

SANYO	No.1774E	LA7530N
		IF Signal Processing (VIF + SIF) Circuit for TV / VCR Use

The LA7530N is an IC containing the VIF section and SIF section on a single chip in the DIP20S package. The use of the small-sized package serves to make VTR tuner units smaller.

As compared with the LA7530, the LA7530N is provided with 2 pins for IF AGC, permitting higher AGC speed. The LA7530N can substitute for the LA7530, but the LA7530 cannot substitute for the LA7530N. For 9V supply, use the LA7533.

Functions

- VIF section: VIF AMP, VIDEO DET, PEAK IF AGC, B/W NOISE CANCELLER, RF AGC, AFT, VIDEO MUTE.
- SIF section: SIF LIMITER AMP, FM DET, SND MUTE.

Features

- High-gain VIF amp requiring no preamp.
- Higher AGC speed.
- Adjustment-free FM detector because of ceramic discriminator-used quadrature detection.
- Possible to mute video, sound for VTR.
- Small-sized package.
- Minimum number of external parts required.

Maximum Ratings at $T_a = 25^\circ\text{C}$

Maximum Supply Voltage	$V_{CC \text{ max}}$	14	V
Flow-out Current	$I_{16 \text{ max}}$	5	mA
Maximum Applied Voltage	$V_{20 \text{ max}}$	V_{CC}	V
Allowable Power Dissipation	$P_d \text{ max}$	1.1	W
Operating Temperature	T_{opr}	-20 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

$T_a \leq 40^\circ\text{C}$

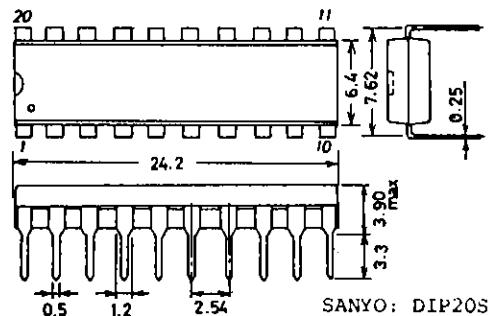
Operating Conditions at $T_a = 25^\circ\text{C}$

Recommended Supply Voltage	V_{CC}	12	V
Operating Voltage Range	$V_{CC \text{ op}}$	9 to 13.2	V

Package Dimensions

(unit : mm)

3021B



SANYO: DIP20S

SANYO Electric Co., Ltd. Semiconductor Business Headquarters

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

52095MH/2289YT/D167AT/6145KI/3265MW, TS No.1774-1/3

LA7530N

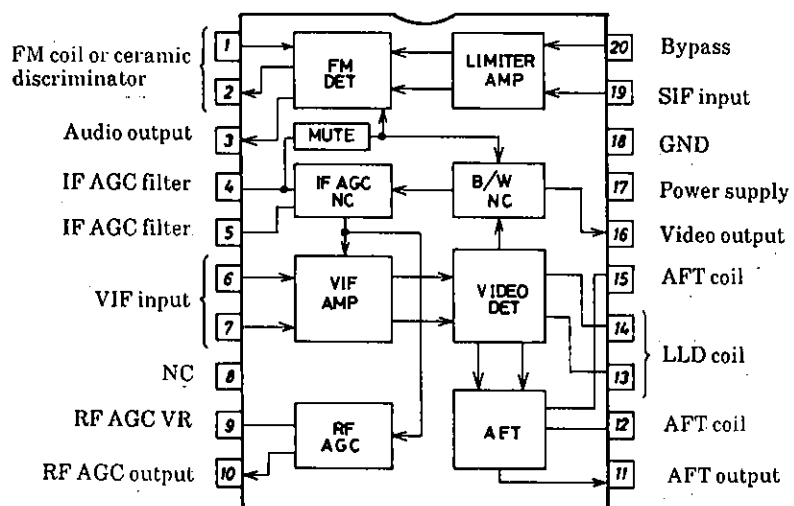
Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 12\text{V}$, $f_p = 58.75\text{MHz}$, $f_s = 54.25\text{MHz}$ (VIF),
 $f_o = 4.5\text{MHz}$ (SIF)

			min	typ	max	unit
Total Circuit Current	I_{17}	DC	47	58	74	mA
Maximum RF AGC Voltage	V_{10H}	DC	8.5	8.9	9.2	V
Minimum RF AGC Voltage	V_{10L}	DC			0.5	V
Quiescent Video Output Voltage	V_{16}	DC	5.7	6.1	6.5	V
Quiescent AFT Output Voltage	V_{11}	DC	4.5	6.5	7.5	V
Input Sensitivity	V_i	$f_m = 400\text{Hz}$, 40%AM, $V_o = 0.8\text{Vp-p}$	30	36	42	dB μ
AGC Range	GR	$f_m = 400\text{Hz}$, 40%AM, $V_o = 0.8\text{Vp-p}$	57	65		dB
Maximum Allowable Input	$V_i \text{ max}$	$f_m = 15\text{kHz}$, 78%AM, $V_o = \pm 1\text{dB}$	100	200		mVrms
Video Output Amplitude	V_o (VIDEO)	$V_i = 10\text{mVrms}$, $f_m = 15\text{kHz}$, 78%AM	1.9	2.2	2.5	Vp-p
Output S/N	S/N	$V_i = 10\text{mVrms}$ CW	48	54		dB
Carrier Leak	CL	$V_i = 100\text{mVrms}$, $f_m = 15\text{kHz}$, 78%AM	50	55		dB
Maximum AFT Voltage	V_{11H}	$V_i = 10\text{mVrms}$ CW SWEEP	11	11.4		V
Minimum AFT Voltage	V_{11L}	$V_i = 10\text{mVrms}$ CW SWEEP		0.5	1.0	V
AFT Detection Sensitivity	S_f	$V_i = 10\text{mVrms}$ CW SWEEP	80	110	150	mV/kHz
White Noise Threshold Level	V_{WTH}	$V_i = 10\text{mVrms}$ SWEEP	6.4	6.8	7.2	V
White Noise Clamp Level	V_{WCL}	$V_i = 10\text{mVrms}$ SWEEP	4.2	4.6	5.0	V
Black Noise Threshold Level	V_{BTH}	$V_i = 10\text{mVrms}$ SWEEP	2.1	2.4	2.7	V
Black Noise Clamp Level	V_{BCL}	$V_i = 10\text{mVrms}$ SWEEP	3.8	4.2	4.6	V
SIF Output Signal Voltage	V_o (SIF)	P/S = 20dB	80	140	210	mVrms
Frequency Characteristic	f_c	-3dB	5	7		MHz
Differential Gain	DG	$V_i = -27\text{dBm}$ (peak) 87.5% VIDEOMOD		3		%
Differential Phase	DP	$V_i = -27\text{dBm}$ (peak) 87.5% VIDEOMOD		3		deg
Input Resistance	R_i		1.0	1.5	2.0	k Ω
Input Capacitance	C_i			3.0	6.0	pF
SIF Limiting Voltage	V_i (lim)	-3dB		200	500	μVrms
Detection Output Voltage	V_o (DET)	$V_i = 100\text{mVrms}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$	450	680	850	mVrms
Total Harmonic Distortion	THD (DET)	$V_i = 100\text{mVrms}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$		0.5	1.3	%
AM Rejection	AMR	$V_i = 100\text{mVrms}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$, 30%AM	50	60		dB

Usage Note : 1. Protective circuits must be inserted when using this IC with lines directly connecting the IC pins to external circuits.
 (For example, this applies to pins 12 and 15.)

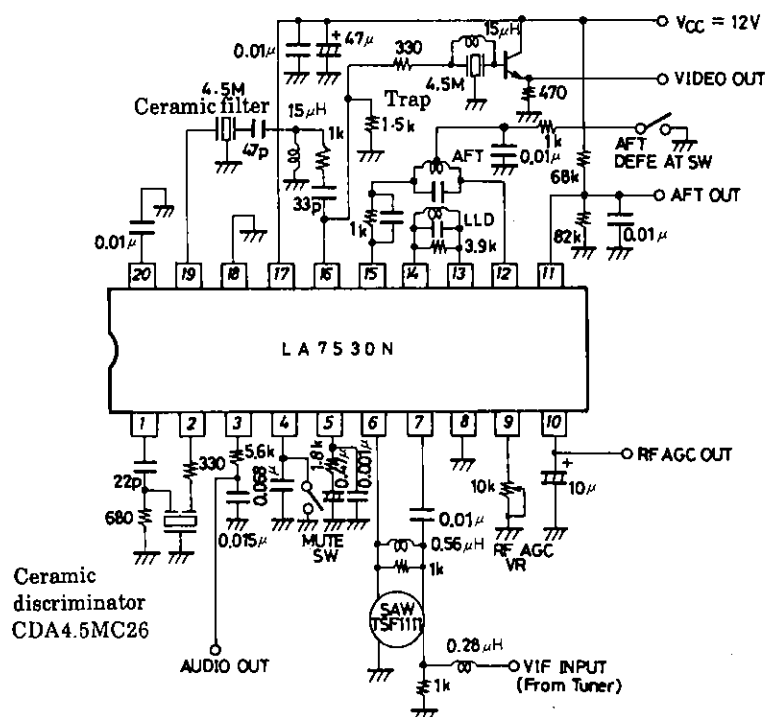
2. A 1000pF capacitor must be connected between either pin 5 and ground or between pin 5 and pin 8 to prevent VIF amplifier oscillation.

Equivalent Circuit Block Diagram



Sample Application Circuit (Japan)

- * The LA7530N differs from the LA7530 in the circuit externally connected to pins 5, 8



Unit (resistance:Ω, capacitance:F)

- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use;
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provide information as of May , 1995. Specifications and information herein are subject to change without notice.