



SANYO Semiconductors

DATA SHEET

LA3430M

Monolithic Linear IC
 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 VCC.

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 $\pm 50^\circ\text{C}$ 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).

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LA3430M

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum Supply Voltage	$V_{CC\text{ max}}$		16	V
Lamp Driving Current	$I_L\text{ max}$		30	mA
Allowable Power Dissipation	$P_d\text{ max}$		485	mW
Operating Temperature	T_{opr}		-20 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}		-40 to +125	$^\circ\text{C}$

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

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

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

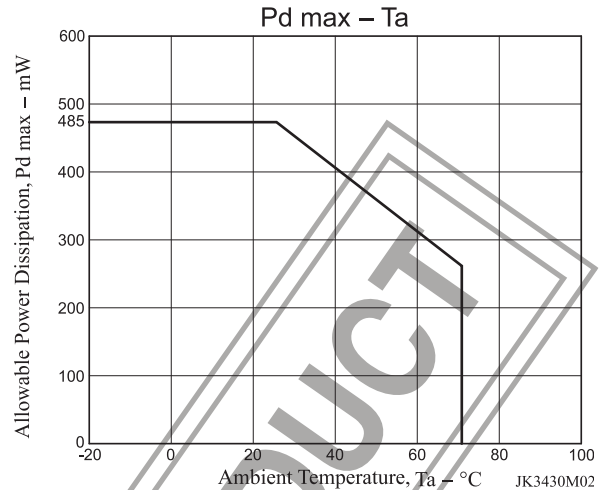
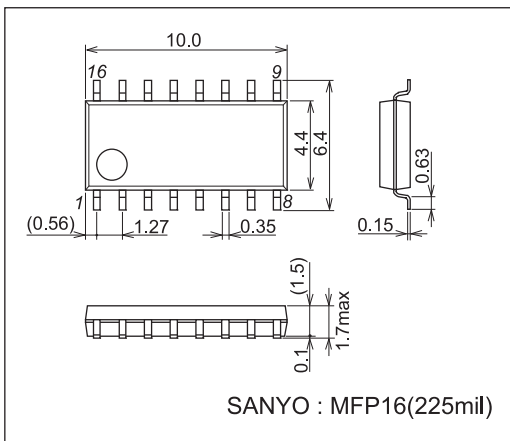
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent Current	I_{CCO}	No input		28	38	mA
Channel Separation	Sep		40	50		dB
Total Harmonic Distortion	THD	Monaural		0.07	0.2	%
		Main		0.07	0.2	%
Lamp Lighting Level	V_L	$L+R = 90\%$, $\text{pilot} = 10\%$	50	85	120	mV
Lamp Hysteresis	hy			2	6	dB
Capture Range	C_R			± 1		%
Output Signal Level	V_O	Sub	150	215	300	mV
Signal to Noise Ratio	S/N	$R_g = 20\text{K}\Omega$	68	74		dB
		$R_g = 10\text{K}\Omega$	70	78		dB
Input Resistance (Pin 6)	r_i			20		$\text{K}\Omega$
SCA Rejection	SCA rej			80		dB
Allowable Input Voltage	V_i	THD = 1%, $R_g = 20\text{K}\Omega$	700	900		mV
		THD = 1%, $R_g = 10\text{K}\Omega$		450		mV
SNC Output Attenuation	Att SNC	$V_{12} = 0.6\text{V}$, $L-R = 90\%$, $\text{pilot} = 10\%$	-8.5	-3.0	-0.3	dB
SNC Output Voltage	$V_{O\text{ sub}}$	$V_{12} = 0.1\text{V}$, $L-R = 90\%$, $\text{pilot} = 10\%$			5	mV
HCC Output Attenuation	Att HCC1	$V_{11} = 0.6\text{V}$, $L+R = 90\%$, $\text{pilot} = 10\%$	-15.0	-6.0	-0.5	dB
	Att HCC2	$V_{11} = 1\text{V}$, $L+R = 90\%$, $\text{pilot} = 10\%$	-2.0		0	dB
Ripple Rejection of Power Supply	R_r			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)		$I_L = 10\text{mA}$		1.0		V

LA3430M

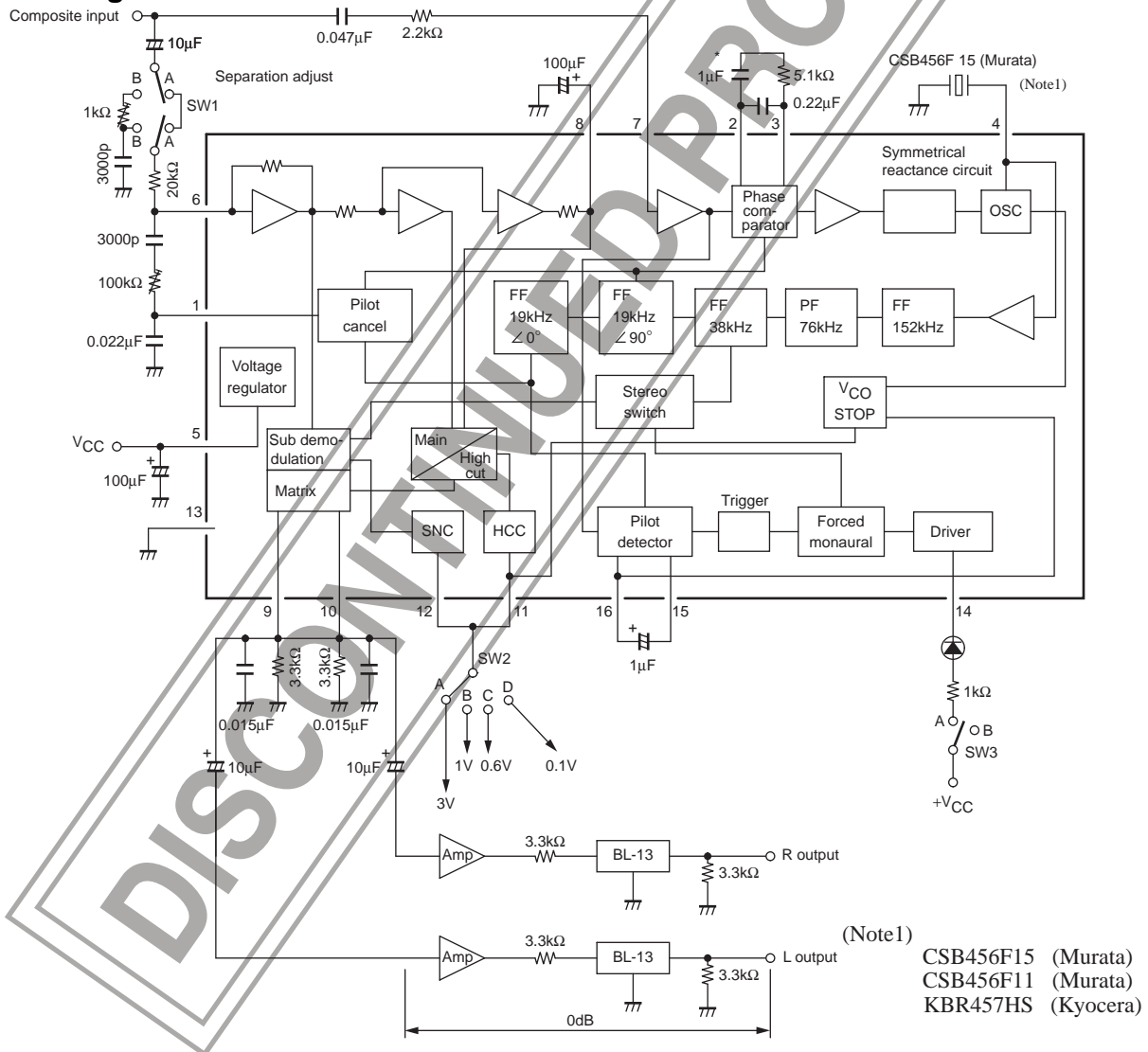
Package Dimensions

unit : mm (typ)

3035B



Block Diagram and Test Circuit



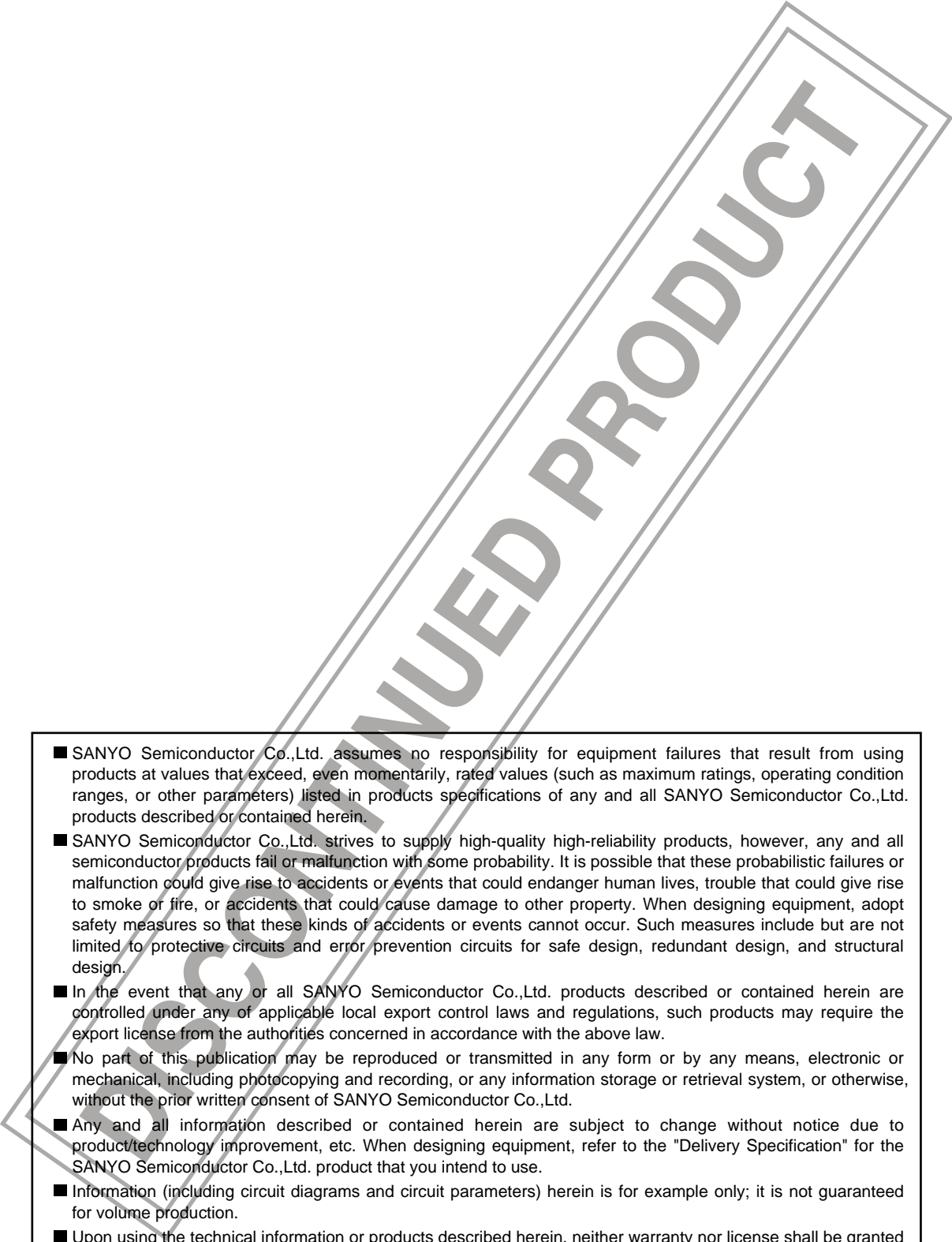
* : When a polarized electrolytic capacitor is used in your application, the positive pole may be connected to either pin 2 or pin 3.

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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