Ordering number: EN3210A

Monolithic Linear IC

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

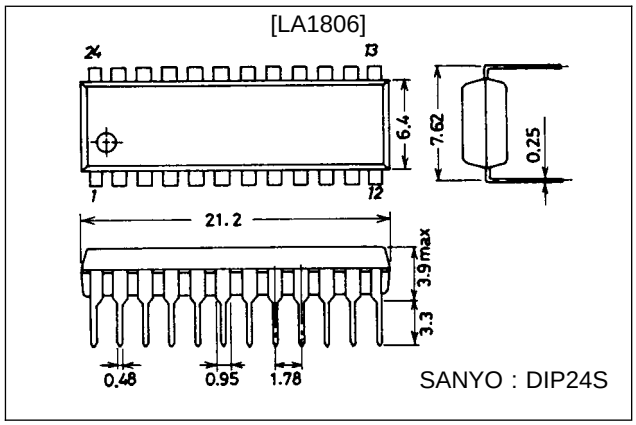
Features

- 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

Package Dimensions

unit : mm

3067-DIP24S



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Specifications

Maximum Ratings at Ta = 25°C, See specified Test Circuit

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	Pins 3, 7, 8, 11, 20, 21	9	V
Maximum supply current	I_{CC} 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	Pd max	Ta≦70°C	500	mW
Operating temperature	Topr		–20 to +70	°C
Storage temperature	Tstg		–40 to +125	°C

Opearating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		4.5	V
Operating voltage range	V_{CC}op		3.0 to 8.0	V

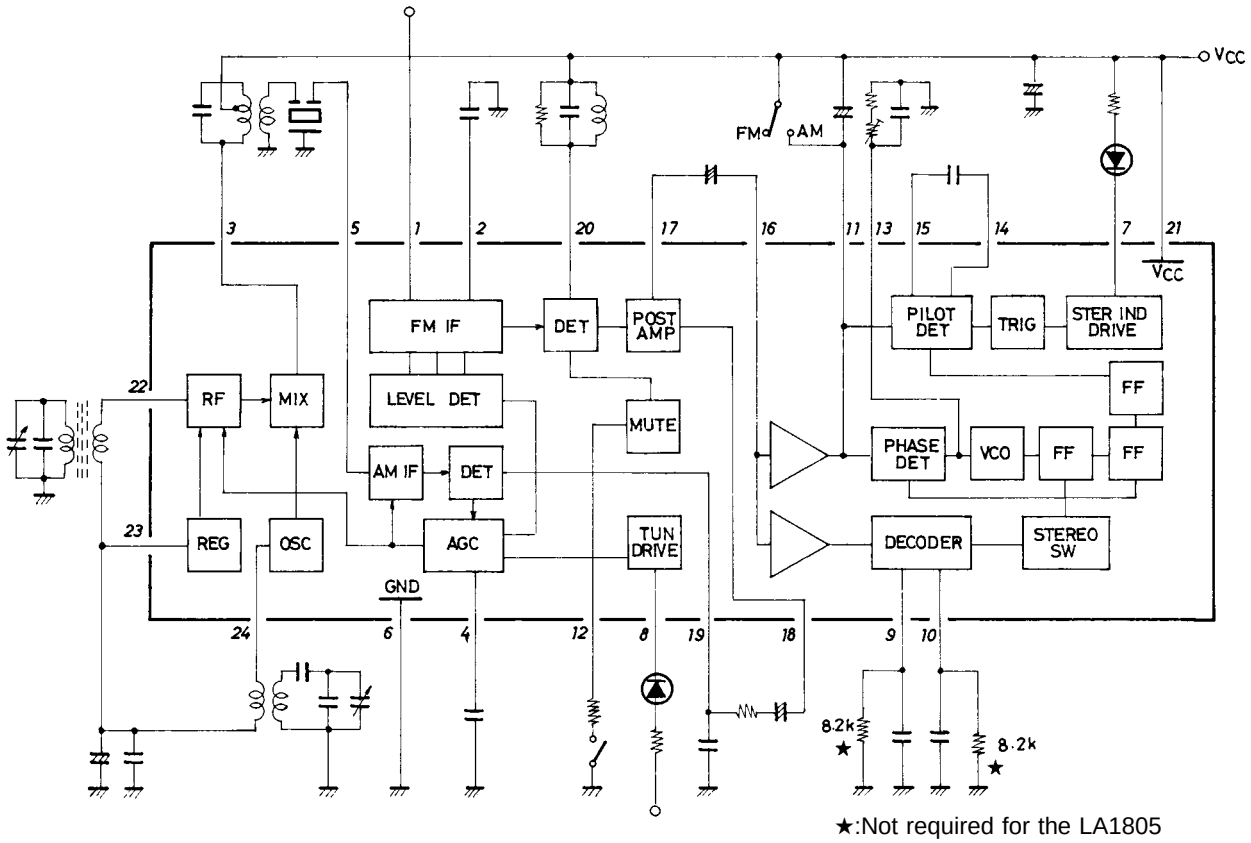
* The FM output level forms an N curve (LA1805) and an S curve (LA1806).
  LA1805: N curve (for US band)
  LA1806: S curve (for Japanese band). Since an output load resistor is connected to pins 9, 10 externally, your desired output level can be set by varrying the output resistance.

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	–3dBL.S.	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.

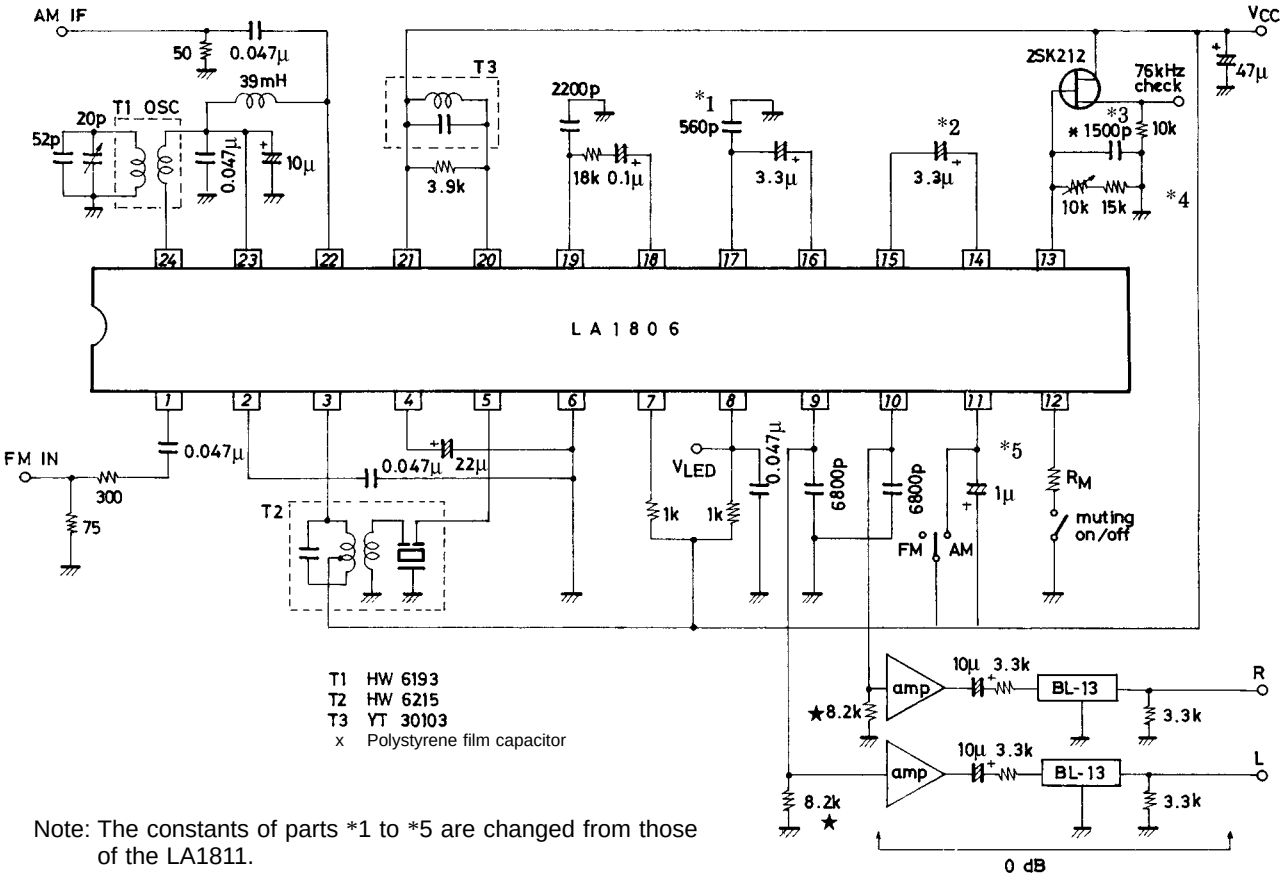
Equivalent Circuit Block Diagram



★:Not required for the LA1805

Unit (resistance: Ω)

Test Circuit



T1 HW 6193
T2 HW 6215
T3 YT 30103
x Polystyrene film capacitor

Note: The constants of parts *1 to *5 are changed from those of the LA1811.

★ :Not required for the LA1805

Unit (resistance: Ω ,capacitance: F)