Ordering number : ENA0850

SANYO Semiconductors
DATA SHEET

Monolithic Linear IC

LA79600GP — 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

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Electrical Characteristics/Operating Characteristics at Ta = 25°C, V_{CC} = 5.0V,
Measured with US3ch unless otherwise specified.

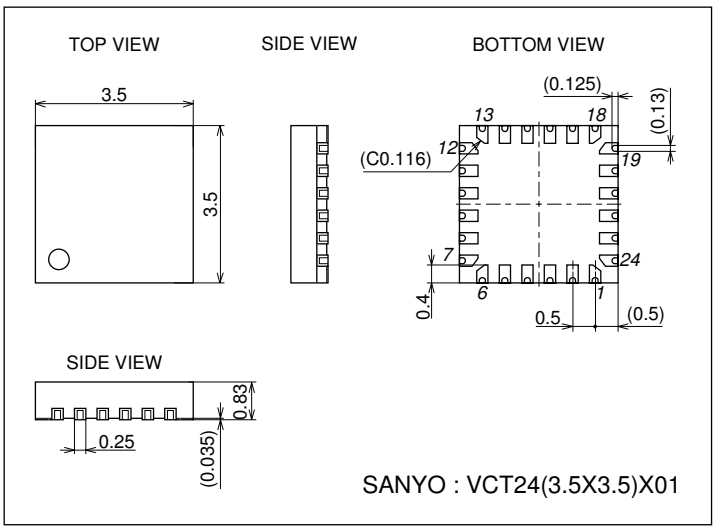
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain 1	$I_{CC}1$	No signal, pin11 high	26	37	48	mA
Current drain 2	$I_{CC}2$	No signal, pin11 low	17	25	33	mA
Regulator voltage	Vreg	No signal	3.7	3.9	4.1	V
Antenna driver voltage	Vanton	Pin11 high, 220Ω load	3.2	3.5	3.8	V
RF type						
Video carrier output US	Pus	No signal *1	85	87	89	dBμ
Video carrier output JP	Pjp	No signal *1	84.5	86.5	88.5	dBμ
Video carrier output TW	Ptwn	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						
Vide 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	Ain = 1kHz, 1Vp-p *2	90	100	110	%
Maximum audio modulation	Msmx	THD < 3%	400			%
Audio distortion	THD	Ain = 1kHz, 1Vp-p		0.4	2	%
Audio S/N	AS/N	Ain = 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

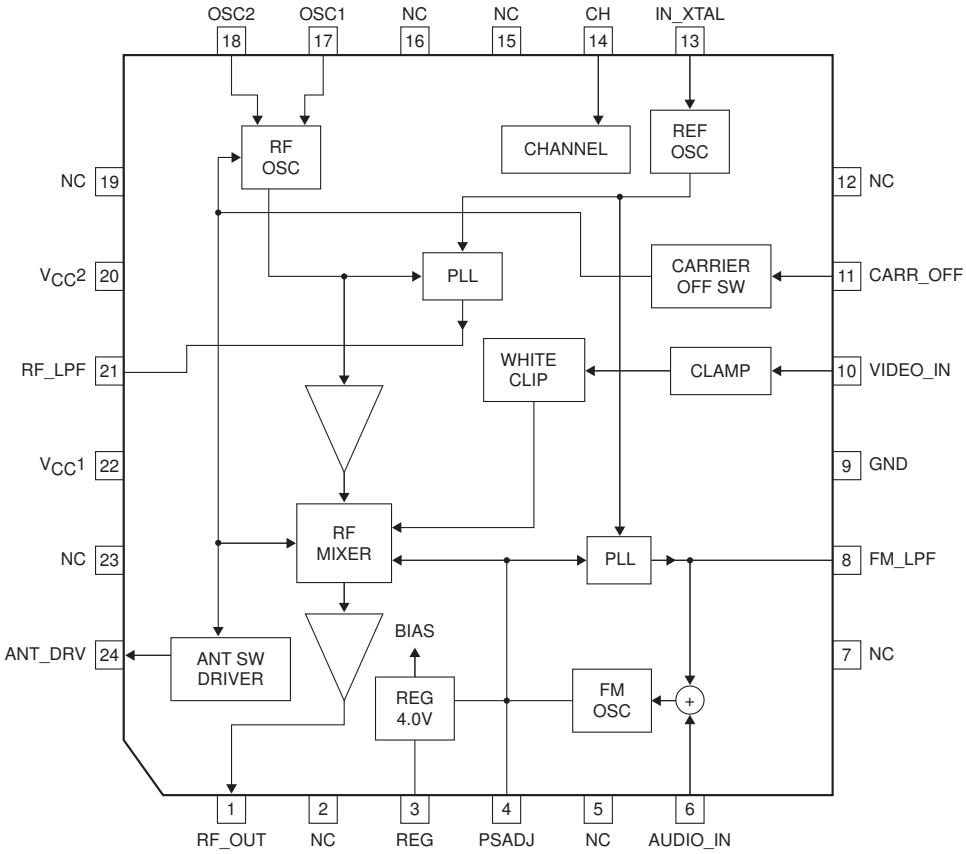
*2 : 100% = ±25kHz modulation

Package Dimensions

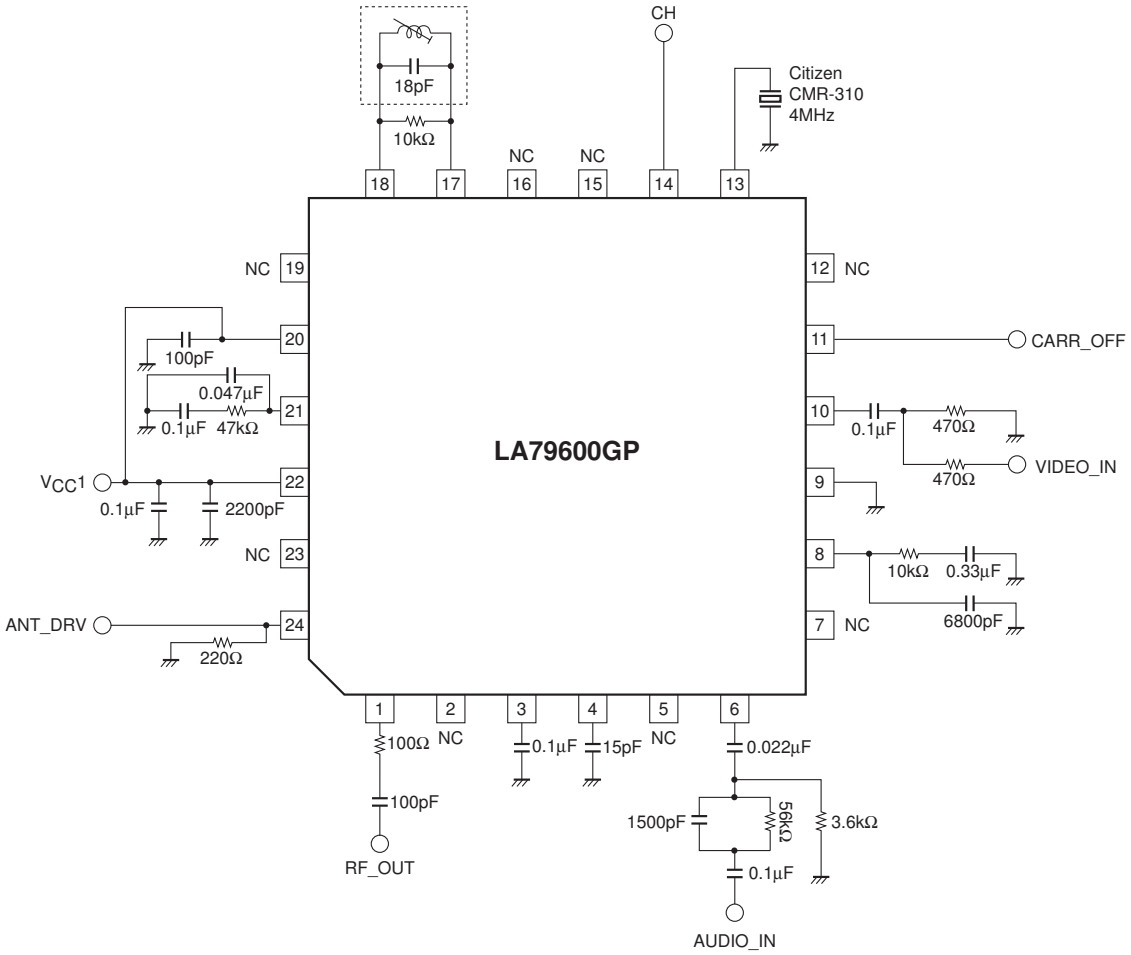
unit : mm (typ)
3322



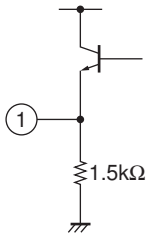
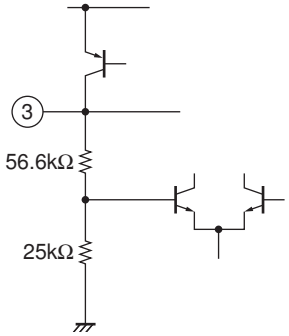
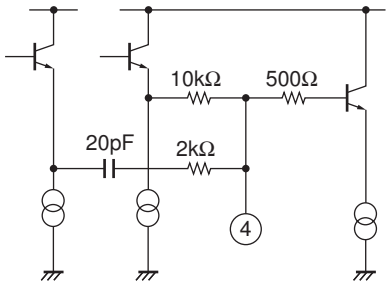
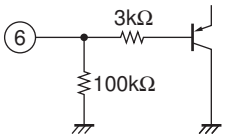
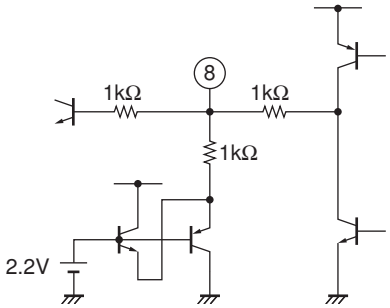
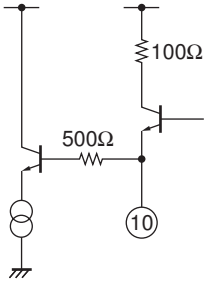
Block Diagram



Test Circuit (USch)



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 oscilator for the PLL phase detector charge pump.	
9	GND	0		
10	VIDEO IN	2.6	Video Input Clamped with sink chip	

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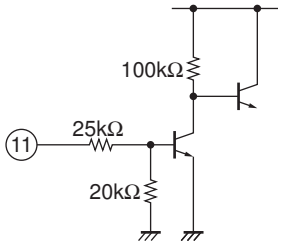
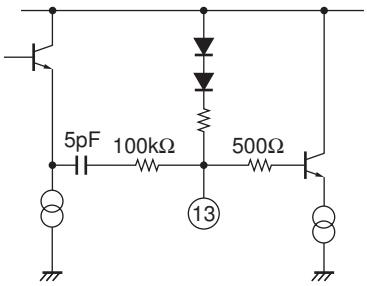
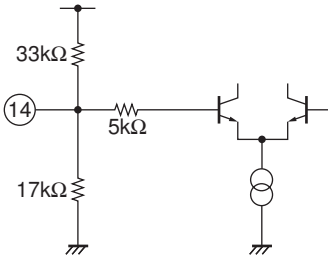
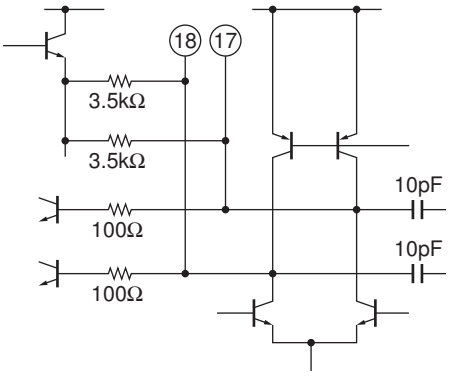
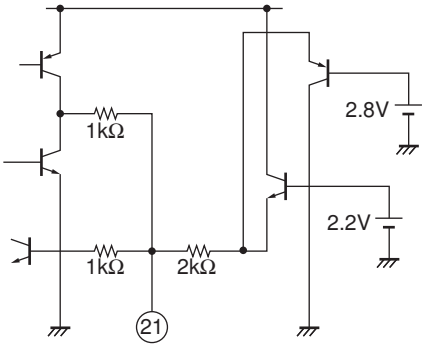
Pin No.	Pin name	Voltage (V)	Function	Equivalent Circuit
11	CARR OFF		Hi : 14pin Hi RF Operating Lo : 14pin Lo RF Stop	
12	NC			
13	IN XTAL	3.5	4MHz oscillator inserted between the circuit and GND. External input of the 4MHz signal possible. Insertion of about 270kΩ resistor between the circuit and GND ensurescompatibility 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 18	OSC1 OSC2	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			

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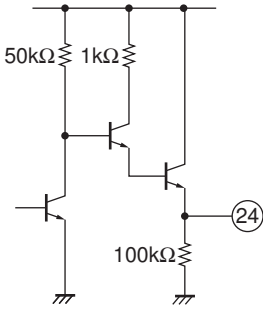
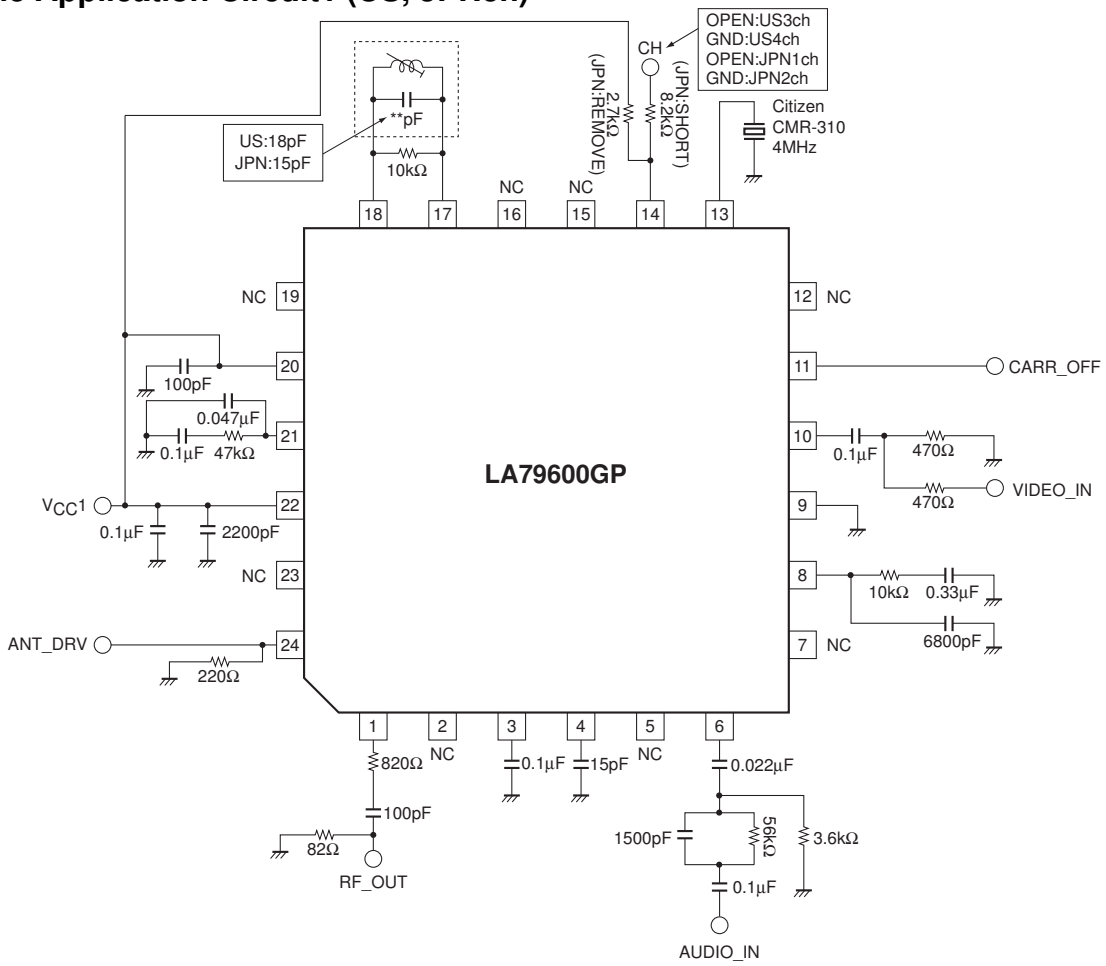
Pin No.	Pin name	Voltage (V)	Function	Equivalent Circuit
24	ANT DRV	3.5	Antena driver pin 15mA drive	

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.

Sample Application Circuit1 (US, JPNch)



Sample Application Circuit2 (TWNch)