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.

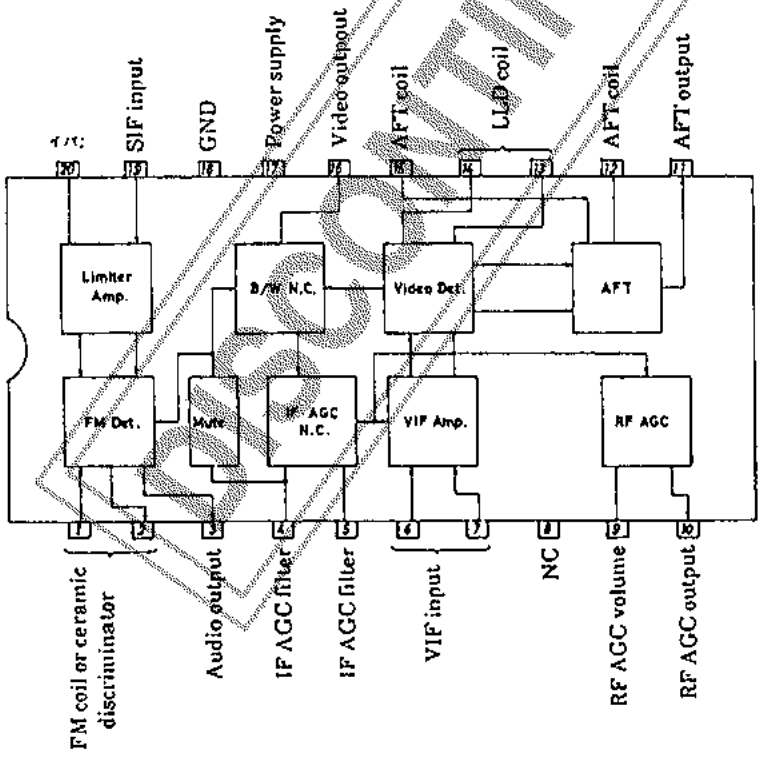
Functions

- 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

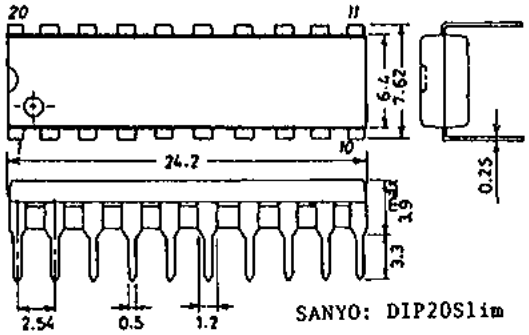
Features

- 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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Maximum Ratings at Ta = 25°C, V_{CC} = 12V

				unit
Maximum Supply Voltage	V_{CC} max		14	V
Flow-out Current	I_{16} max		5	mA
Allowable Power Dissipation	Pd max	Ta ≦ 40°C	1.1	W
Operating Temperature	Topg		−20 to +70	°C
Storage Temperature	Tstg		−55 to +125	°C

Operating Conditions at Ta = 25°C

			unit
Recommended Supply Voltage	V_{CC}	12	V
Operating Voltage Range	V_{CC} op	9 to 13.2	V

Operating Characteristics at Ta = 25°C, V_{CC} = 12V

			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	Vi	fm = 400Hz, 40%AM, Vo = 0.8Vp-p	30	36	42	dBu
AGC Range	GR	fm = 400Hz, 40%AM, Vo = 0.8Vp-p	57	64		dB
Maximum Allowble Input	Vi max	fm = 15kHz, 78%AM, Vo = 10mVrms	100	200		mVrms
Video Output Amplitude	Vo(Video)	fm = 15kHz, 78%AM, Vo = 10mVrms	1.9	2.2	2.5	Vpp
Output S/N	S/N	10mV CW	48	54		dB
SIF Output Signal Voltage	Vo(SIF)	P/S = 20dB	80	140	210	mVrm
Frequency Characteristic	fc	−3dB	5	7		MHz
Input Resistance	ri			1.5		kΩ
Input Capacitance	ci			3.0		pF
SIF Limiting Voltage	Vi(Lim)	−3dB		200	500	μVrms
Detection Output Voltage	Vo(Det)	Vi = 100mVrms, fm = 400Hz, Δf = ±25kHz	450	680	850	mVrms
Total Harmonic Distortion	THD(Det)	Vi = 100mVrms, fm = 400Hz, Δf = ±25kHz		0.5	1.3	%
AM Rejection	AMR	30%AM	50	60		dB

RF AGC Output Circuit Configuration

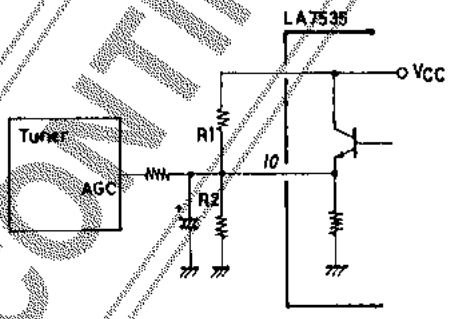


Fig. 1

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_1. Obtain the ratio of R_1,R_2 referring to the specification for the tuner and fix V_1.

$$V_1 = \frac{R2}{R1+R2} \times V_{CC}$$

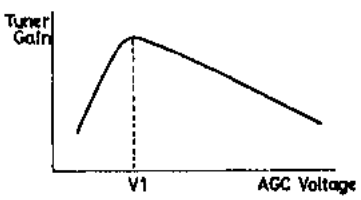
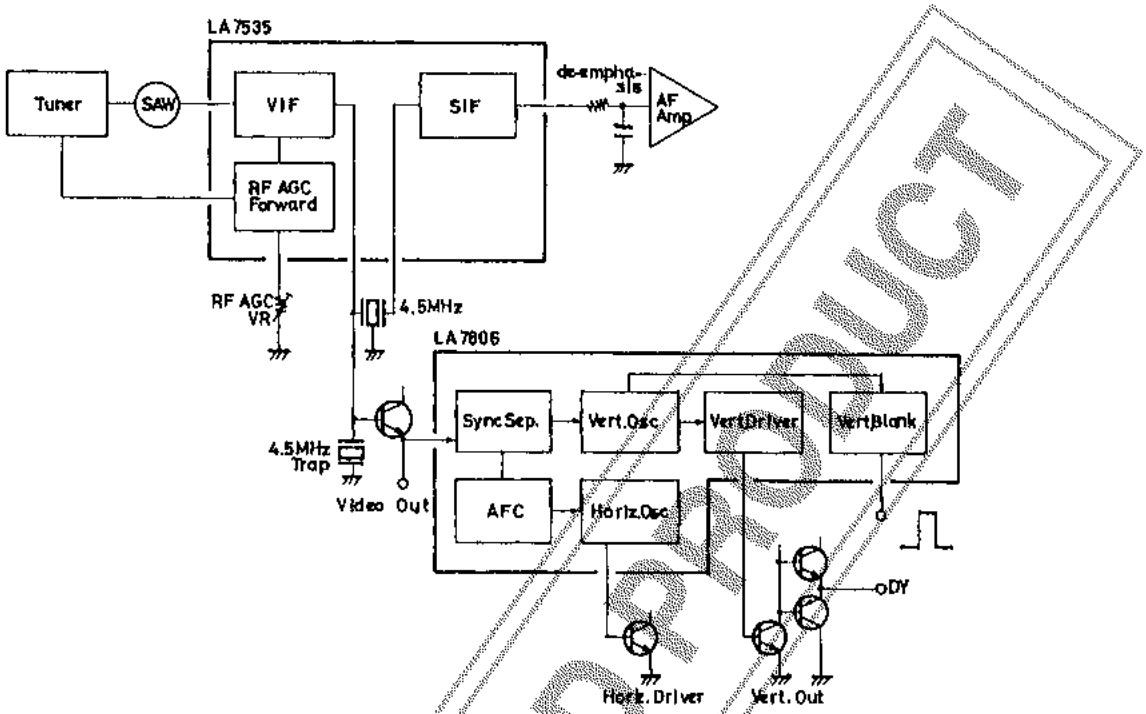


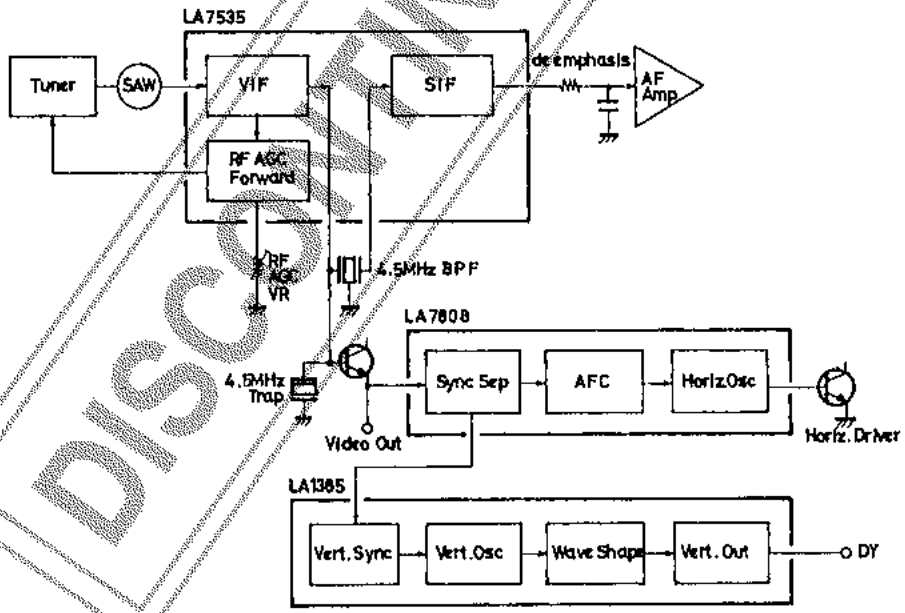
Fig.2

Sample Application Circuits

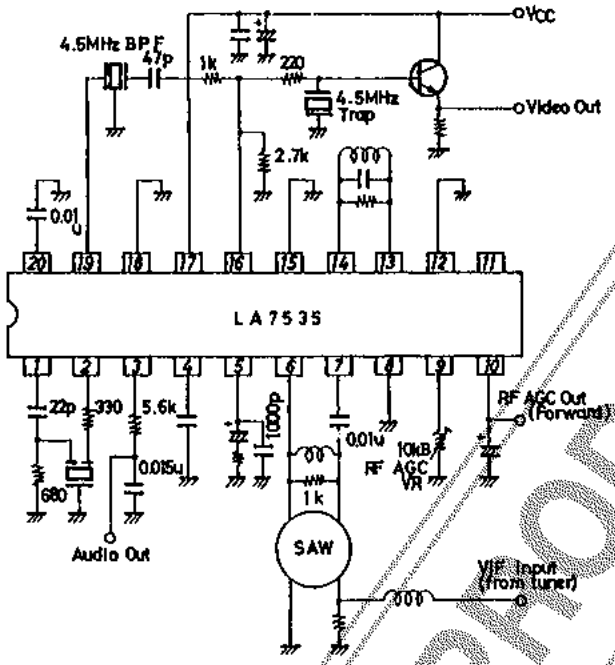
1. LA7535 + LA7806 + TR



2. LA7535 + LA7808 + LA1385



3. B/W TV use



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

4. Low-cost CTV use