



LA7172M

UHF Band RF Modulator

Preliminary

Overview

The LA7172M is a monolithic IC for an RF modulator which generates RF TV channel signal in UHF band, from a baseband video and audio signal.

Audio FM carrier is controlled by PLL system and generated without L/C tank.

Features

- 5V operation.
- Less supply current.
- Balanced RF VCO.
- Wide bandwidth.
- PLL controlled and tankless audio FM (4 sound intercarrier frequency capability).
- Small package.
- Package : MFP16.

Functions

- RF VCO.
- Video modulator.
- Sound carrier converter.
- RF buffer.
- Video clamp.
- White clip.
- Audio FM.
- 4V regulator.
- Reference oscillator.
- TSG (test signal generator).

Specifications

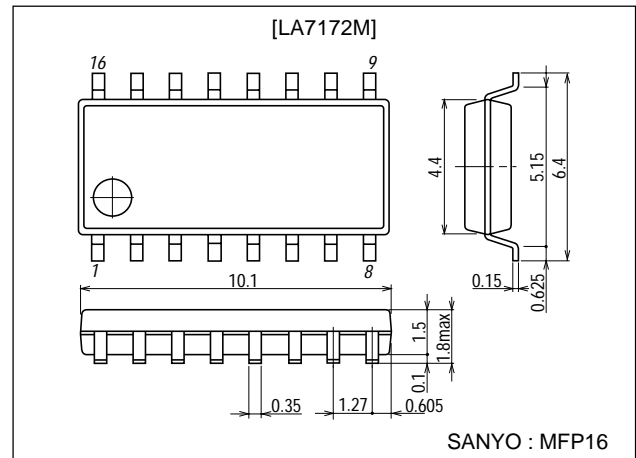
Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		7	V
Allowable power dissipation	Pd max	Ta ≤ 75°C	250	mW
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-55 to +150	°C

Package Dimensions

unit:mm

3035A-MFP16



■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

LA7172

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		5	V
Operating voltage	V _{CC op}		4.5 to 5.5	V

Operating Characteristics at Ta = 25°C, V_{CC}=5V

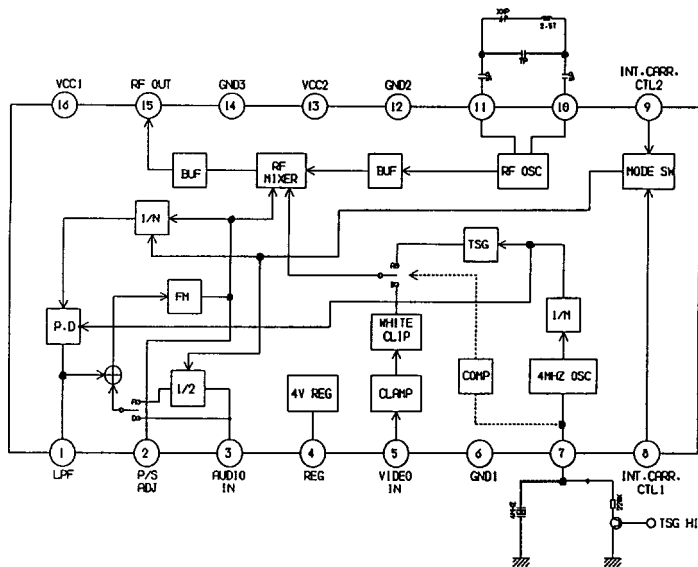
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply current	I _{CC}	No signal	24	30	36	mA
Regulator voltage	V _{reg}	No signal	3.7	3.9	4.1	V
RF output	P	No signal	77	79.5	82	dB _μ
P/S ratio	P/S	S : fp+2×4.5MHz	12.5	15	17.5	dB
Sound 2nd harmonics	P/S2	S2 : fp+2×fs MHz	*	*		dB
Sound 3rd harmonics	P/S3	S3 : fp+3×fs MHz	*	*		dB
Chrominance beat	P/CB	V _{IN5} =fsc, 0.4Vp-p CB : fp+fs-fsc	65	75		dB
Video harmonics	P/V2	V _{IN5} =1MHz, 1Vp-p V2 : fp+2MHz	50	62		dB
Video modulation	Mp	V _{IN5} =Stair step, 1Vp-p	73	80	87	%
White clip level	WCL	V _{IN5} =Stair step, 1.5Vp-p	88	93	98	%
Differential gain	DG	V _{IN5} =Stair step, 1Vp-p	-5		5	%
Differential phase	DP	V _{IN5} =Stair step, 1Vp-p	-6		6	Deg
TSG modulation	Mp TSG	V7 : high	70	80	90	%
TSG VS ratio	V/S	V7 : high, video/sync.	6.3/3.7	6.8/3.2	7.3/2.7	
TSG period	TS	V7 : high	63.7	64.0	64.3	μs
TSG sync. width	HS	V7 : high	3.6	4.0	4.4	μs
TSG white width	H _v	V7 : high	3.6	4.0	4.4	μs
TSG 1st white rise	TV1	V7 : high, width between sync. and 1st white rise	22	24	26	μs
TSG 2nd white rise	TV2	V7 : high, width between sync. and 2nd white rise	38	40	42	μs
Audio FM modulation	MsFM	V _{IN3} =1kHz, 1.66Vp-p ±50kHzDEV : 100%	90	100	110	%
Max audio modulation	Msmx	THD<3%	400			%
Audio FM THD	THD FM	V _{IN3} =1kHz, 1Vp-p		0.5	2	%
Audio FM S/N	S/N FM	V _{IN3} =1kHz, 1Vp-p, V _{IN5} =color bar, 1Vp-p	43	55		dB

* : TBD

Note

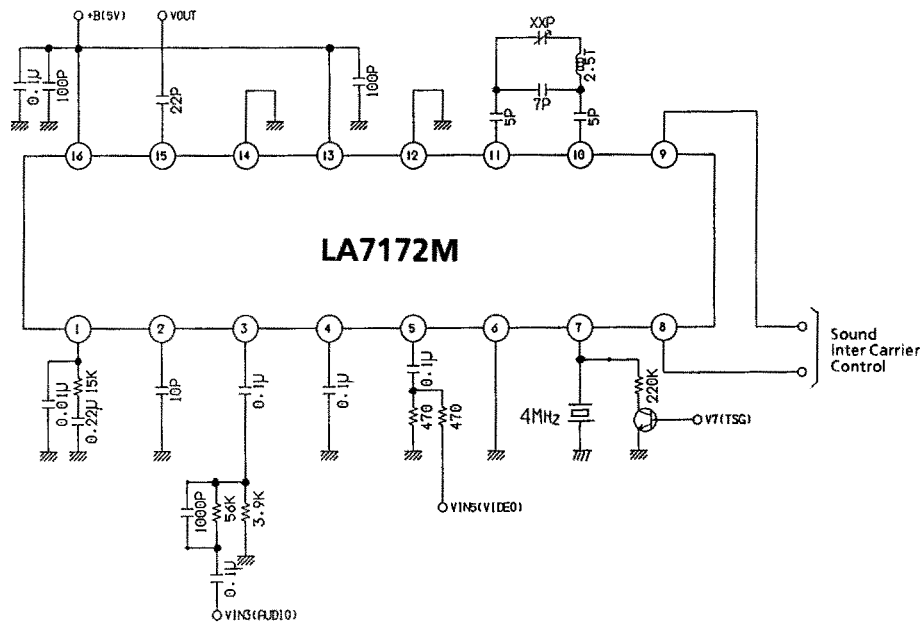
fp : picture RF carrier, fs : sound intercarrier (B/G 5.5MHz), fsc : sub carrier (4.43MHz)

Equivalent Circuit Block Diagram



LA7172M

Sample Application Circuit



Unit (resistance : Ω , capacitance : F)

- Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of April, 2000. Specifications and information herein are subject to change without notice.