

**SANYO**

No.1794B

**LA7520N**

Monolithic Linear IC  
(VIF+SIF) Circuit  
for TV, VTR Applications

The LA7520N is an IC containing the VIF section and SIF section on a single chip in the DIP30S package (equivalent to the DIP22 heretofore in use) of shrink type. Since the LA7520N 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. As compared with the LA7520, the LA7520N is more improved in differential gain, noise canceler characteristic. The LA7520 and LA7520N are compatible with each other.

**Functions**

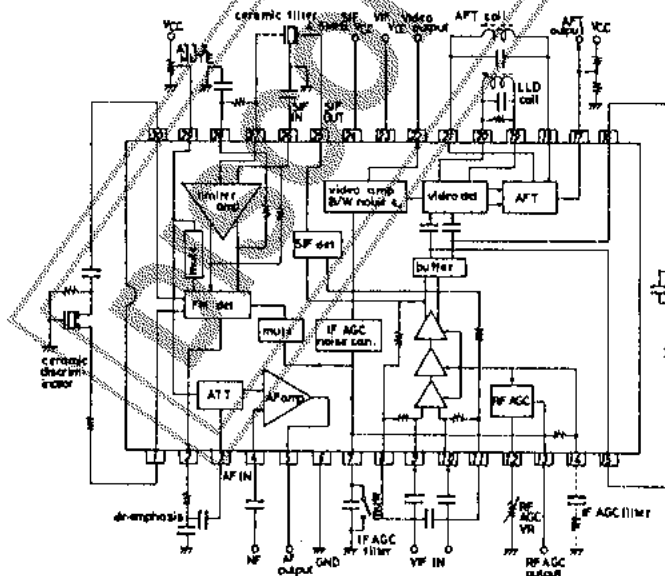
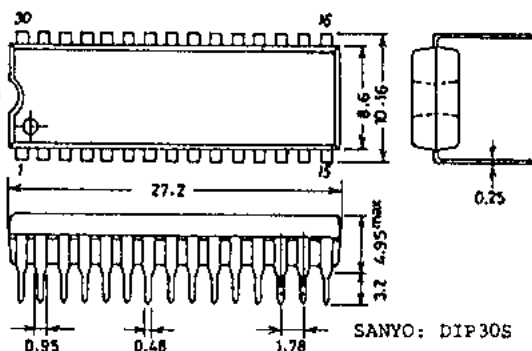
VIF section: VIF amp, video detector, peak IF AGC, B/W noise canceler, RF AGC, AFT, SIF detector  
SIF section: SIF limiter amp, FM detector, DC attenuator, AF driver

**Features**

- High-gain VIF amp requiring no preamp
- High AGC speed
- Provides wide-band detection characteristic 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

**Maximum Ratings at Ta = 25°C**

Maximum Supply Voltage	V <sub>CC</sub> max	14	unit
Flow-out Current	I <sub>22</sub> max	5	mA
	I <sub>5</sub> max	3	mA
Allowable Power Dissipation	P <sub>d</sub> max	1.5	W
Operating Temperature	Topg	- 20 to + 70	°C
Storage Temperature	Tstg	- 55 to + 125	°C

**Equivalent Circuit Block Diagram****Case Outline 3061-D30SIC**  
(unit : mm)

Specifications and information herein are subject to change without notice.

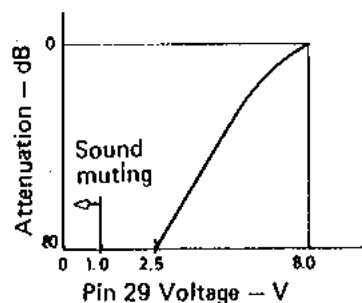
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LA7520N

Operating 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), \*:  $\text{mVrms}$  [VIF Section]

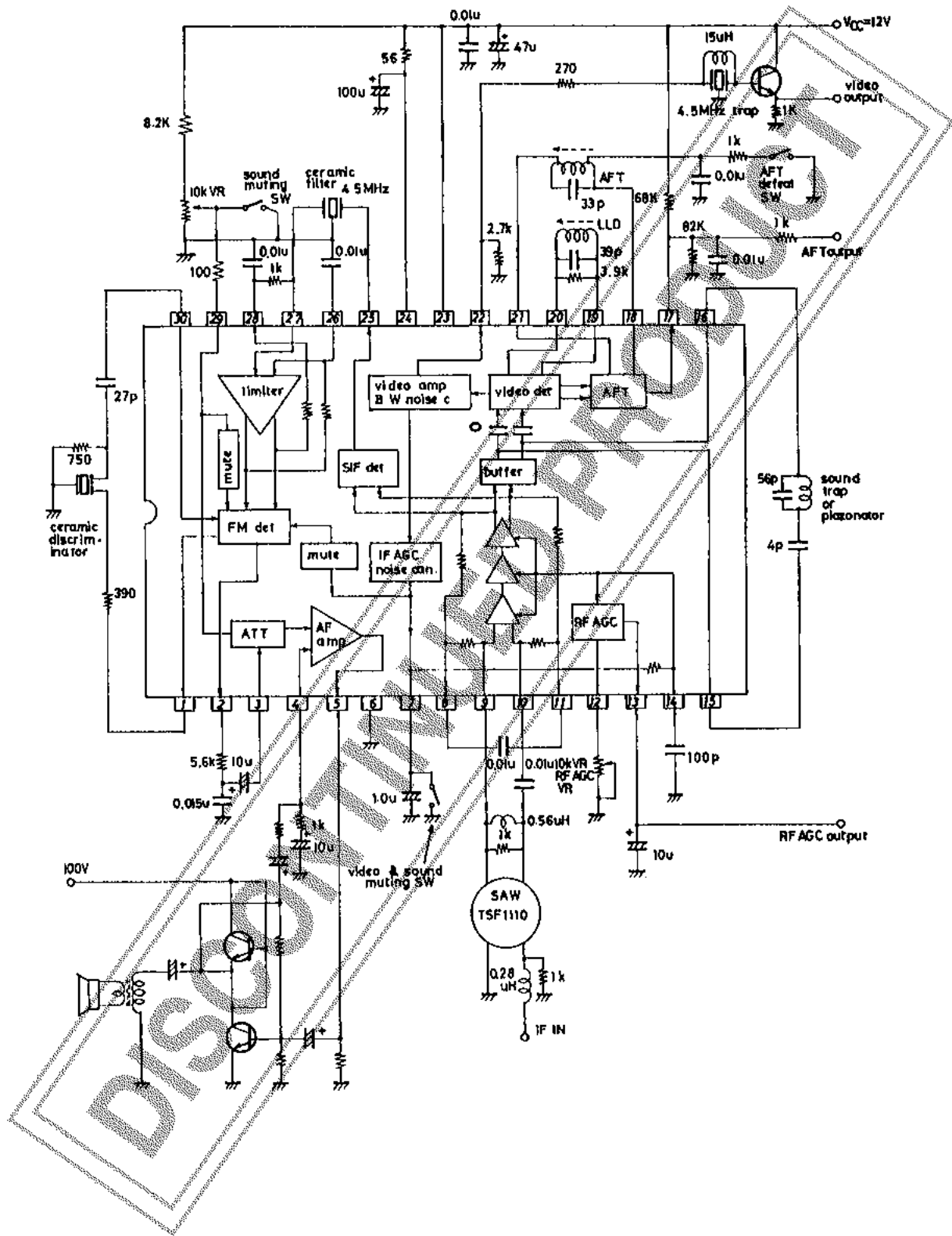
			min	typ	max	unit
Total circuit current	I23 + I24	dc	59	74	88	mA
Maximum RF AGC voltage	V13H	dc	8.5	8.9	9.2	V
Minimum RF AGC voltage	V13L	dc		0	0.5	V
Quiescent video output voltage	V22	dc	5.6	6.1	6.6	V
Quiescent AFT output voltage	V17	dc	4.5	6.5	7.5	V
Input sensitivity	vi	$f_m = 400\text{Hz} - 40\%\text{AM}$ , $v_o = 0.8\text{Vpp}$	30	36	42	$\text{dB}\mu$
AGC voltage	GR	$f_m = 15\text{kHz} - 78\%\text{AM}$ , $v_o = \pm 1\text{dB}$	60	74		dB
Maximum allowable input voltage	vi max	$f_m = 15\text{kHz} - 78\%\text{AM}$ , $v_o = \pm 1\text{dB}$	100	500		$\text{mVrms}$
Video output amplitude	vo22	$v_i = 10^*$ , $f_m = 15\text{kHz} - 78\%\text{AM}$	1.9	2.2	2.5	Vpp
Output S/N	S/N	$v_i = 10^*$ , CW	48	54		dB
Carrier leak	CL	$v_i = 100^*$ , $f_m = 15\text{kHz} - 78\%\text{AM}$	50	57		dB
Maximum AFT voltage	V17H	$v_i = 10^*$ , SWEEP	11.0	11.5	12.0	V
Minimum AFT voltage	V17L	$v_i = 10^*$ , SWEEP	0	0.4	1.0	V
AFT detection sensitivity	sf	$v_i = 10^*$ , SWEEP	70	100	140	$\text{mV/kHz}$
White noise threshold voltage	VWTH	$v_i = 10^*$ , SWEEP	6.4	6.8	7.2	V
White noise clamp level	VWCL	$v_i = 10^*$ , SWEEP	4.2	4.6	5.0	V
Black noise threshold voltage	VBTH	$v_i = 10^*$ , SWEEP	2.1	2.4	2.7	V
Black noise clamp level	VBCL	$v_i = 10^*$ , SWEEP	3.8	4.2	4.6	V
SI output signal voltage	Vo25	$P/S = 20\text{dB}$	40	60	100	$\text{mVrms}$
Frequency characteristic	fc	-3dB	6	8		MHz
Differential gain	DG	$v_i = 10^*$ , -87.5% video-mode		3	6	%
Differential phase	DP	$v_i = 10^*$ , -87.5% video-mode		3	6	deg
Input resistance	ri		1.0	1.5	2.0	$\text{k}\Omega$
Input capacitance	ci			3.0	6.0	pF
[SIF Section]			min	typ	max	unit
SIF limiting sensitivity	ViLim	-3dB		200	400	$\mu\text{Vrms}$
Detection output voltage	Vo2	$v_i = 100^*$ , $f_m = 400\text{Hz}$ , $\Delta f = \pm 25\text{kHz}$	450	680	850	$\text{mVrms}$
Total harmonic distortion	THD	$v_i = 100^*$ , $f_m = 400\text{Hz}$ , $\Delta f = \pm 25\text{kHz}$		0.5	1.0	%
AM rejection	AMR	$v_i = 100^*$ , $f_m = 400\text{Hz}$ , $\Delta f = \pm 25\text{kHz}$ , -30%AM	50	60		dB
DCVR maximum attenuation	ATT	$v_i = 200^*$ , $f = 400\text{Hz}$	70	80		dB
AF amp gain	VGAF	$v_i = 100^*$ , $f = 400\text{Hz}$	18	20	22	dB
AF amp output voltage	vo5	THD = 10%, $f = 400\text{Hz}$	3	4		Vrms

Electronic volume control characteristic



# LA7520N

## Sample Application Circuit (Japan)



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