

# GL3120

## VIF+SIF CIRCUIT

### for TV Sets, VTR's

#### Description

The GL3120 is an IC containing the VIF section and SIF section on a single chip in the DIP30S package of shrink type. Since the GL3120 is capable of performing video detection and sound detection independently or simultaneously, it can be applied to various sets from popular type to high-grade type according to the designer's policy.

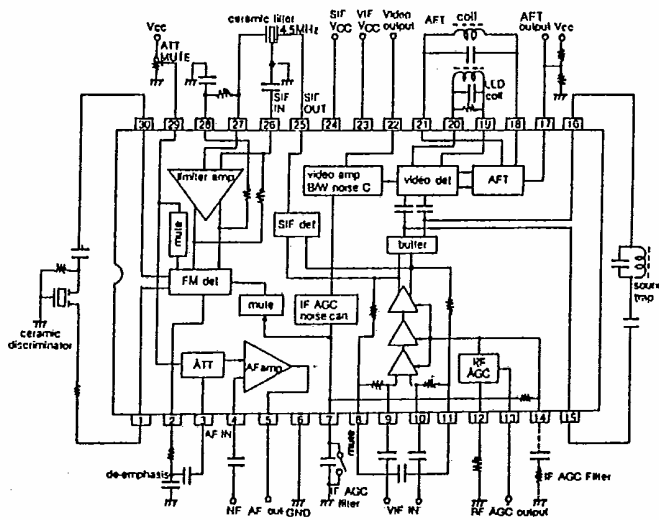
#### Function

VIF section: VIF amp, video detector, peak IF AGC, B/W noise canceler, RF AGC, AFT, SIF detector  
 SIF section: SIF limiter amp, FM detector, DC attenuator, AF driver

#### Feature

- High Gain VIF Amp Requiring No Preamp
- High AGC Speed
- Provides Wide-Band Detection Characteristics and Meets Sound MPX Demodulation Requirements Because of FM Detection Being quadrature Detection.
- Possible to Use Sound REC Pin (Pin 2), Aux Pin (Pin 3)
- Possible to Mute Video, Sound for VTR:  
 Pin 7 GND: Muting of Both Video and Sound  
 Pin 29 GND: Muting of Sound Only

#### Block Diagram



# GL3120

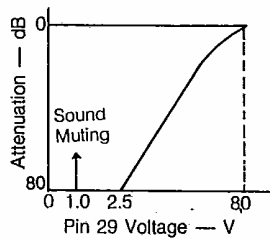
T-77-07-13

Electrical Characteristics  $T_A = 25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$ ,  $f_p = 58.75\text{MHz}$ ,  $f_s = 54.25\text{MHz}$  (VIF),  $f_o = 4.5\text{MHz}$  (SIF)

(VIF Section)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Total circuit current	$I_{23} + I_{24}$	dc	59	74	98	mA
Maximum RF AGC voltage	$V_{13H}$	dc	8.5	8.9	9.2	V
Minimum RF AGC voltage	$V_{13L}$	dc		0	0.5	V
Quiescent video output voltage	$V_{22}$	dc	5.6	6.1	6.6	V
Quiescent AFT output voltage	$V_{17}$	dc	4.5	6.5	7.5	V
Input sensitivity	$v_i$	$f_m = 400\text{Hz} \text{ --- } 40\% \text{AM}$ , $v_o = 0.8\text{vpp}$	30	36	42	$\text{dB}\mu$
AGC voltage	GR	$f_m = 15\text{kHz} \text{ --- } 78\% \text{AM}$ , $v_o = \pm 1\text{dB}$	60	74	100	dB
Maximum allowable input voltage	$v_i \text{ max}$	$f_m = 15\text{kHz} \text{ --- } 78\% \text{AM}$ , $v_o = \pm 1\text{dB}$	100	500	900	mVrms
Video output amplitude	$v_{o22}$	$v_i = 10^*$ , $f_m = 15\text{kHz} \text{ --- } 78\% \text{AM}$	1.9	2.2	2.5	Vpp
Output S/N	S/N	$v_i = 10^*$ , CW	48	54		dB
Carrier leak	CL	$v_i = 100^*$ , $f_m = 15\text{kHz} \text{ --- } 78\% \text{AM}$	50	57		dB
Maximum AFT voltage	$V_{17H}$	$v_i = 10^*$ , SWEEP	11.0	11.5	12.0	V
Minimum AFT voltage	$V_{17L}$	$v_i = 10^*$ , SWEEP	0	0.4	1.0	V
AFT Detection sensitivity	sf	$v_i = 10^*$ , SWEEP	70	100	140	mV/kHz
White noise threshold voltage	$V_{WTH}$	$v_i = 10^*$ , SWEEP	6.4	6.8	7.2	V
White noise clamp level	$V_{WCL}$	$v_i = 1^*$ , SWEEP	4.2	4.6	5.0	V
Black noise threshold voltage	$V_{BTH}$	$v_i = 10^*$ , SWEEP	2.1	2.4	2.7	V
Black noise clamp level	$V_{BCL}$	$v_i = 10^*$ , SWEEP	3.8	4.2	4.6	V
SIF output signal voltage	$V_{o25}$	P/S = 20dB	40	60	100	mVrms
Frequency characteristic	$f_c$	-3dB	6	8	15	MHz
Differential gain	DG	$v_i = 10^*$ , -87.5%, video-mode	0	4	10	%
Differential phase	DP	$v_i = 10^*$ , -87.5%, video-mode	0	3	6	deg
Input resistance	$r_i$		1.0	1.5	2.0	k $\Omega$
Input capacitance	$c_i$			3.5	7.0	pF

Electronic volume control characteristic



# GL3120

T-77-07-13

**(SIF Section)**

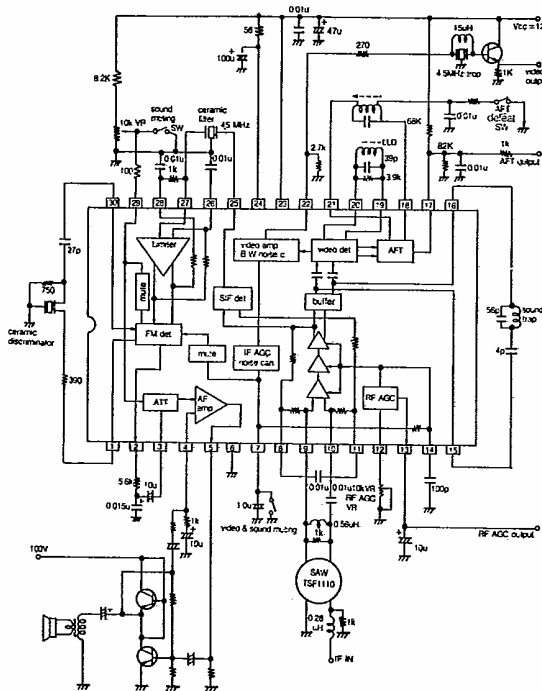
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
SIF limiting sensitivity	ViLim	-3dB	0	200	400	$\mu$ Vrms
Detection output voltage	Vo2	vi = 100*, fm = 400Hz, $\Delta f = \pm 25$ kHz	450	680	850	mVrms
Total harmonic distortion	THD	vi = 100*, fm = 400Hz, $\Delta f = \pm 25$ kHz		0.5	1.0	%
AM rejection	AMR	vi = 100*, fm = 400Hz, $\sqrt{\Delta f} = \pm 25$ kHz, -30%AM	50	60	100	dB
DCVR maximum attenuation	ATT	vi = 200*, f = 400Hz	70	80		dB
AF amp gain	VG <sub>AF</sub>	vi = 100*, f = 400Hz	18	20	22	dB
AF amp output voltage	vo5	THD = 10%, f = 400Hz	3	4		Vrms

(Note)

• FM detector input impedance (pin 30): 2k  $\Omega$  (typ.)

\*: mVrms

**Typical Application**



# GL3120

T-77-07-13

## Pin Configuration

