

**LA1806**

AM/FM-IF/MPX Tuner System for Radio-Cassette Recorders, Music Centers

Overview

The LA1806 is a characteristics-improved version of the LA1811, with the same pin assignment and package as those of the LA1811. Improvements are made on the following points:

- Separation (35 dB → 48 dB) and its dependence on free-running frequency (Refer to the separate catalog of the LA1805.)
- FM main distortion (0.8% → 0.45%)
- AM detection output (approximately 5 dB increased)

The constants on five external parts are changed as LA1811

Functions

- FM-IF: IF amplifier quadrature detector, soft muting, tuning indicator
- MPX: PLL stereo decoder, stereo indicator, forced monaural, VCO stop
- AM: RF amplifier, MIX, OSC (with ALC), IF amplifier, detector, AGC, tuning indicator

Features

- FM/AM/MPX functions contained on a single chip
- Minimum number of external parts required
- On-chip FM muting function
- High sensitivity
- Less carrier leak of MPX

Specifications

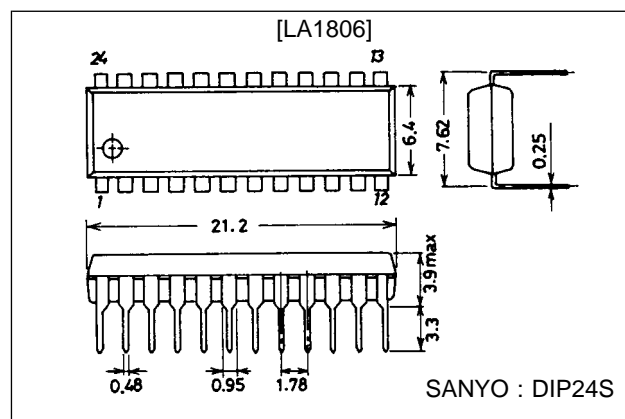
Maximum Ratings at $T_a = 25^\circ\text{C}$, See specified Test Circuit

| Parameter | Symbol | Conditions | Ratings | Unit |
|--|----------------------|-----------------------------|-------------|------------------|
| Maximum supply voltage | $V_{CC \text{ max}}$ | Pins 3, 7, 8, 11, 20, 21 | 9 | V |
| Maximum supply current | $I_{CC \text{ max}}$ | Pins 3 + 20 + 21 | 50 | mA |
| Flow-in current (Indicator drive current) | I_{LED} | Pins 7, 8 | 20 | mA |
| Flow-out current | I_{23} | Pin 23 | 0.1 | mA |
| Allowable power dissipation | $P_d \text{ max}$ | $T_a \leq 70^\circ\text{C}$ | 500 | mW |
| Operating temperature | T_{opr} | | -20 to +70 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | | -40 to +125 | $^\circ\text{C}$ |

Package Dimensions

unit : mm

3067-DIP24S



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Operating Conditions at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|----------------------------|-------------------|------------|------------|------|
| Recommended supply voltage | V _{CC} | | 4.5 | V |
| Operating voltage range | V _{CCOP} | | 3.0 to 8.0 | V |

* The FM output level forms an N curve (LA1805) and an S curve (LA1806).

LA1805: N curve (for US band)

LA1806: S curve (for Japanese band). Since an output load resistor is connected to pins 9, 10 externally, your desired output level can be set by varying the output resistance.

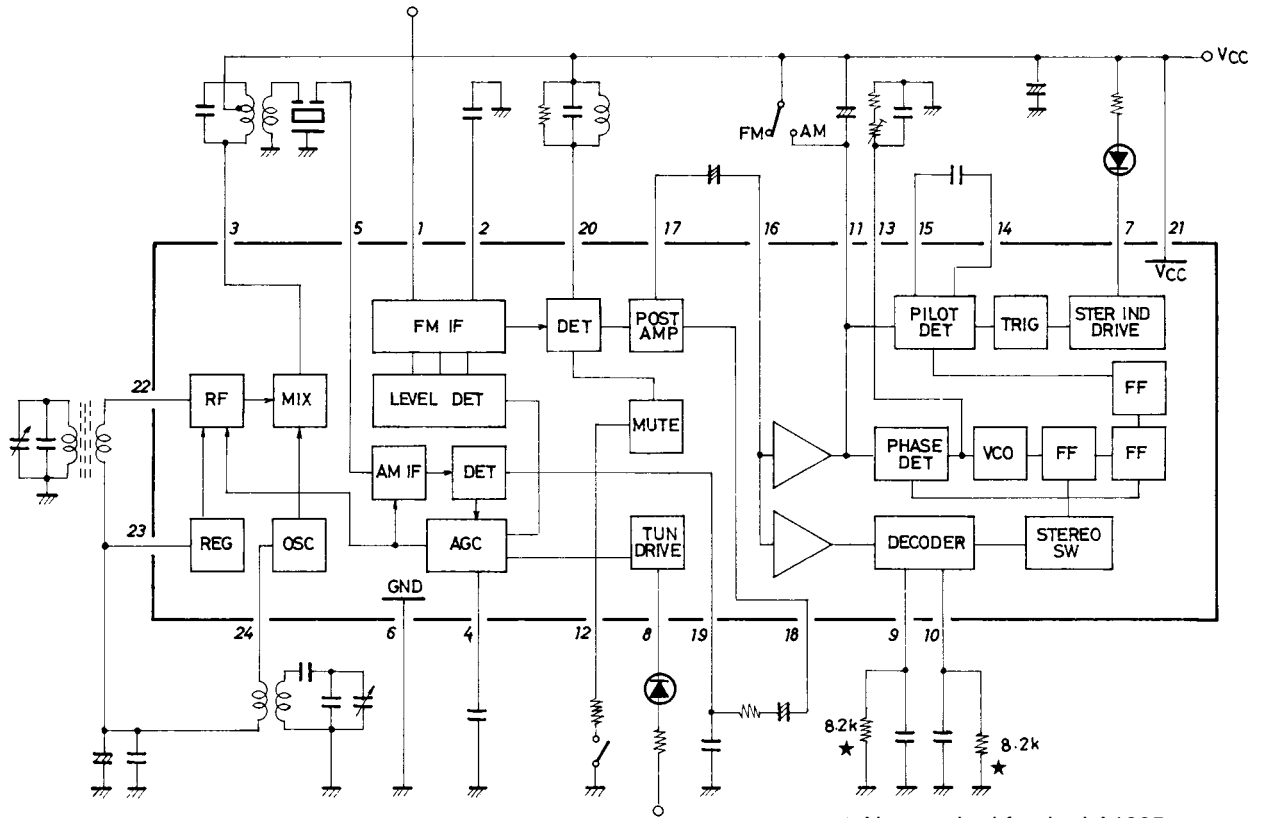
Operating Characteristics at Ta = 25°C, V_{CC} = 4.5 V, See specified Test Circuit.

| Parameter | Symbol | Conditions | min | typ | max | Unit |
|--|----------------------|---|-----|------|------|------|
| FM characteristics (Mono): f _c = 10.7 MHz, f _m = 1 kHz | | | | | | |
| Quiescent current | I _{CCO} | No input | | 13 | 20 | mA |
| -3 dB sensitivity | -3dBLS. | Referenced to V _{IN} = 100 dBμ, 100%, down 3 dB | | 28 | 35 | dBμ |
| Demodulation output | V ₀ | V _{IN} = 100 dBμ, 100% mod. | 154 | 226 | 308 | mV |
| Channel balance | C.B. | V _{IN} = 100 dBμ, 100% mod. | 0 | 0 | 1.5 | dB |
| Total harmonic distortion | THD | V _{IN} = 100 dBμ, 100% mod. | | 0.45 | 1.2 | % |
| Signal to noise ratio | S/N | V _{IN} = 100 dBμ, 100% mod. | 70 | 80 | | dB |
| LED ON sensitivity | V _{LED} | I _L = 1 mA | 23 | 33 | 43 | dBμ |
| FM Characteristics (Stereo) : f _c = 10.7 MHz, f _m = 1 kHz, L + R = 90%, pilot = 10%, V _{IN} = 100 dBμ | | | | | | |
| Separation | Sep | | 32 | 48 | | dB |
| Stereo distortion | THD (MAIN) | | | 0.45 | 1.2 | % |
| LED ON level | V _{LED-on} | | 2.4 | 3.9 | 5.4 | % |
| LED OFF level | V _{LED-off} | | | 2.7 | | % |
| AM Characteristics: f _c = 1000 kHz, f _m = 1 kHz | | | | | | |
| Quiescent current | I _{CCO} | No input | | 9.5 | 14.5 | mA |
| Detection output | V _{O1} | V _{IN} = 23 dBμ, 30% mod. | 29 | 54 | 97 | mV |
| | V _{O2} | V _{IN} = 80 dBμ, 30% mod. | 78 | 126 | 193 | mV |
| Signal to noise ratio | S/N1 | V _{IN} = 23 dBμ, 30% mod. | 17 | 21 | | dB |
| | S/N2 | V _{IN} = 80 dBμ, 30% mod. | 50 | 55 | | dB |
| Total harmonic distortion | THD1 | V _{IN} = 80 dBμ, 30% mod. | | 0.45 | 1.2 | % |
| | THD2 | V _{IN} = 100 dBμ, 30% mod. | | 0.6 | 1.5 | % |
| LED ON sensitivity | V _{LED} | I _L = 1 mA Note : Be fully careful of dielectric breakdown. | 16 | 24 | 32 | dBμ |

Note : For further details, refer to the separate catalog of the LA1805.

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Equivalent Circuit Block Diagram

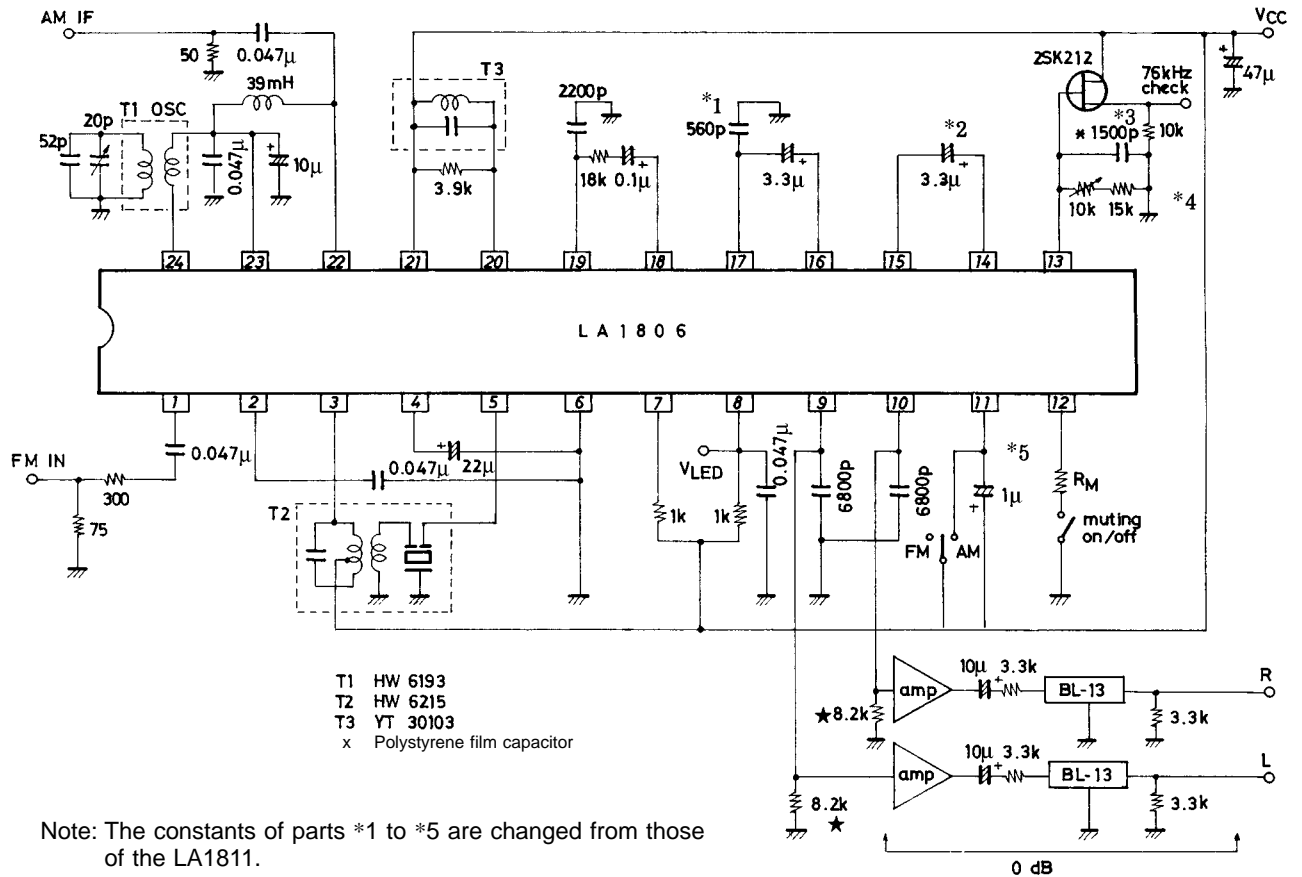


★:Not required for the LA1805

Unit (resistance: Ω)

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Test Circuit



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