Ordering number : EN2720B

SANYO Semiconductors
DATA SHEET

Monolithic Linear IC

LA3430M — With Pilot Canceler For Car Stereo Use PLL FM MPX Stereo Demodulator

Overview

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_{CC}.

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 freerunning frequency.
- VCO is stable to ambient temperature changes : ±0.1 to 0.15% for ±50°C change.
- Low distortion (0.07% typ./300mV input mono).
- Good ripple rejection of power supply (35dB typ.).
- Wide operating voltage range (V_{CC} = 6.5 to 12V).

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum Supply Voltage	V_{CC} max		16	V
Lamp Driving Current	I_L max		30	mA
Allowable Power Dissipation	Pd max		485	mW
Operating Temperature	Topr		–20 to +70	°C
Storage Temperature	Tstg		–40 to +125	°C

Operating Conditions at Ta = 25°C

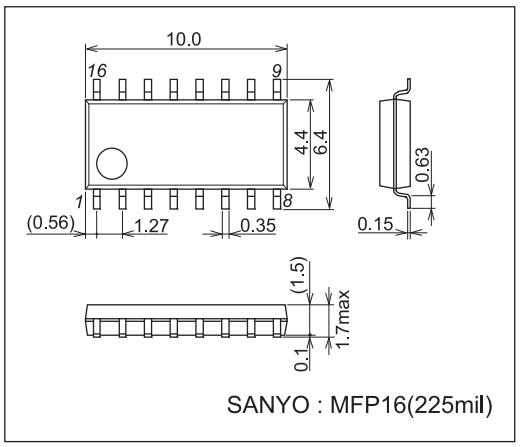
Parameter	Symbol	Conditions	Ratings	Unit
Recommended Supply Voltage	V_{CC}		10	V
Operating Voltage Range	V_{CC} op		6.5 to 12	V
Recommended Input Signal Voltage	Vi		200 to 300	mV

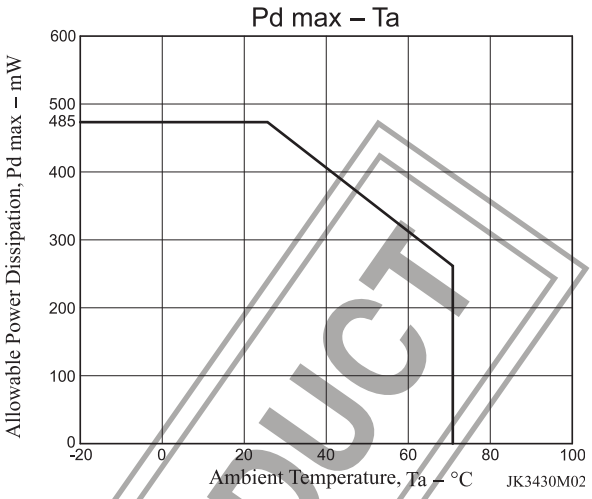
Electrical Characteristics at Ta = 25°C, V_{CC} = 10V, Vi = 300mV, f = 1kHz, L+R = 90%, pilot = 10%

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent Current	I_{CCO}	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_L	L+R = 90%, pilot = 10%	50	85	120	mV
Lamp Hysteresis	hy			2	6	dB
Capture Range	C_R			±1		%
Output Signal Level	V_O	Sub	150	215	300	mV
Signal to Noise Ratio	S/N	Rg = 20KΩ	68	74		dB
		Rg = 10KΩ	70	78		dB
Input Resistance (Pin 6)	ri			20		KΩ
SCA Rejection	SCA rej			80		dB
Allowable Input Voltage	Vi	THD = 1%, Rg = 20KΩ	700	900		mV
		THD = 1%, Rg = 10KΩ		450		mV
SNC Output Attenuation	Att SNC	V_{12} = 0.6V, L–R = 90%, pilot = 10%	–8.5	–3.0	–0.3	dB
SNC Output Voltage	V_O sub	V_{12} = 0.1V, L–R = 90%, pilot = 10%			5	mV
HCC Output Attenuation	Att HCC1	V_{11} = 0.6V, L+R = 90%, pilot = 10%	–15.0	–6.0	–0.5	dB
	Att HCC2	V_{11} = 1V, L+R = 90%, pilot = 10%	–2.0		0	dB
Ripple Rejection of Power Supply	Rr			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_L = 10mA		1.0		V

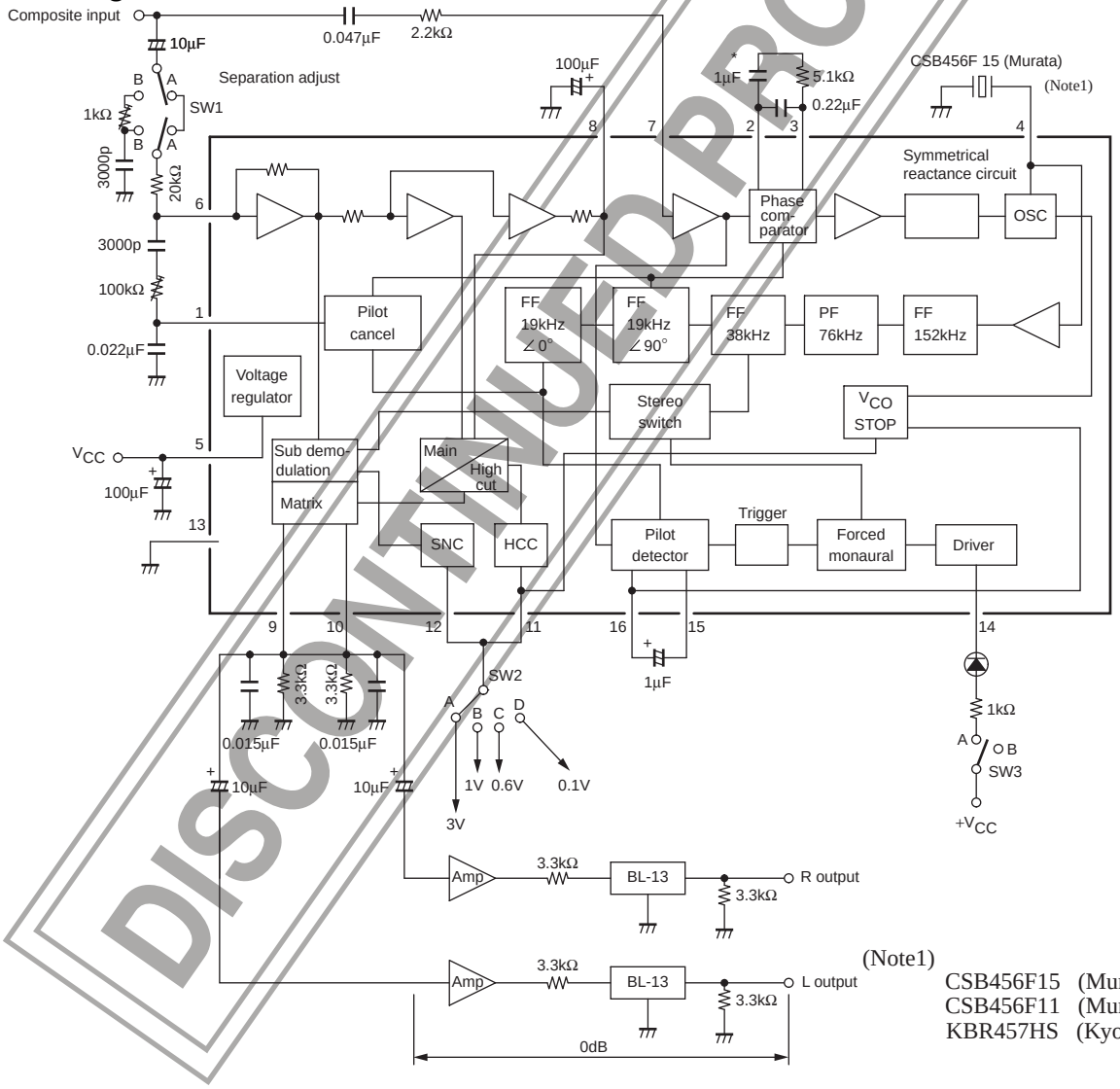
Package Dimensions

unit : mm (typ)
3035B





Block Diagram and Test Circuit



* : 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 330kΩ or greater.

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