

**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

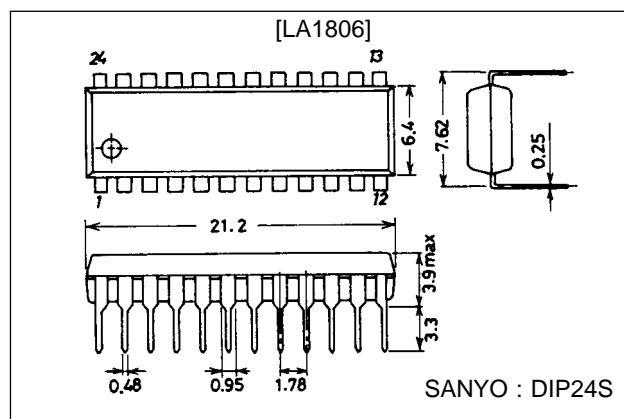
Maximum Ratings at  $T_a = 25^\circ\text{C}$ , See specified Test Circuit

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



## LA1806

### Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>CC</sub>		4.5	V
Operating voltage range	V <sub>CCOP</sub>		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.

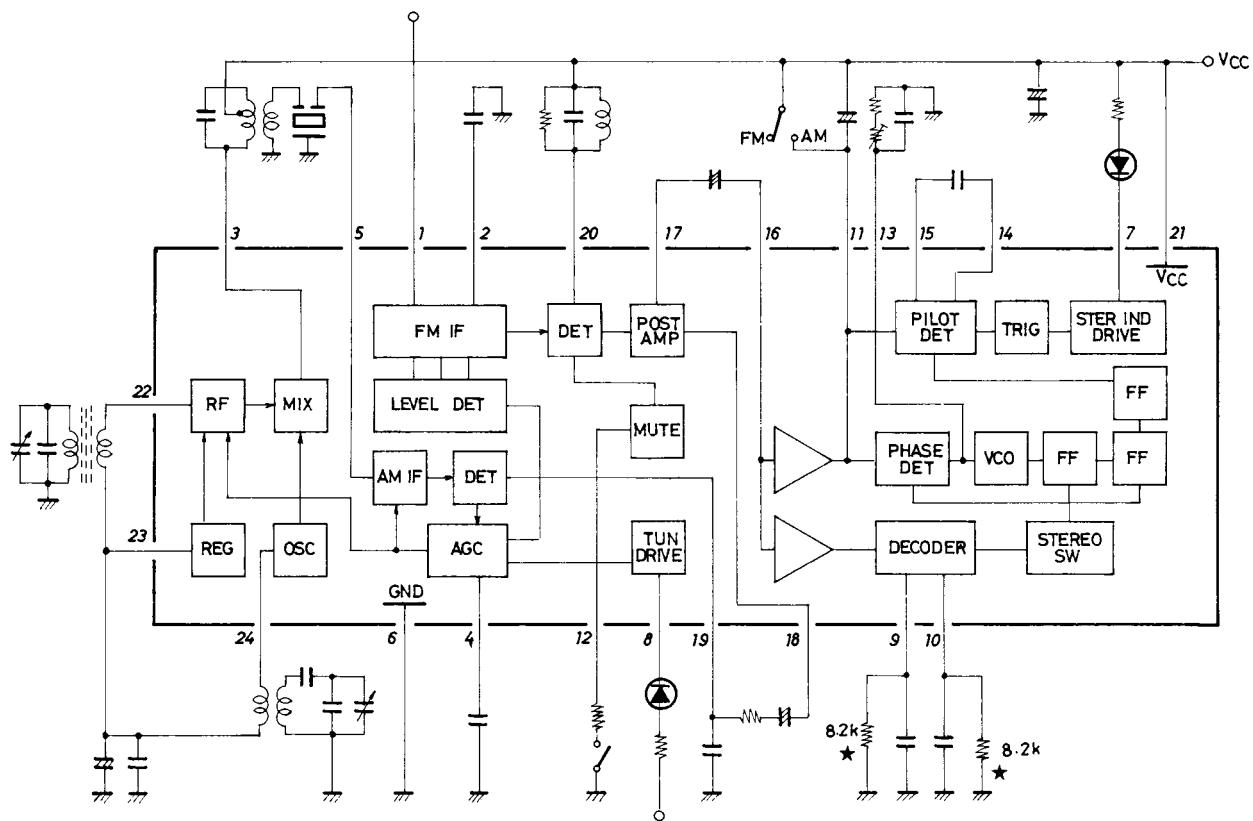
### Operating Characteristics at Ta = 25°C, V<sub>CC</sub> = 4.5 V, See specified Test Circuit.

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

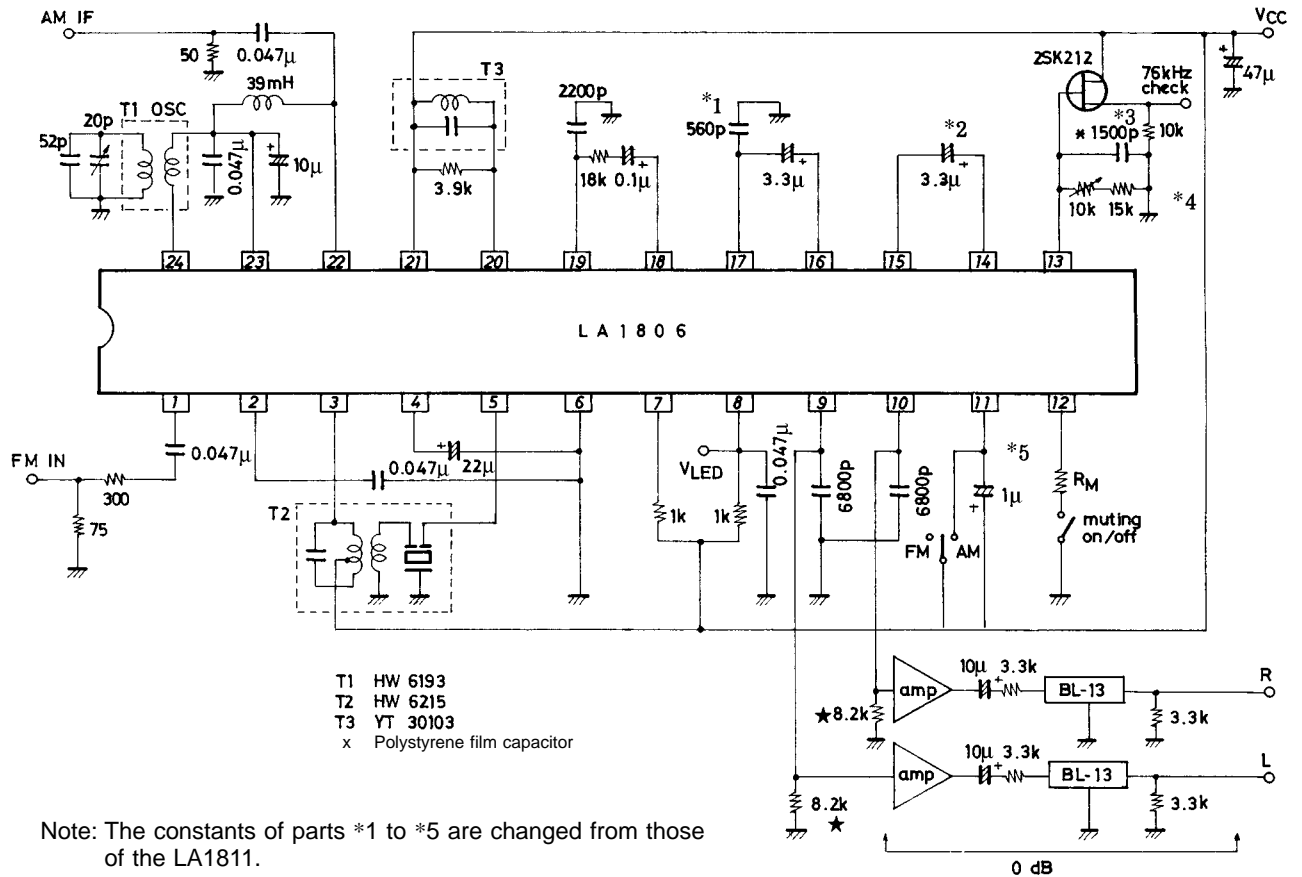


★:Not required for the LA1805

Unit (resistance:  $\Omega$ )

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## Test Circuit



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