



SANYO Semiconductors

DATA SHEET

LA79600GP — Monolithic Linear IC AV TRANSMITTER (US3, 4ch, JPN1, 2ch, TWN13ch compatible)

Overview

This LA79600GP is a AV TRANSMITTER (US3, 4ch, JPN1, 2ch, TWN13ch compatible).

Functions

- RF VCO (AGC)
- Audio FM
- Video clamp
- White clip
- RF Buffer
- Reference OSC
- RF Mixer
- 4V regulator

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 *	350	mW
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-55 to +150	°C

* : Mounted on a board : 40mm×50mm×0.8mm, four-layer glass epoxy board.

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended operating voltage	V _{CC}		5.0	V
Operating voltage range	V _{CC} op		4.5 to 5.5	V

■ Any and all SANYO Semiconductor Co.,Ltd. products described or contained herein are, with regard to "standard application", intended for the use as general electronics equipment (home appliances, AV equipment, communication device, office equipment, industrial equipment etc.). The products mentioned herein shall not be intended for use for any "special application" (medical equipment whose purpose is to sustain life, aerospace instrument, nuclear control device, burning appliances, transportation machine, traffic signal system, safety equipment etc.) that shall require extremely high level of reliability and can directly threaten human lives in case of failure or malfunction of the product or may cause harm to human bodies, nor shall they grant any guarantee thereof. If you should intend to use our products for applications outside the standard applications of our customer who is considering such use and/or outside the scope of our intended standard applications, please consult with us prior to the intended use. If there is no consultation or inquiry before the intended use, our customer shall be solely responsible for the use.

■ Specifications of any and all SANYO Semiconductor Co.,Ltd. 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 Semiconductor Co., Ltd.

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

LA79600GP

Electrical Characteristics/Operating Characteristics at Ta = 25°C, V_{CC} = 5.0V,

Measured with US3ch unless otherwise specified.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain 1	I _{CC1}	No signal, pin11 high	26	37	48	mA
Current drain 2	I _{CC2}	No signal, pin11 low	17	25	33	mA
Regulator voltage	V _{reg}	No signal	3.7	3.9	4.1	V
Antenna driver voltage	V _{anton}	Pin11 high, 220Ω load	3.2	3.5	3.8	V
RF type						
Video carrier output US	P _{us}	No signal *1	85	87	89	dBμ
Video carrier output JP	P _{jp}	No signal *1	84.5	86.5	88.5	dBμ
Video carrier output TW	P _{tw}	No signal *1	84	86	88	dBμ
Audio carrier output ratio	P/S	S : fp+4.5MHz	14.5	16	17.5	dB
Audio secondary harmonic distortion	P/S2	S2 : fp+2×4.5MHz	50	65		dB
Audio tertiary harmonic distortion	P/S3	S3 : fp+3×4.5MHz	45	55		dB
Chroma beat	P/CB	V _{IN} = 3.58MHz, 0.6Vp-p CB : fp+920kHz	65	72		dB
Video harmonic distortion	P/V2	V _{IN} = 1MHz, 1Vp-p V2 : fp+2MHz	45	65		dB
Video type						
Video modulation	Mp	V _{IN} = Stair step, 1Vp-p	75	80	85	%
White clip level (Max video modulation)	WCL	V _{IN} = Stair step, 1.5Vp-p	88	93	98	%
Differential gain	DG	V _{IN} = Stair step, 1Vp-p	-5		5	%
Differential phase	DP	V _{IN} = Stair step, 1Vp-p	-5		5	deg
Audio type						
Audio modulation	Ms	A _{in} = 1kHz, 1Vp-p *2	90	100	110	%
Maximum audio modulation	Msmx	THD < 3%	400			%
Audio distortion	THD	A _{in} = 1kHz, 1Vp-p		0.4	2	%
Audio S/N	AS/N	A _{in} = 1kHz, 1Vp-p V _{IN} = Color bar, 1Vp-p	45	52		dB

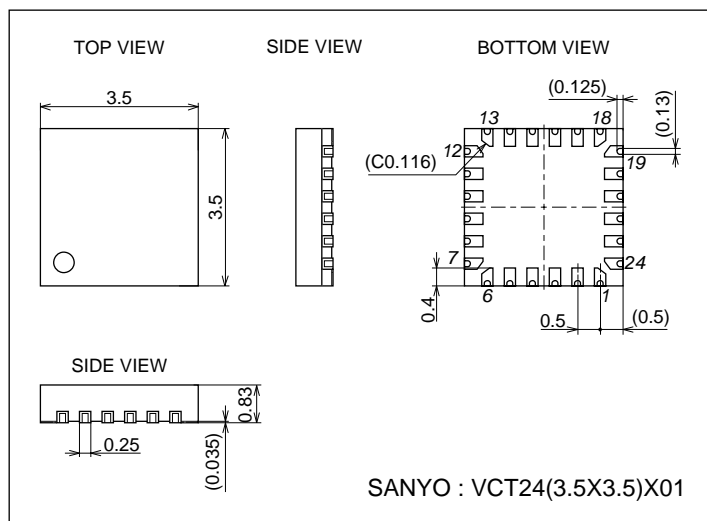
*1 : 9.5dB added to the RFOUT value measured with a analyzer of the input impedance of 50Ω

*2 : 100% = ±25kHz modulation

Package Dimensions

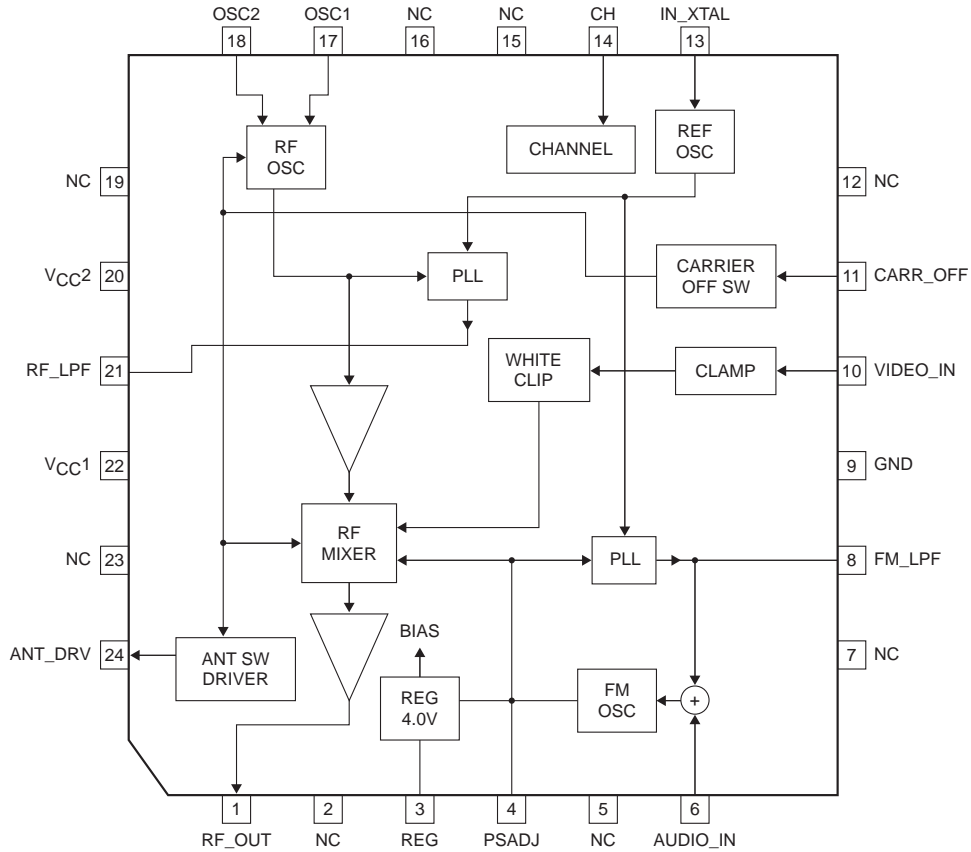
unit : mm (typ)

3322

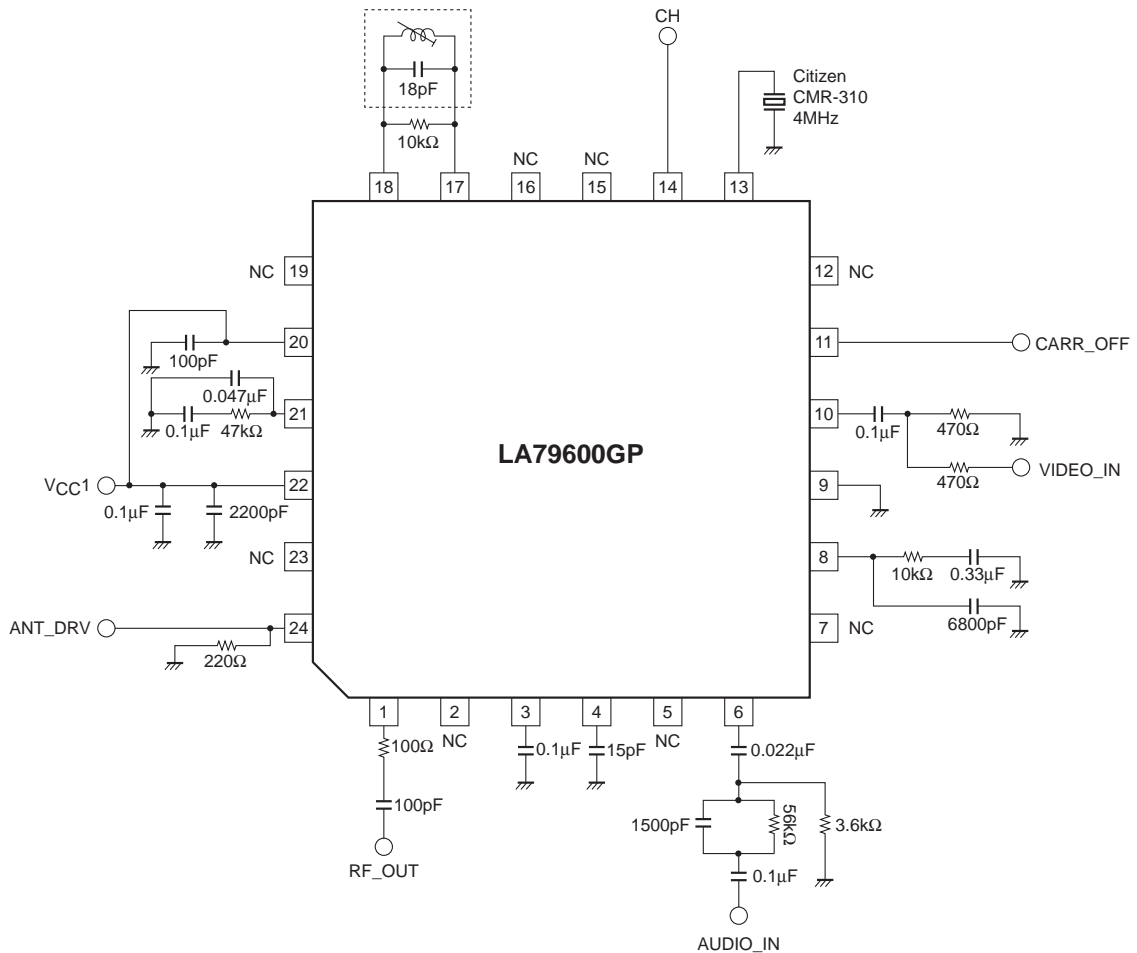


LA79600GP

Block Diagram



Test Circuit (USch)



LA79600GP

Pin Functions

Pin No.	Pin name	Voltage (V)	Function	Equivalent Circuit
1	RF OUT	3.0	RF mixed signal output	
2	NC			
3	REG	3.9	Regulator output	
4	P/S ADJ	2.7	Capacitor and additionally a Resistor may inserted between the circuit and GND attenuate the audio inter-carrier level.	
5	NC			
6	AUDIO IN	0	FM audio Input	
7	NC			
8	FM LPF	2.2	Control pin of output FM oscillator for the PLL phase detector charge pump.	
9	GND	0		
10	VIDEO IN	2.6	Video Input Clamped with sink chip	

Continued on next page.

LA79600GP

Continued from preceding page.

Pin No.	Pin name	Voltage (V)	Function	Equivalent Circuit
11	CARR OFF		Hi : 14pin Hi RF Operating Lo : 14pin Lo RF Stop	
12	NC			
13	IN XTAL	3.5	4MHz oscillator inserted between the circuit and GND. External input of the 4MHz signal possible. Insertion of about 270kΩ resistor between the circuit and GND ensures compatibility with 3.58MHz of VTR chroma sub-carrier. * TWN CH selector pin Insert a 270kΩ resistor in a circuit to V _{CC} .	
14	CH	1.7	CH selector pin JP1 : 1.2V to 2.3V JP2 : 0.8 or less US3 : 4.2 or more US4 : 2.7V to 3.8V * TWN CH OPEN : REF OSC 4MHz GND : REF OSC 3.58MHz	
15	NC			
16	NC			
17	OSC1	3.7	RF oscillator pin	
19	NC			
20	V _{CC} 2	5.0	RF VCO type V _{CC}	
21	RF LPF	2.6	Control pin of output RF oscillator for the PLL phase detector charge pump.	
22	V _{CC} 1	5.0		
23	NC			

Continued on next page.

LA79600GP

Continued from preceding page.

Pin No.	Pin name	Voltage (V)	Function	Equivalent Circuit
24	ANT DRV	3.5	Antena driver pin 15mA drive	

Cautions for use

- Set the variable L (between pins 17 and 18) of RFVCO so that the RF output frequency becomes 67.25MHz when 2.7V is applied to V21 (pin21) in the US4ch mode for the US specifications, 97.25MHz when 2.6V is applied to V21 (pin21) in the JPN2ch mode for the JPN specifications, and 211.25MHz when 2.5V is applied to V21 (pin21) in the TWN13ch mode for the TWN specifications.
- Please observe Radio Law in each country when you use this product.

- SANYO Semiconductor Co.,Ltd. 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 Semiconductor Co.,Ltd. products described or contained herein.
- SANYO Semiconductor Co.,Ltd. strives to supply high-quality high-reliability products, however, any and all semiconductor products fail or malfunction with some probability. It is possible that these probabilistic failures or malfunction could give rise to accidents or events that could endanger human lives, trouble that could give rise to smoke or fire, or accidents 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 Semiconductor Co.,Ltd. products described or contained herein are controlled under any of applicable local export control laws and regulations, such products may require 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 consent of SANYO Semiconductor 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 Semiconductor Co.,Ltd. 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.
- Upon using the technical information or products described herein, neither warranty nor license shall be granted with regard to intellectual property rights or any other rights of SANYO Semiconductor Co.,Ltd. or any third party. SANYO Semiconductor Co.,Ltd. shall not be liable for any claim or suits with regard to a third party's intellectual property rights which has resulted from the use of the technical information and products mentioned above.

This catalog provides information as of May, 2007. Specifications and information herein are subject to change without notice.