

**SANYO**

No.2720A

**LA3430M**

## PLL FM MPX Stereo Demodulator with Pilot Canceler for Car Stereo Use

The LA3430M (MFP-16 package version of LA3430) is an MPX IC for FM car stereo use. It contains the VCO non-adjusting function, skip noise eliminating function, and pilot cancel function.

### Functions

- VCO non-adjusting function
- Pilot cancel function (Level follow-up type)
- Stereo noise control function (SNC function)
- High cut control function (HCC function)
- Stereo - monaural automatic select (Pilot input prioritized)
- VCO oscillation stop function
- Forced monaural function for reception mode (Stereo lamp unlighted, pilot cancel function and HCC function held).

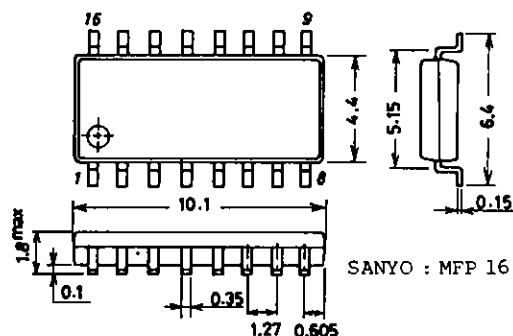
This function is provided by disconnecting pin 14 from V<sub>CC</sub>.

How to provide forced monaural mode at stereo reception	Lamp	HCC	Pilot cancel
Pin 12 GND	Lighted	○	○
7.3V or greater applied to pin 11	Unlighted	×	×
Pin 15 GND	Unlighted	○	×
Pin 14 disconnected	Unlighted	○	○

### Features

- Non-adjusting VCO : Eliminates the need to adjust free-running frequency.
- VCO is stable to ambient temperature changes :  $\pm 0.1$  to  $0.15\%$  for  $\pm 50^\circ\text{C}$  change
- Low distortion ( $0.07\%$  typ. /  $300\text{mV}$  input mono)
- Good ripple rejection of power supply ( $35\text{dB}$  typ.)
- Wide operating voltage range ( $V_{CC} = 6.5$  to  $12\text{V}$ )

### Package Dimensions (unit: mm)



LA3430M

Maximum Ratings at Ta = 25°C

			unit
Maximum Supply Voltage	V <sub>CC</sub> max	16	V
Lamp Driving Current	I <sub>L</sub> max	30	mA
Allowable Power Dissipation	P <sub>d</sub> max	485	mW
Operating Temperature	T <sub>opr</sub>	-20 to +70	°C
Storage Temperature	T <sub>stg</sub>	-40 to +125	°C

Operating Conditions at Ta = 25°C

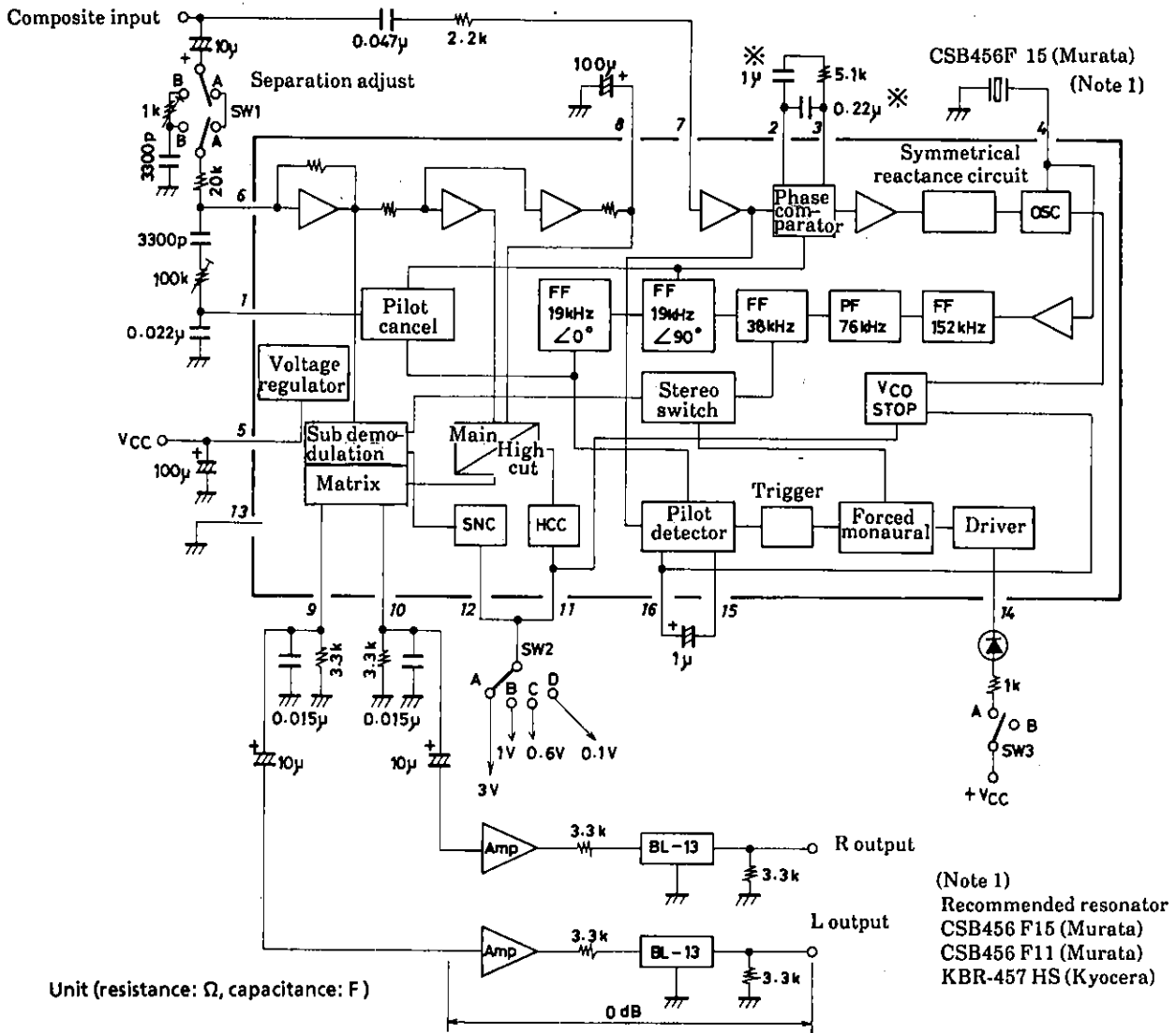
			unit
Recommended Supply Voltage	V <sub>CC</sub>	10	V
Operating Voltage Range	V <sub>CC</sub> op	6.5 to 12	V
Recommended Input Signal Voltage	V <sub>i</sub>	200 to 300	mV

Operating Characteristics at Ta = 25°C, V<sub>CC</sub> = 10V, V<sub>i</sub> = 300mV, f = 1kHz, L + R = 90%, pilot = 10%

			min	typ	max	unit
Quiescent Current	I <sub>cco</sub>	No input		28	38	mA
Channel Separation	Sep		40	50		dB
Total Harmonic Distortion	THD	Monaural		0.07	0.2	%
		Main		0.07	0.2	%
Lamp Lighting Level	V <sub>L</sub>	L + R = 90%, pilot = 10%	50	85	120	mV
Lamp Hysteresis	h <sub>y</sub>			2	6	dB
Capture Range	CR			±1		%
Output Signal Level	V <sub>o</sub>	sub	150	215	300	mV
Signal to Noise Ratio	S/N	R <sub>g</sub> = 20kΩ	68	74		dB
		R <sub>g</sub> = 10kΩ	70	78		dB
Input Resistance (Pin 6)	r <sub>i</sub>			20		kΩ
SCA Rejection	SCA rej			80		dB
Allowable Input Voltage	V <sub>i</sub>	THD = 1%, R <sub>g</sub> = 20kΩ	700	900		mV
		THD = 1%, R <sub>g</sub> = 10kΩ		450		mV
SNC Output Attenuation	Att <sub>SNC</sub>	V <sub>12</sub> = 0.6V, L - R = 90%, pilot = 10%	-8.5	-3.0	-0.3	dB
SNC Output Voltage	V <sub>o</sub> sub	V <sub>12</sub> = 0.1V, L - R = 90%, pilot = 10%			5	mV
HCC Output Attenuation	Att <sub>HCC(1)</sub>	V <sub>11</sub> = 0.6V, L + R = 90%, pilot = 10%	-15.0	-6.0	-0.5	dB
	Att <sub>HCC(2)</sub>	V <sub>11</sub> = 1V, L + R = 90%, pilot = 10%	-2.0		0	dB
Ripple Rejection of Power Supply	R <sub>r</sub>			35		dB
VCO Stop Voltage				7.3		V
Channel Balance				0.5	1.5	dB
Pilot Cancel			16	23		dB
Stereo Lamp Current		Minimum stereo operating current	1.0			mA
Saturation Voltage (Pin 14)		I <sub>L</sub> = 10mA		1.0		V

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## Test Circuit and Internal Equivalent Block Diagram



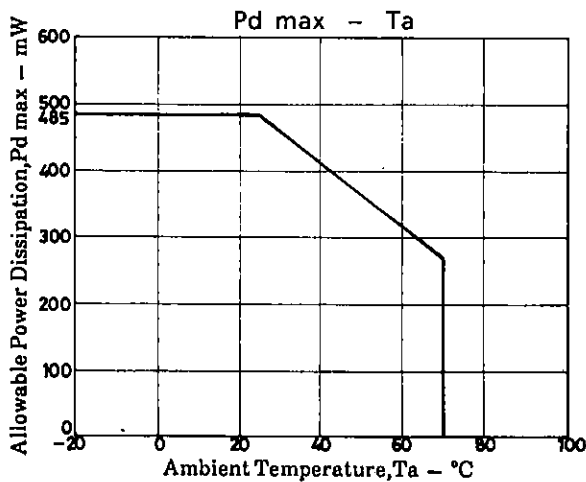
※ : When a polarized electrolytic capacitor is used in your application, the positive pole may be connected to either pin 2 or pin 3.

SW1: For characteristics other than separation, place in the A position.

SW2: For characteristics other than HCC, SNC, place in the A position.

SW3: Forced monaural of reception mode

Amp: Bandwidth 100kHz or greater, THD = 0.01% or less, input impedance 330k $\Omega$  or greater



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