Ordering number : EN8338A

SANYO Semiconductors
DATA SHEET

LA8128T — Monolithic Linear IC
AGC Amplifier with Step Gain Control

Overview

The LA8128T is a video amplifier that includes an integrated A/D converter driver. It is optimal for use in reception side devices in systems that transfer QPSK, QAM, and other digital data.

Functions

- Differential input amplifier
- Driver amplifier

Applications

- Digital CATV, terrestrial broadcast TV
- Cable modem receivers
- IP Telephone receivers

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Rated value	Unit
Maximum supply rating	V_{CC} max	Pin 1	7.0	V
Circuit current	I_6 I_7	Pin 6 inflow current Pin 7 inflow current	2 2	mA
Allowable power dissipation	Pd max	Ta ≤ 85°C	220*	mW
Operating temperature	Topr		-20 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

* 20.0 × 10.0 × 0.8 mm Paper phenolic circuit board

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

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Rated value	Unit
Recommended supply voltage	V_{CC}	Pin 1	5.0	V
Operating supply voltage range	V_{CC} op	Pin 1	4.5 to 5. 5	V

Electrical Characteristics

AC Characteristics at Ta = 25°C, V_{CC} = 5.0 V

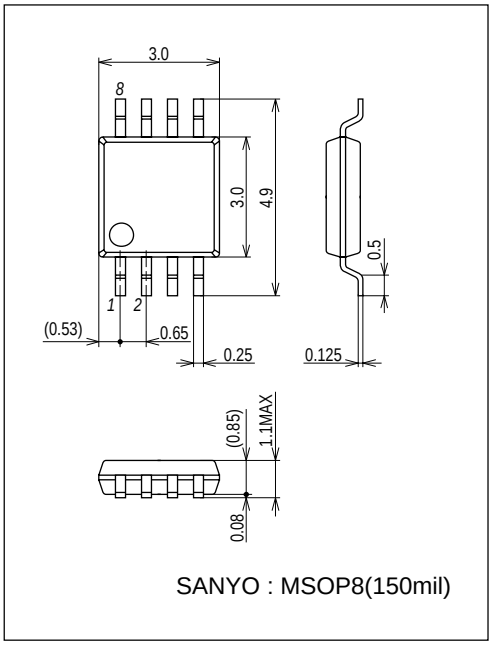
Parameter	Symbol	Conditions		Rated value			Unit
				Min.	Typ.	Max.	
Circuit current	I_{CC}	No signal	*1	18	23	28	mA
Input frequency range	f(in)	fc : -3 dB	*1	30	-	100	MHz
Noise figure	NF	f = 45 MHz	*2	-	7	-	dB
Voltage gain	GV	f = 45 MHz Between pins 7 and 2	*1	18.5	21	23.5	dB
Output 3rd order intercept point	OIP3	Single-ended output f_1 = 44 MHz, f_2 = 45 MHz Output = 104dBμV/tone	*1	123	126	-	dBμV
Output 1 dB compression point	OP1dB	Single-ended output f = 45 MHz	*1	113	116	-	dBμV
Input impedance	Zin	f = 45 MHz	*3	-	1.2 // 4.1	-	kΩ // pF

*1 : Test circuit 1, *2: Test circuit 2, *3: Test circuit 3

Package Dimensions

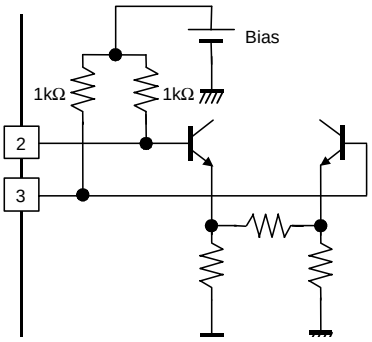
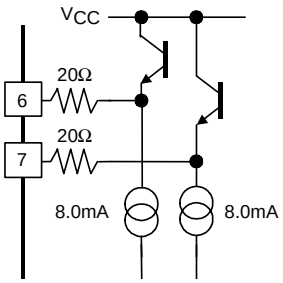
unit: mm (typ)

3245B

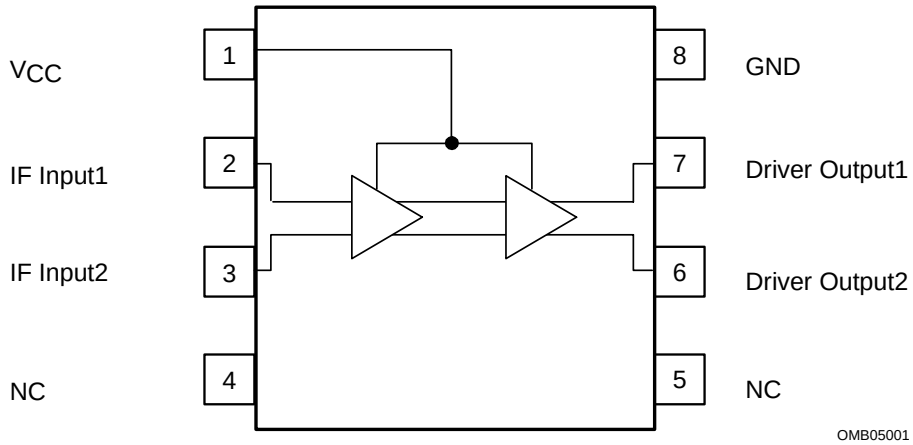


SANYO : MSOP8(150mil)

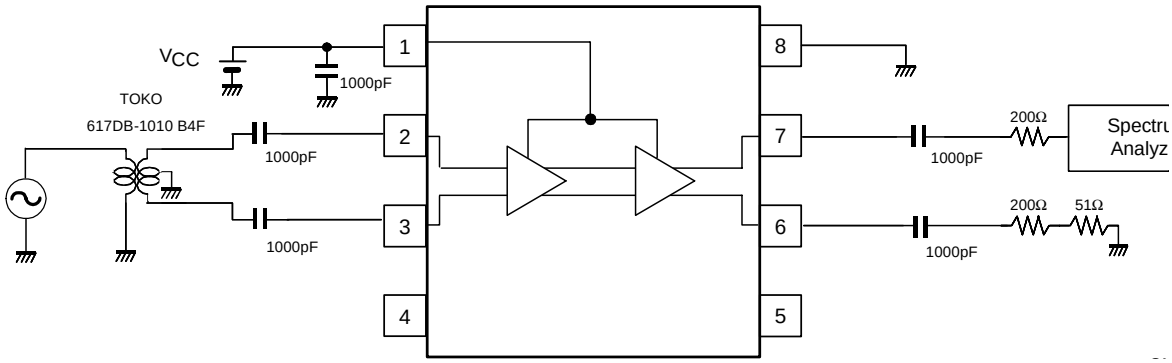
Pin Functions

Pin Number	Function	Equivalent circuit (Resistor units: Ω)
1	V_{CC}	
2 3	IF Inputs	
4 5	NC	
6 7	Driver outputs	
8	Ground	

Block Diagram

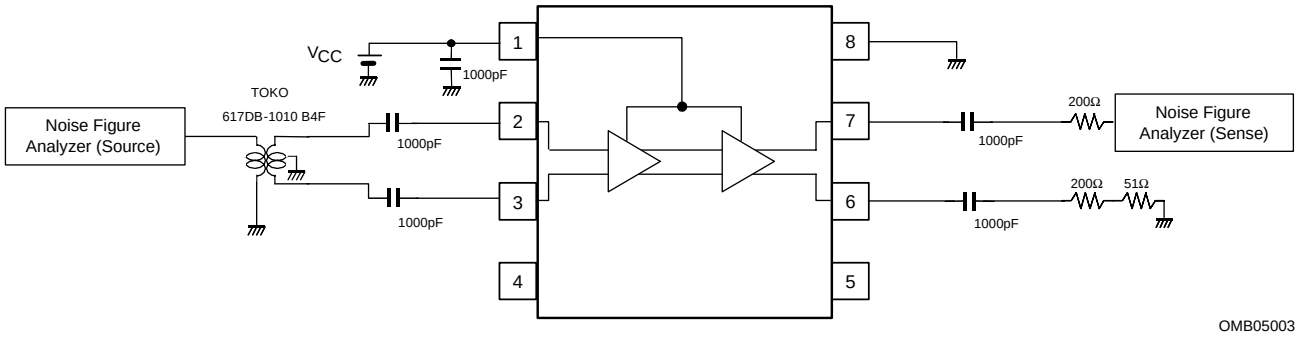


LA8128T Test Circuit 1



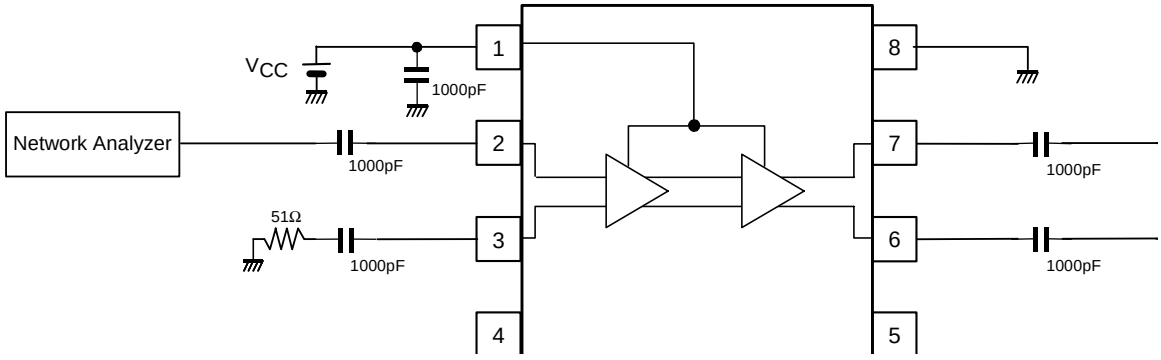
Note that the value of the output voltage read by the spectrum analyzer is voltage divided from the actual output by 50Ω/(200+50)Ω.

LA8128T Test Circuit 2

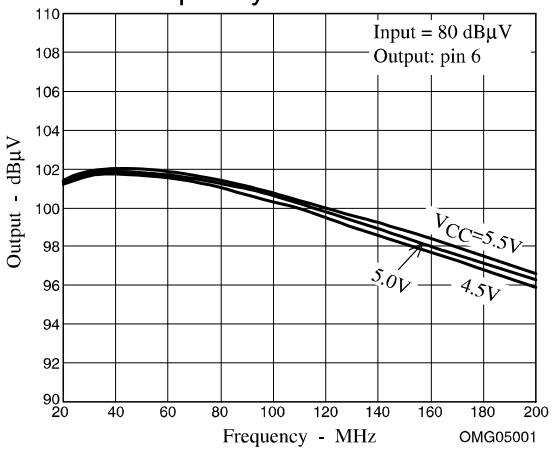


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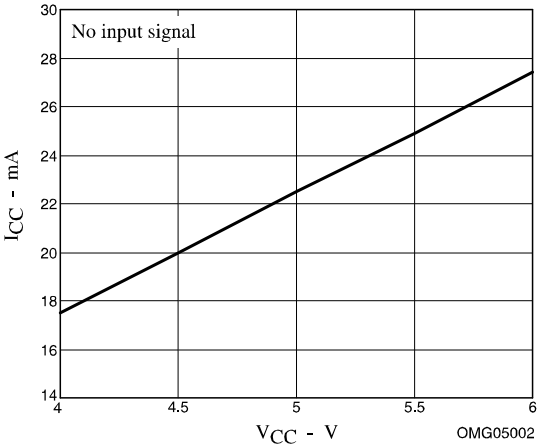
LA8128T Test Circuit 3



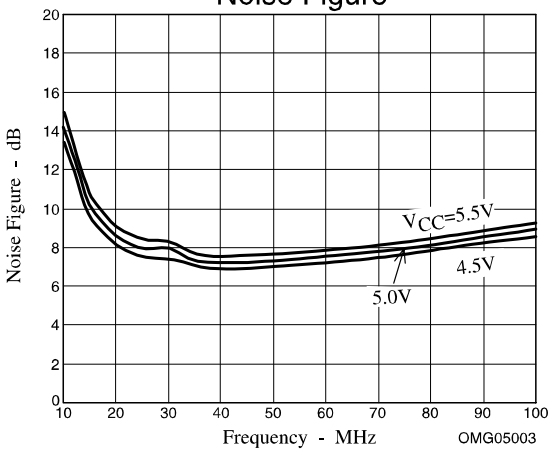
Frequency Characteristics



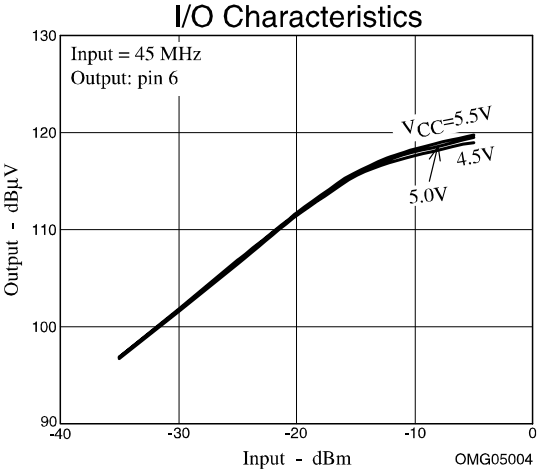
Current Drain



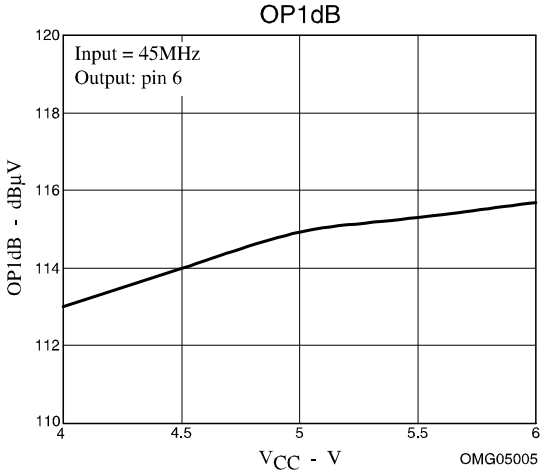
Noise Figure



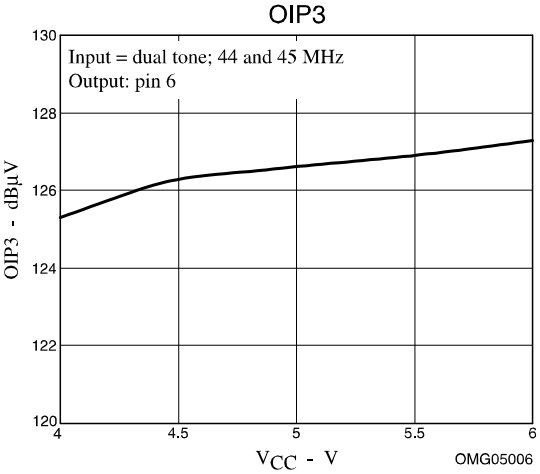
I/O Characteristics



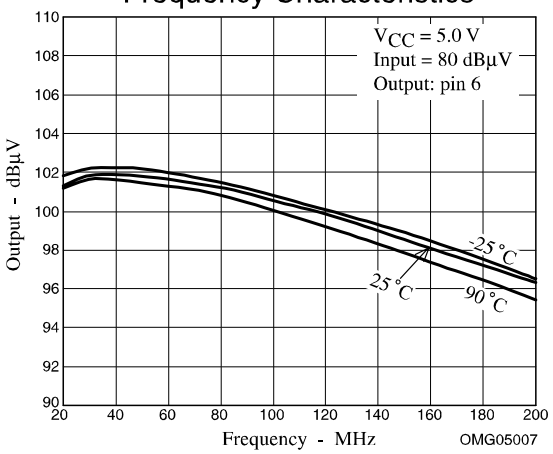
OP1dB



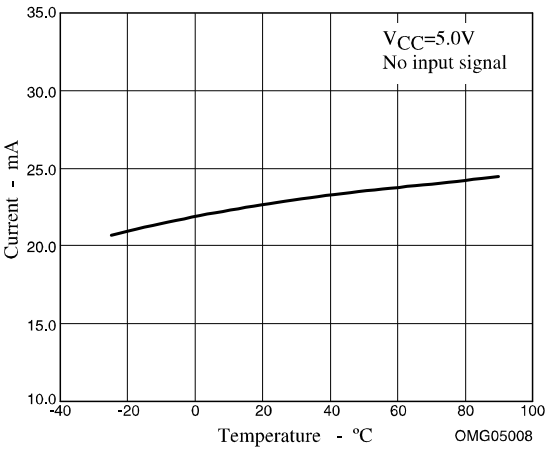
OIP3

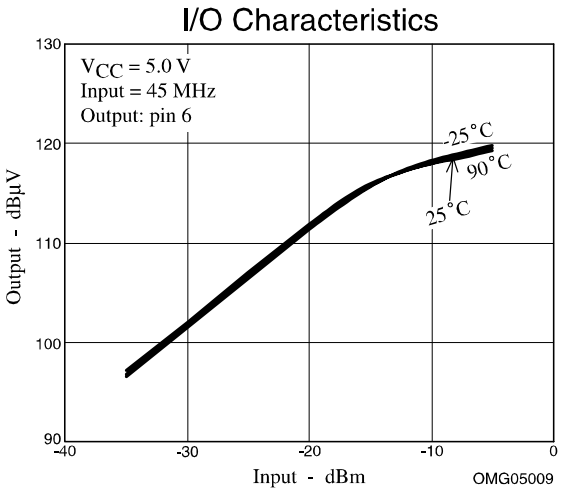


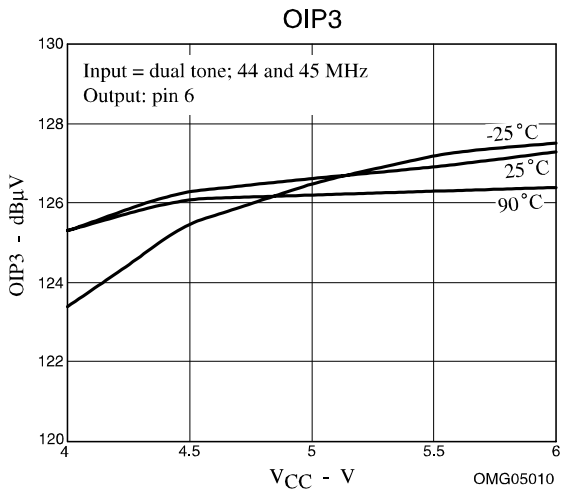
Frequency Characteristics



Current Drain







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