Monolithic Linear IC

LA1806

SANYO

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 \rightarrow 48 dB) and its dependence on free-running frequency (Refer to the separate catalog of the LA1805.)
- FM main distortion $(0.8\% \rightarrow 0.45\%)$

• 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

Package Dimensions

unit : mm

3067-DIP24S



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

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Specifications

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	

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

Opearating Conditions at Ta = $25^{\circ}C$

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 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): $f_c = f_c$	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	$V_{IN} = 100 \text{ dB}\mu$, 100% mod.	154	226	308	mV
Channel balance	C.B.	$V_{IN} = 100 \text{ dB}\mu$, 100% mod.	0	0	1.5	dB
Total harmonic distortion	THD	$V_{IN} = 100 \text{ dB}\mu$, 100% mod.		0.45	1.2	%
Signal to noise ratio	S/N	$V_{IN} = 100 \text{ dB}\mu$, 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 dB μ				
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: $f_c = 1000 \text{ kH}$	Hz, f _m = 1 kHz					
Quiescent current	Icco	No input		9.5	14.5	mA
Detection output	V _O 1	$V_{IN} = 23 \text{ dB}\mu$, 30% mod.	29	54	97	mV
	V _O 2	$V_{IN} = 80 \text{ dB}\mu$, 30% mod.	78	126	193	mV
Signal to noise ratio	S/N1	$V_{IN} = 23 \text{ dB}\mu$, 30% mod.	17	21		dB
	S/N2	$V_{IN} = 80 \text{ dB}\mu$, 30% mod.	50	55		dB
Total harmonic distortion	THD1	$V_{IN} = 80 \text{ dB}\mu$, 30% mod.		0.45	1.2	%
	THD2	$V_{IN} = 100 \text{ dB}\mu$, 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.





Unit (resistance: Ω)

Test Circuit



Unit (resistance: Ω ,capacitance: F)

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