

**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.

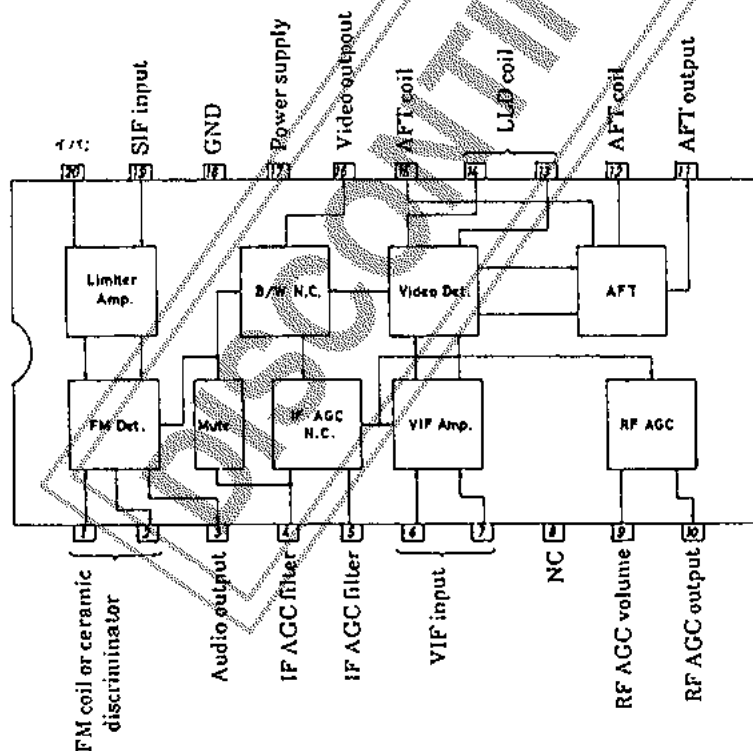
### Functions

- 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

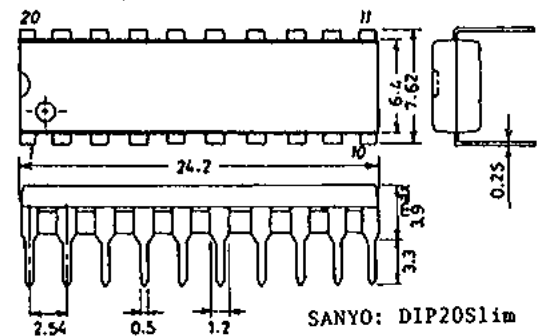
### Features

- 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.

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# LA7535

Maximum Ratings at Ta = 25°C, V <sub>CC</sub> = 12V				unit
Maximum Supply Voltage	V <sub>CC</sub> max		14	V
Flow-out Current	I <sub>16</sub> max		5	mA
Allowable Power Dissipation	P <sub>d</sub> max	Ta ≤ 40°C	1.1	W
Operating Temperature	T <sub>opg</sub>		-20 to +70	°C
Storage Temperature	T <sub>slg</sub>		-55 to +125	°C

Operating Conditions at Ta = 25°C				unit
Recommended Supply Voltage	V <sub>CC</sub>		12	V
Operating Voltage Range	V <sub>CC op</sub>		9 to 13.2	V

Operating Characteristics at Ta = 25°C, V <sub>CC</sub> = 12V				min	typ	max	unit
Circuit Current	I <sub>17</sub>	DC	47	58	74	mA	
Maximum RF AGC Voltage	V <sub>10H</sub>	DC	10.2	10.6	11.0	V	
Minimum RF AGC Voltage	V <sub>10L</sub>	DC		0	0.6	V	
Quiescent Video Output Voltage	V <sub>16</sub>	DC	5.7	6.1	6.5	V	
Input Sensitivity	V <sub>i</sub>	f <sub>m</sub> = 400Hz, 40%AM, V <sub>o</sub> = 0.8V <sub>pp</sub>	30	36	42	dBu	
AGC Range	GR	f <sub>m</sub> = 400Hz, 40%AM, V <sub>o</sub> = 0.8V <sub>pp</sub>	57	64		dB	
Maximum Allowable Input Video Output Amplitude	V <sub>i</sub> max	f <sub>m</sub> = 15kHz, 78%AM, V <sub>o</sub> = 10mV <sub>rms</sub>	100	200		mV <sub>rms</sub>	
Output S/N	S/N	10mV CW	48	54		dB	
SIF Output Signal Voltage	V <sub>o</sub> (SIF)	P/S = 20dB	80	140	210	mV <sub>rms</sub>	
Frequency Characteristic	f <sub>c</sub>	-3dB	5	7		MHz	
Input Resistance	r <sub>i</sub>			1.5		kΩ	
Input Capacitance	c <sub>i</sub>			3.0		pF	
SIF Limiting Voltage	V <sub>i</sub> (Lim)	-3dB		200	500	μV <sub>rms</sub>	
Detection Output Voltage	V <sub>o</sub> (Det)	V <sub>i</sub> = 100mV <sub>rms</sub> , f <sub>m</sub> = 400Hz, Δf = ±25kHz	450	680	850	mV <sub>rms</sub>	
Total Harmonic Distortion	THD(Det)	V <sub>i</sub> = 100mV <sub>rms</sub> , f <sub>m</sub> = 400Hz, Δf = ±25kHz		0.5	1.3	%	
AM Rejection	AMR	30%AM	50	60		dB	

### RF AGC Output Circuit Configuration

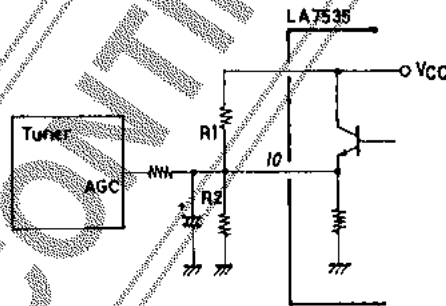


Fig. 1

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<sub>1</sub>. Obtain the ratio of R<sub>1</sub>, R<sub>2</sub> referring to the specification for the tuner and fix V<sub>1</sub>.

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

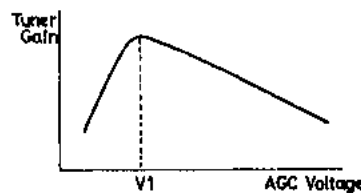
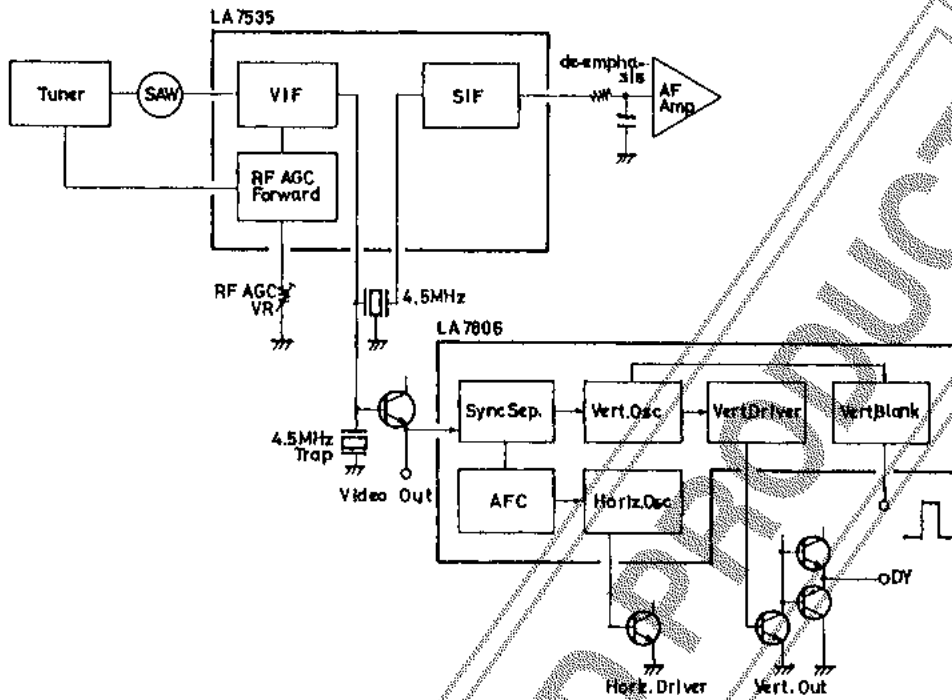


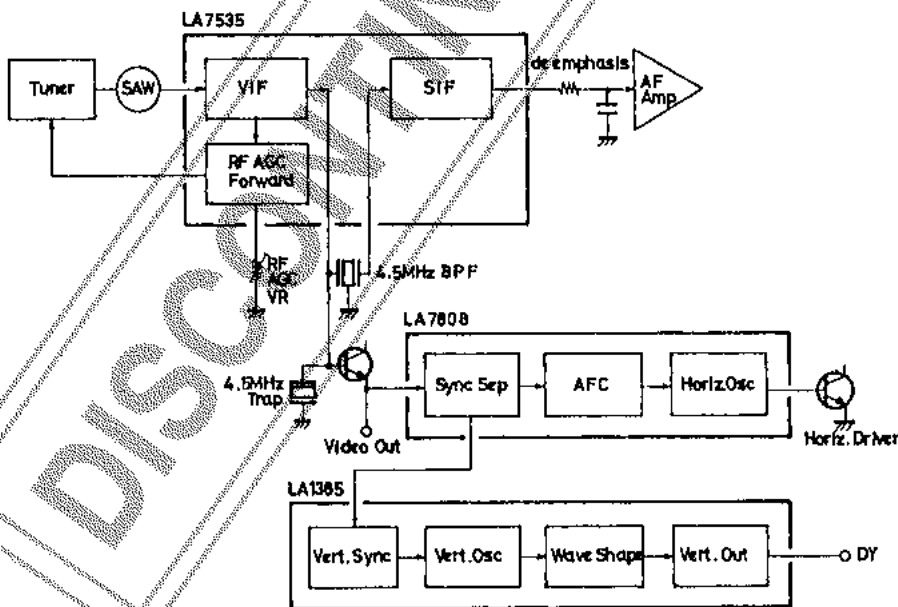
Fig. 2

Sample Application Circuits

1. LA7535 + LA7806 + TR

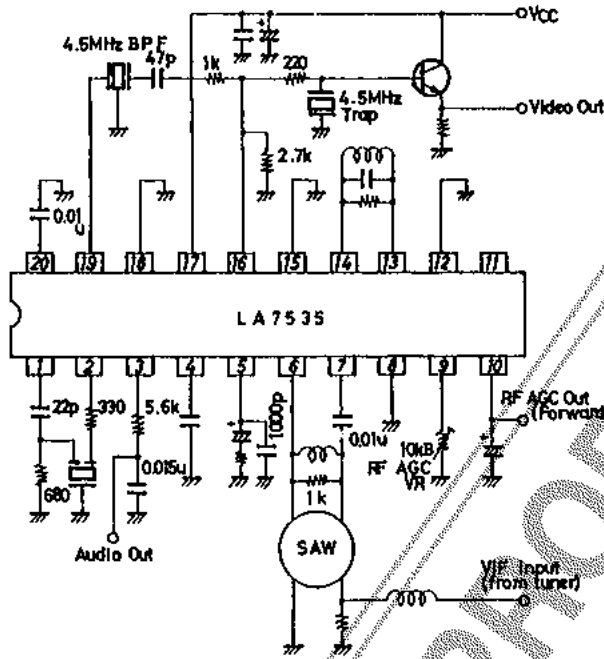


2. LA7535 + LA7808 + LA1385



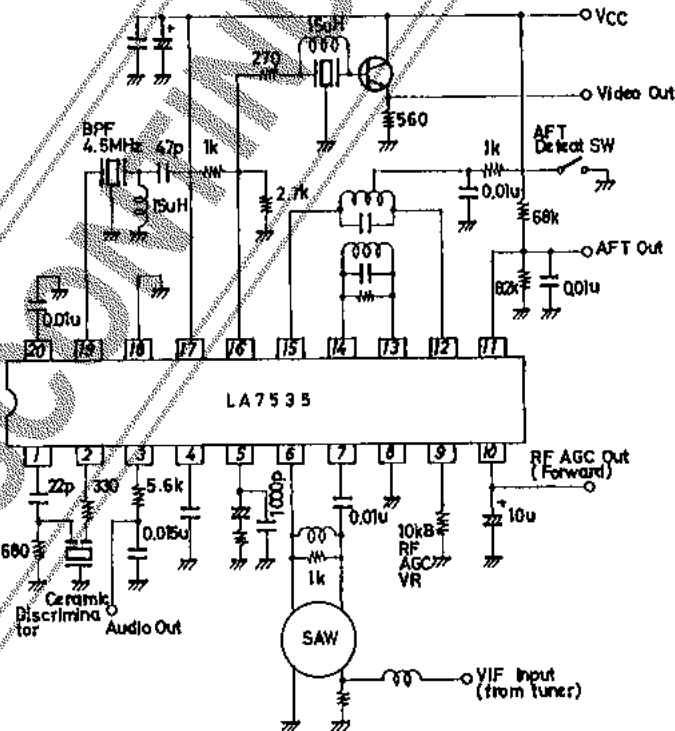
LA7535

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. The 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.