

SANYO

No.1128F

**LA3373**

Monolithic Linear IC
PILOT CANCEL-PROVIDED PLL
FM MPX DEMODULATOR FOR CAR STEREO

The LA3373 is a DIP-16 package version of the LA3375 that contains 2 functions required to prevent skip noise and to cancel pilot signal. It is a multiplex IC for use in FM car stereo applications.

Functions

- . Pilot canceler (Level follow-up type)
- . Stereo noise controller (SNC function)
- . High-cut controller (HCC function)
- . Automatic selection between stereo and monaural
- . VCO oscillation stop

Features

- . Low distortion (0.05% typ. 300mV input mono)
- . Good ripple rejection of power supply (35dB typ.)
- . Wide operating voltage range ($V_{CC}=6.5V$ to $14V$)

Maximum Ratings at $T_a=25^\circ C$

			unit
Maximum Supply Voltage	V_{CCmax}	16	V
Lamp Drive Current	I_{Lmax}	40	mA
Allowable Power Dissipation	P_{Dmax} $T_a \leq 45^\circ C$	520	mW
Operating Temperature	T_{Op}	-20 to +70	$^\circ C$
Storage Temperature	T_{Stg}	-40 to +125	$^\circ C$

Recommended Operating Conditions at $T_a=25^\circ C$

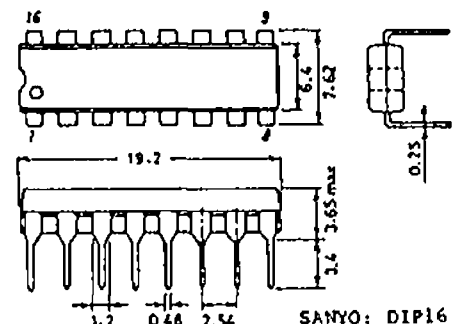
			unit
Recommended Supply Voltage	V_{CC}	6.5 to 14	V
Input Signal Voltage	V_i	200 to 300	mV

Operating Characteristics at $T_a=25^\circ C, V_{CC}=10V, V_i=300mV, f=1kHz, L+R=90\%, \text{pilot}=10\%$

			min	typ	max	unit
See specified Test Circuit.						
Quiescent Current	I_{CCO}			22	28	mA
Channel Separation	Sep		40	50		dB
Monaural Distortion	mono THD	mono=300mV		0.05	0.2	%
Stereo Distortion	ST THD	main		0.05	0.2	%
Lamp Light-up Level	V_L	$L+R=90\%, \text{pilot}=10\%$	50	85	130	mV
Hysteresis	h_y			3	6	dB
Capture Range	CR	pilot=30mV		± 3		%
Output Signal Level	V_O	sub	150	215	300	mV
S/N Ratio	S/N	$R_g=20k\Omega$	68	74		dB
		$R_g=10k\Omega$	65	78		dB

Continued on next page.

Case Outline 3006B-D16IC
(unit:mm)



SANYO: DIP16

The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass produced. The information herein is believed to be accurate and reliable. However, no responsibility is assumed by SANYO for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

Specifications and information herein are subject to change without notice.

SANYO Electric Co., Ltd. Semiconductor Business Headquarters

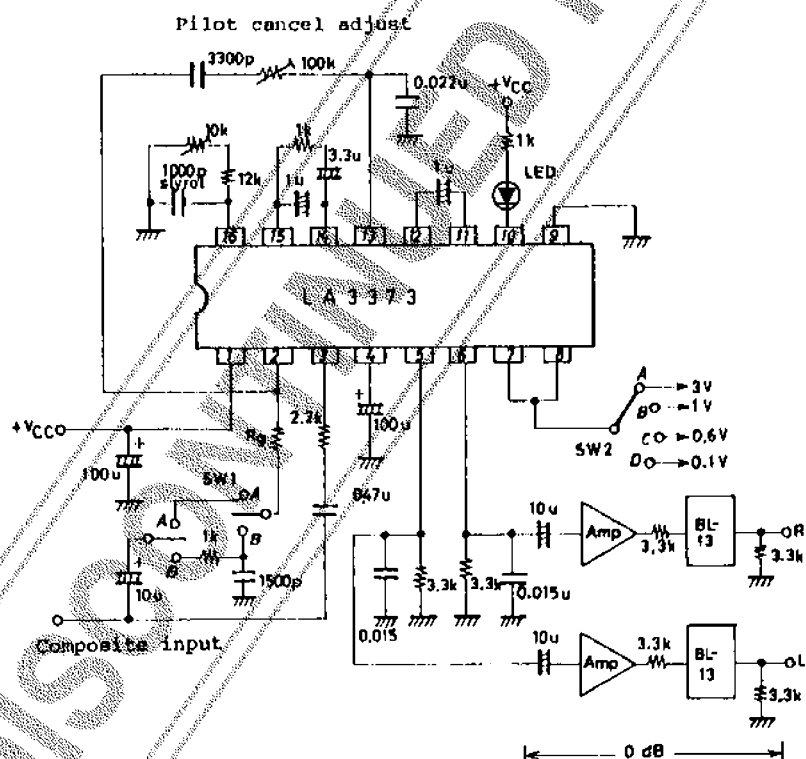
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

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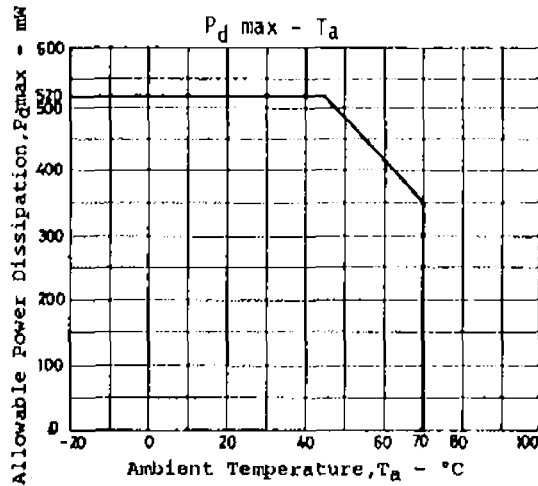
			min	typ	max	unit
Input Resistance (Pin 3)	r_i			20		kohm
SCA Rejection	SCA_{rej}			80		dB
Allowable Input Voltage	v_i	THD=1%, $R_g=20k\Omega$	700	900		mV
		THD=1%, $R_g=10k\Omega$		450		mV
SNC Output Attenuation	A_{ttSNC}	$V_g=0.6V, L-R=90\%$, pilot=10%	-8.5	-3.0	-0.3	dB
SNC Output Voltage	$v_{O sub}$	$V_g=0.1V, L-R=90\%$, pilot=10%			5	mV
HCC Output Attenuation	$A_{ttHCC(1)}$	$V_7=0.6V, L+R=90\%$, pilot=10%	-15.0	-6.0	-0.5	dB
	$A_{ttHCC(2)}$	$V_7=1V, L+R=90\%$, pilot=10%	-2.0		0	dB
Power Supply Ripple Rejection	R_r			35		dB
VCO Stop Voltage	VCO stop			7.3		V
Channel Balance	CH Ba			0.5	1.5	dB
Pilot Cancel	CLp		20	27		dB

Test Circuit

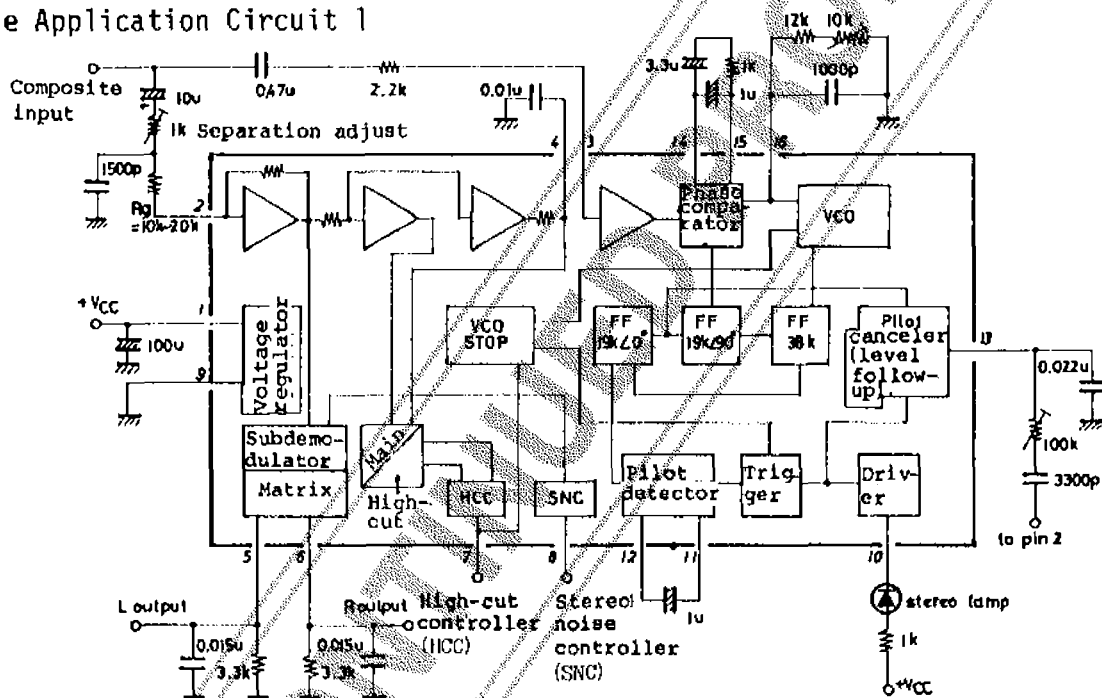


Bandwidth : 100kHz, gain $\approx$ 10dB,
distortion : 0.01% or less,
input impedance : 330kohms or more

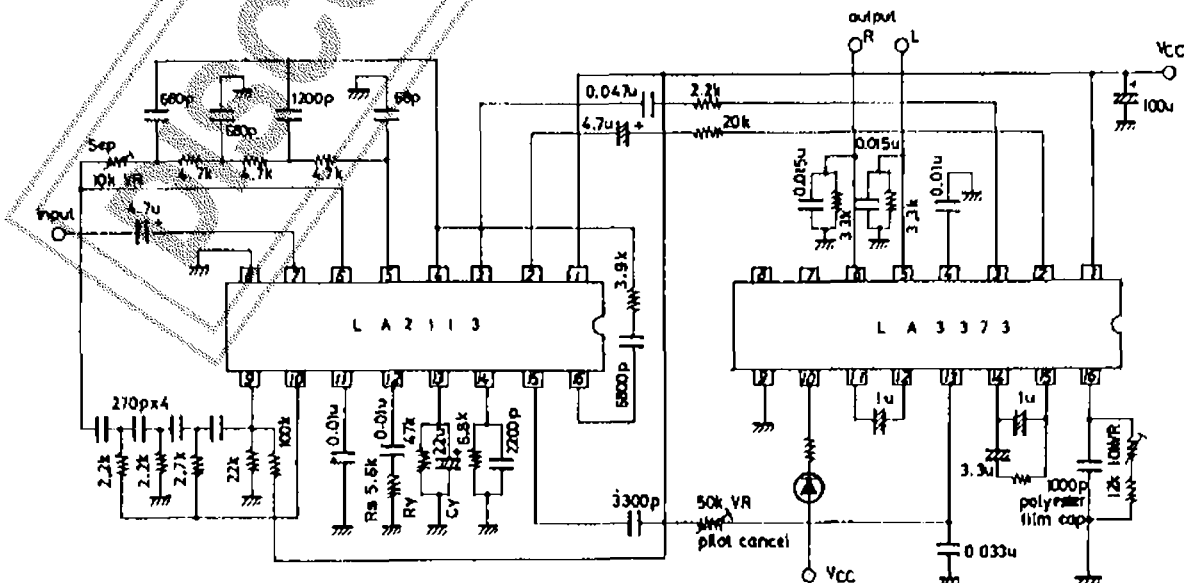
- * SW-1 : Set to A for test of characteristics other than separation.
- * SW-2 : Set to A for test of characteristics other than HCC, SNC.



Sample Application Circuit 1



Sample Application Circuit 2 : Sample circuit for LA2113 and LA3373



Proper cares in using sample application circuits

1. Adjust separation with 10kohm variable resistor in low-pass filter.
2. Adjust R_g for noise detect sensitivity in strong to medium electric fields. Set at an adequate value.
3. Adjust noise AGC with C_y , R_y so that noise suppression in medium to weak electric fields is attained effectively.
4. Adjust pilot cancel with 50kohm variable resistor connected to pin 15 of the LA2113.
5. By varying the value of 1uF capacitor connected across pins 11 and 12 of the LA3373, response speed for pilot cancel to follow up level is varied. However, decreasing the value causes distortion to worsen.
6. Pilot cancel adjust

Sample application circuit 2 is taken as an example. Assume input signal consists of pilot signal alone. Connect an oscilloscope and a vacuum tube voltmeter to pin 2 of the LA2113. Set their ranges as V : 200mV/div AC, H : 20usec/div.

If waveform on the oscilloscope is



turn pilot cancel control so that waveform becomes as shown below.



Then, adjust pilot cancel variable resistor so that the reading on the vacuum tube voltmeter is minimized.

In applications where the LA3373 alone is used (Sample application circuit 1), use a vacuum tube voltmeter with 19kHz B.P.F. connected. Connect a probe of 19kHz B.P.F. to L output and R output and adjust pilot cancel variable resistor so that carrier leak level at output pins (pins 5, 6) is minimized.

*For applications and characteristics of the LA3373/LA2113, refer to the catalog of the LA2110.

: For detailed description and data, refer to the catalog of the LA3375.

DISCONTINUED