

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 $T_a = 25^\circ\text{C}$

Maximum Supply Voltage

Flow-out Current

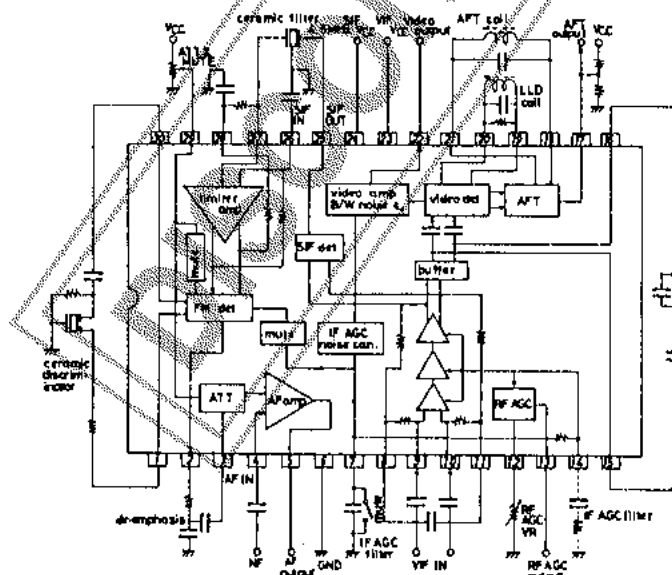
Allowable Power Dissipation

Operating Temperature

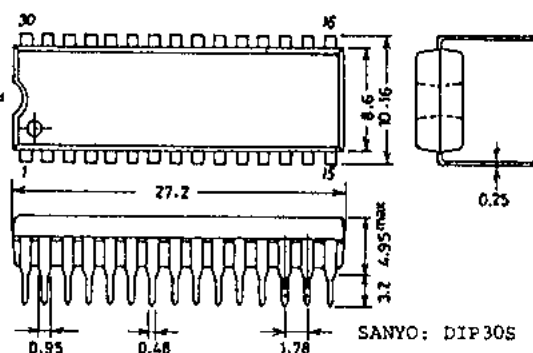
Storage Temperature

 V_{CC} max I_{ZZ} max I_S max P_d max T_{opg} T_{stg} $T_a \leq 45^\circ\text{C}$

	unit
14	V
5	mA
3	mA
1.5	W
-20 to +70	$^\circ\text{C}$
-55 to +125	$^\circ\text{C}$

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 TS 第 No.1794-1/3

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), *: mVrms
[VIF Section]

			min	typ	max	unit
Total circuit current	$I_{23} + I_{24}$	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	v_i	$f_m = 400\text{Hz} - 40\%\text{AM}$, $v_o = 0.8\text{Vpp}$	30	36	42	dB μ
AGC voltage	GR	$f_m = 15\text{kHz} - 78\%\text{AM}$, $v_o = \pm 1\text{dB}$	60	74		dB
Maximum allowable input voltage	$v_i \text{ max}$	$f_m = 15\text{kHz} - 78\%\text{AM}$, $v_o = \pm 1\text{dB}$	100	500		mVrms
Video output amplitude	v_{o22}	$v_i = 10^*$, $f_m = 15\text{kHz} - 78\%\text{AM}$	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	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	V_{o25}	P/S = 20dB	40	60	100	mVrms
Frequency characteristic	f_c	-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	r_i		1.0	1.5	2.0	k Ω
Input capacitance	c_i			3.0	6.0	pF
[SIF Section]			min	typ	max	unit
SIF limiting sensitivity	V_{iLim}	-3dB		200	400	μVrms
Detection output voltage	V_{o2}	$v_i = 100^*$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$	450	680	850	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	v_{o5}	THD = 10%, $f = 400\text{Hz}$	3	4		Vrms

Electronic volume control characteristic

