

# **LA7530N**

# IF Signal Processing (VIF+SIF) Circuit for TV / VCR Use

#### **Overview**

The LA7530N is an IC containing the VIF section and SIF section on a single chip in the DIP20 package. The use of the small-sized package serves to make VCR 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 amplifier requiring no preamplifier.
- Higher AGC speed.
- Adjustment-free FM detector because of ceramic discriminator-used quadrature detection.
- Possible to mute video, sound for VCP.
- Small-sized package.
- Minimum number of external parts required

# **Specifications**

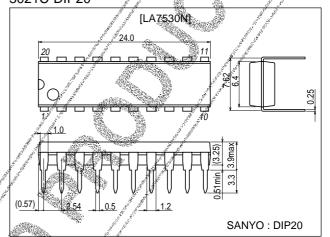
## Maximum Ratings at Ta ≠ 25°C

	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max	A Section of the sect	14	V
Flow-out current	I <sub>16</sub> max		5	mA
	V <sub>20</sub> max		Vcc	V
Allowable power dissipation	Pd max	Ta≤40°C	1.1	W
Operating temperature	Topr		-20 to +70	°C
Storage temperature	, ∕Tstg		-55 to +125	°C

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# Package Dimensions

unit:mm 3021C-DIP20



## **LA7530N**

## Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	Vcc		12	V
Operating voltage range	VCC op		9 to 13.2	V

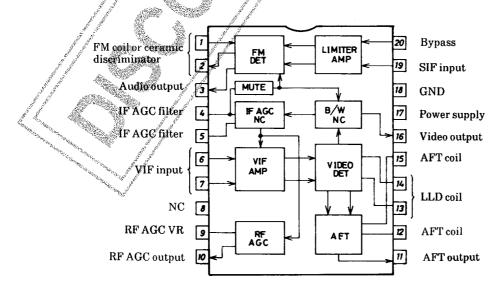
## Operating Characteristics at Ta = $25^{\circ}$ C, $V_{CC}$ =12V, $f_P$ =58.75MHz, $f_S$ =54.25MHz (VIF), $f_S$ =4.5MHz (SIF)

Dorometer	Symbol	Conditions	Service Marie	Ratings		Unit
Parameter	Symbol	Conditions	min	typ.	max	Unit
Total circuit current	l <sub>17</sub>	DC A	47	58	74	mA
Maximum RF AGC voltage	V <sub>10H</sub>	DC /	8.5	8.9	9.2	V
Minimum RF AGC voltage	V <sub>10</sub> L	DC gdf gf	-4-2000 is		0,5	/ V
Quiescent video output voltage	V <sub>16</sub>	DC	5.7	6.1	6.5	V
Quiescent AFT output voltage	V <sub>11</sub>	DC /	4.5	6.5	<b>₹</b> 7.5	V
Input sensitivity	Vi	fm=400Hz, 40%AM, V <sub>O</sub> =0.8Vp-p	30	36.	42	dΒμ
AGC range	GR	fm=400Hz, 40%AM, V <sub>O</sub> =0.8Vp-p	. 57	65	<i>3</i> <sup>2</sup>	dB
Maximum allowable input	Vi max	fm=15kHz, 78%AM, V <sub>O</sub> =±1dB	100	/200		mVrms
Video output amplitude	V <sub>O</sub> (VIDEO)	Vi=10mVrms, fm=15kHz, 78%AM	1.9	/ /2.2	2.5	Vp-p
Output S/N	S/N	Vi=10mVrms CW	48	54		dB
Carrier leakage	CL	Vi=100mVrms, fm=15kHz, 78%AM	<i>5</i> 0	55		dB
Maximum AFT voltage	V <sub>11H</sub>	Vi=10mVrms CW SWEEP	<b>/</b> /11	11.4		V
Mimimum AFT voltage	V <sub>11L</sub>	Vi=10mVrms CW SWEEP	<i>I A</i>	0.5	1.0	V
AFT detection sensitivity	Sf	Vi=10mVrms CW SWEEP	¢ 80	110	150	mV/kHz
White noise threshold level	VWTH	Vi=10mVrms SWEEP	6.4	6.8	7.2	V
White noise clamp level	VWCL	Vi=10mVrms SWEEP	4.2	4.6	5.0	V
Black noise threshold level	V <sub>BTH</sub>	Vi=10mV/ms SWEEP	2.1	2.4	2.7	V
Black noise clamp level	V <sub>BCL</sub>	Vi=10mVrms SWEEP	3.8	4.2	4.6	V
SIF output signal voltage	V <sub>O</sub> (SIF)	P/S≠20dB	80	140	210	mVrms
Frequency characteristic	fC	–3d <b>B</b>	5	7		MHz
Differential gain	DG	Vi=-27dBm (peak) 87,5% VIDEOMOD		3		%
Differential phase	DP 🥖	Vi=-27dBm (peak) 87,5% VIDEOMOD		3		deg
Input resistance	Ri,		1.0	1.5	2.0	kΩ
Input capacitance	,€i,,/			3.0	6.0	pF
SIF limiting voltage	Vi(fim)	-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	Vi=100mVrms, fm=400Hz, Δf=±25kHz, 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)

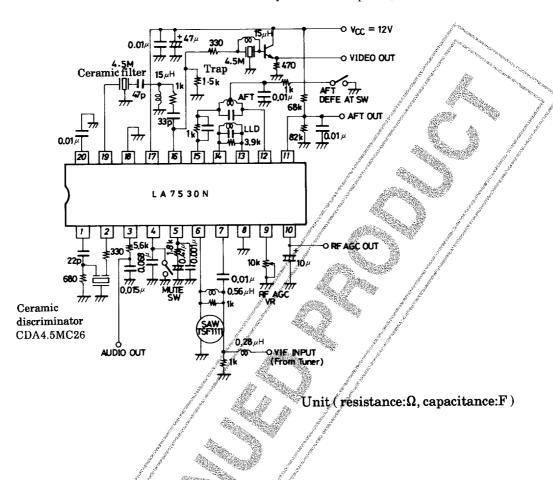
## **Equivalent Circuit Block Diagram**



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

#### Sample Application Circuit (Japan)

\* The LA7530N differs from the LA7530 in the circuit externaly connected to pins 5, 8.



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