	30%AM	50	60		dB	

RF AGC Output Circuit Configuration

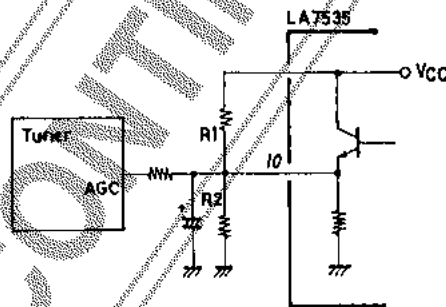


Fig. 1

The RF AGC output circuit is configured as shown Fig. 1. In general, the gain reduction characteristic of a tuner of forward type is as shown in Fig. 2. Control is exercised at more than V_1 . Obtain the ratio of R_1, R_2 referring to the specification for the tuner and fix V_1 .

$$V_1 = \frac{R_2}{R_1 + R_2} \times V_{CC}$$

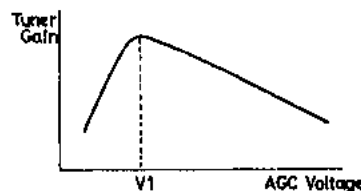
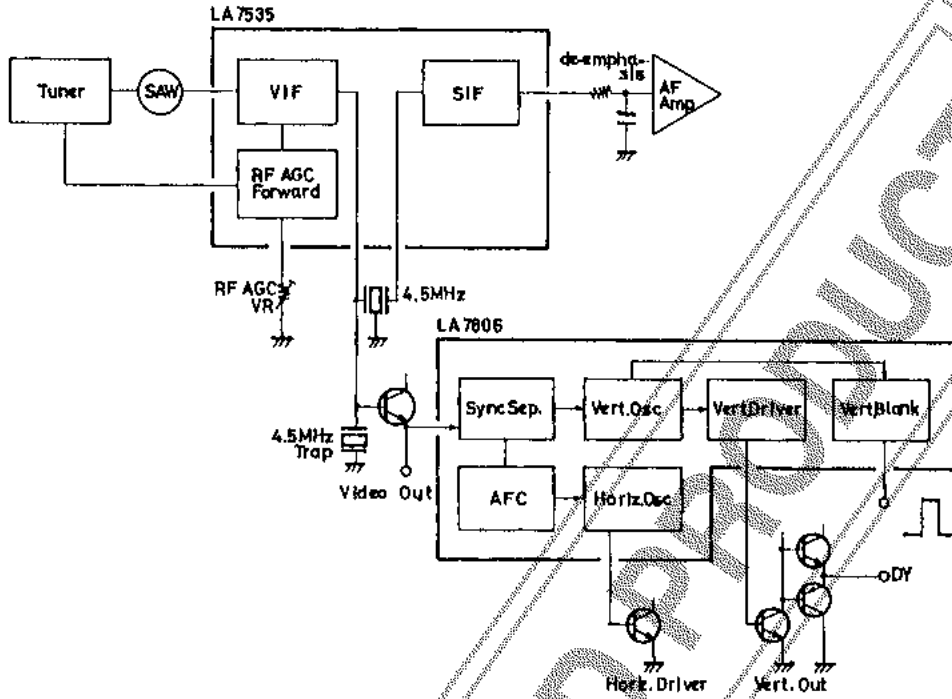


Fig. 2

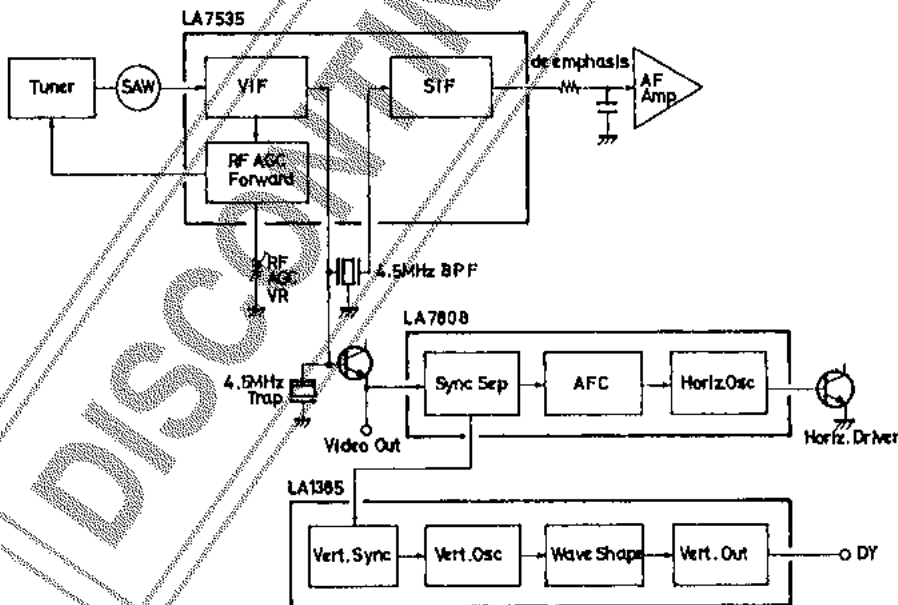
LA7535

Sample Application Circuits

1. LA7535 + LA7806 + TR

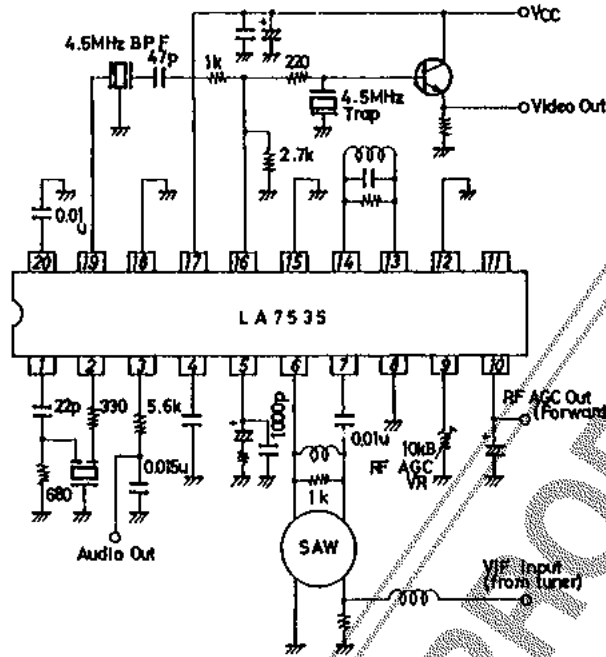


2. LA7535 + LA7808 + LA1385



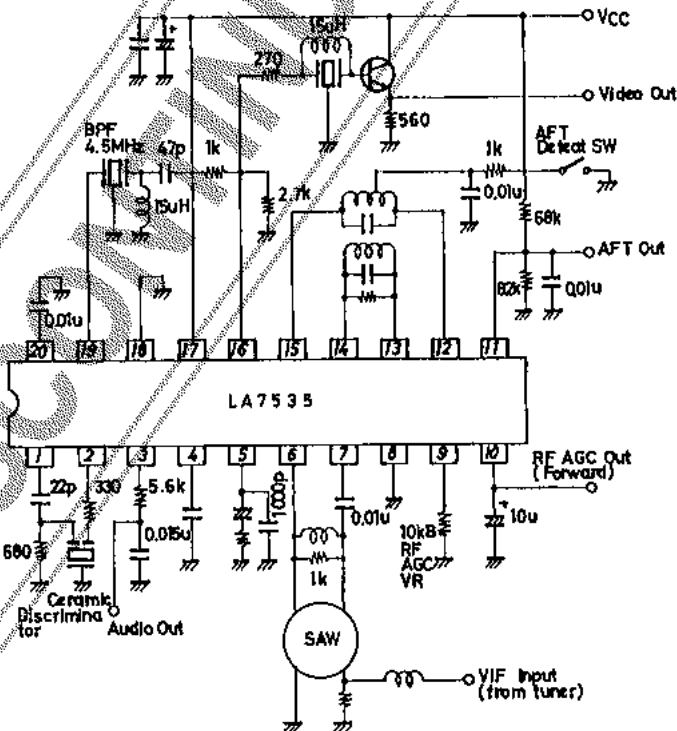
LA7535

3. B/W TV use



When the AFT circuit is not used, connect pins 12, 15 to GND.

4. Low-cost CTV use



The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass-produced. This information herein is believed to be accurate and reliable. However, no responsibility is assumed by SANYO for its use; nor for any infringements of patents or other rights of third parties which may result from its use.