


Monolithic Linear IC

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|---|----------|--|
|  | No.2720A | <h1>LA3430M</h1> <p>PLL FM MPX Stereo Demodulator with Pilot Canceler for Car Stereo Use</p> |
| | | |

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).

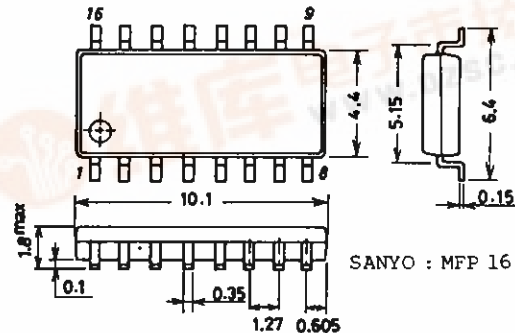
This function is provided by disconnecting pin 14 from V_{CC}.

| 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 free-running 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)

Package Dimensions
(unit: mm)
3035A



LA3430M

Maximum Ratings at Ta = 25°C

| | | | unit |
|-----------------------------|---------------------|-------------|------|
| Maximum Supply Voltage | V _{CC} max | 16 | V |
| Lamp Driving Current | I _L max | 30 | mA |
| Allowable Power Dissipation | P _d max | 485 | mW |
| Operating Temperature | T _{opr} | -20 to +70 | °C |
| Storage Temperature | T _{stg} | -40 to +125 | °C |

Operating Conditions at Ta = 25°C

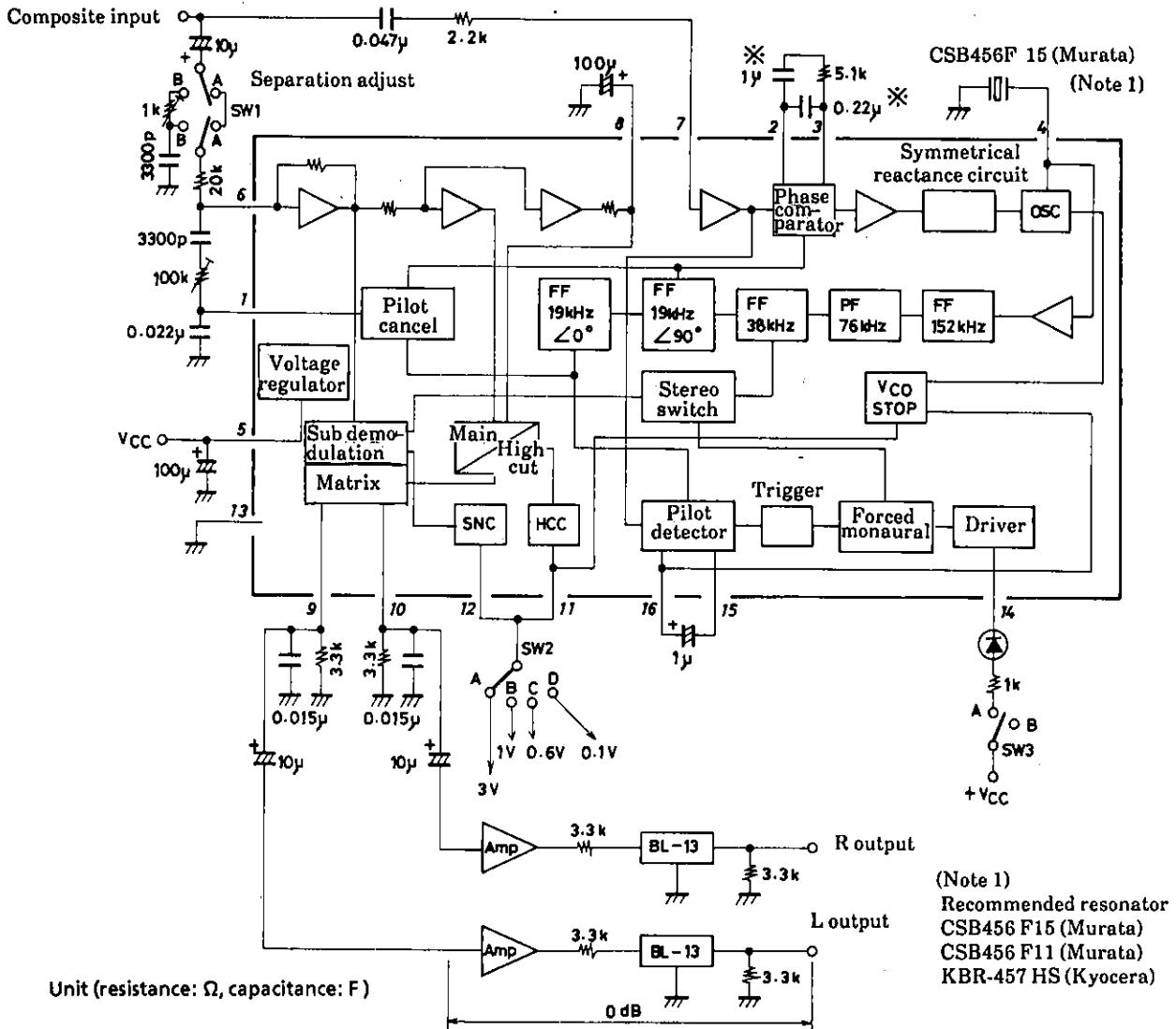
| | | | unit |
|----------------------------------|--------------------|------------|------|
| Recommended Supply Voltage | V _{CC} | 10 | V |
| Operating Voltage Range | V _{CC} op | 6.5 to 12 | V |
| Recommended Input Signal Voltage | V _i | 200 to 300 | mV |

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

| | | | min | typ | max | unit |
|----------------------------------|-----------------------|--|-------|------|------|------|
| 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 | h _y | | | 2 | 6 | dB |
| Capture Range | CR | | | ±1 | | % |
| Output Signal Level | V _o | sub | 150 | 215 | 300 | mV |
| Signal to Noise Ratio | S/N | R _g = 20kΩ | 68 | 74 | | dB |
| | | R _g = 10kΩ | 70 | 78 | | dB |
| Input Resistance (Pin 6) | r _i | | | 20 | | kΩ |
| SCA Rejection | SCA rej | | | 80 | | dB |
| Allowable Input Voltage | V _i | THD = 1%, R _g = 20kΩ | 700 | 900 | | mV |
| | | THD = 1%, R _g = 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 _{HCC(1)} | V ₁₁ = 0.6V, L + R = 90%, pilot = 10% | -15.0 | -6.0 | -0.5 | dB |
| | Att _{HCC(2)} | V ₁₁ = 1V, L + R = 90%, 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 = 10mA | | 1.0 | | V |

LA3430M

Test Circuit and Internal Equivalent Block Diagram



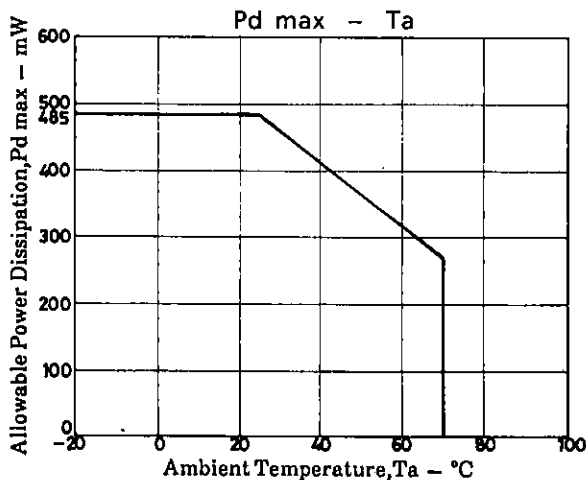
※ : When a polarized electrolytic capacitor is used in your application, the positive pole may be connected to either pin 2 or pin 3.

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 Ω or greater



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