DATA SHEET

Part No.	AN16996A
Package Code No.	QFN044-P-0606C

Contents

AN16996A

VIF/SIF IC for Car TV Receivers

■ Overview

The AN16996A is a VIF/SIF signal-processing IC for use in car TV receivers. It adopts a split carrier system that completely separates video and audio processing and includes soft muting, SD, and other circuits required for car TV use. It provides superb performance in addition to its extensive functionality.

■ Features

- Split carrier audio detection circuit
- Field detection and bandwidth detection soft muting and SD circuits
- Pseudo-synchronous detection strongly resistant to field strength fluctuations is used in the VIF circuit
- Video output pin for diversity detection (no noise inverter required)
- Supports FM audio reception (function that turns off the VIF system)

■ Applications

- Car TV

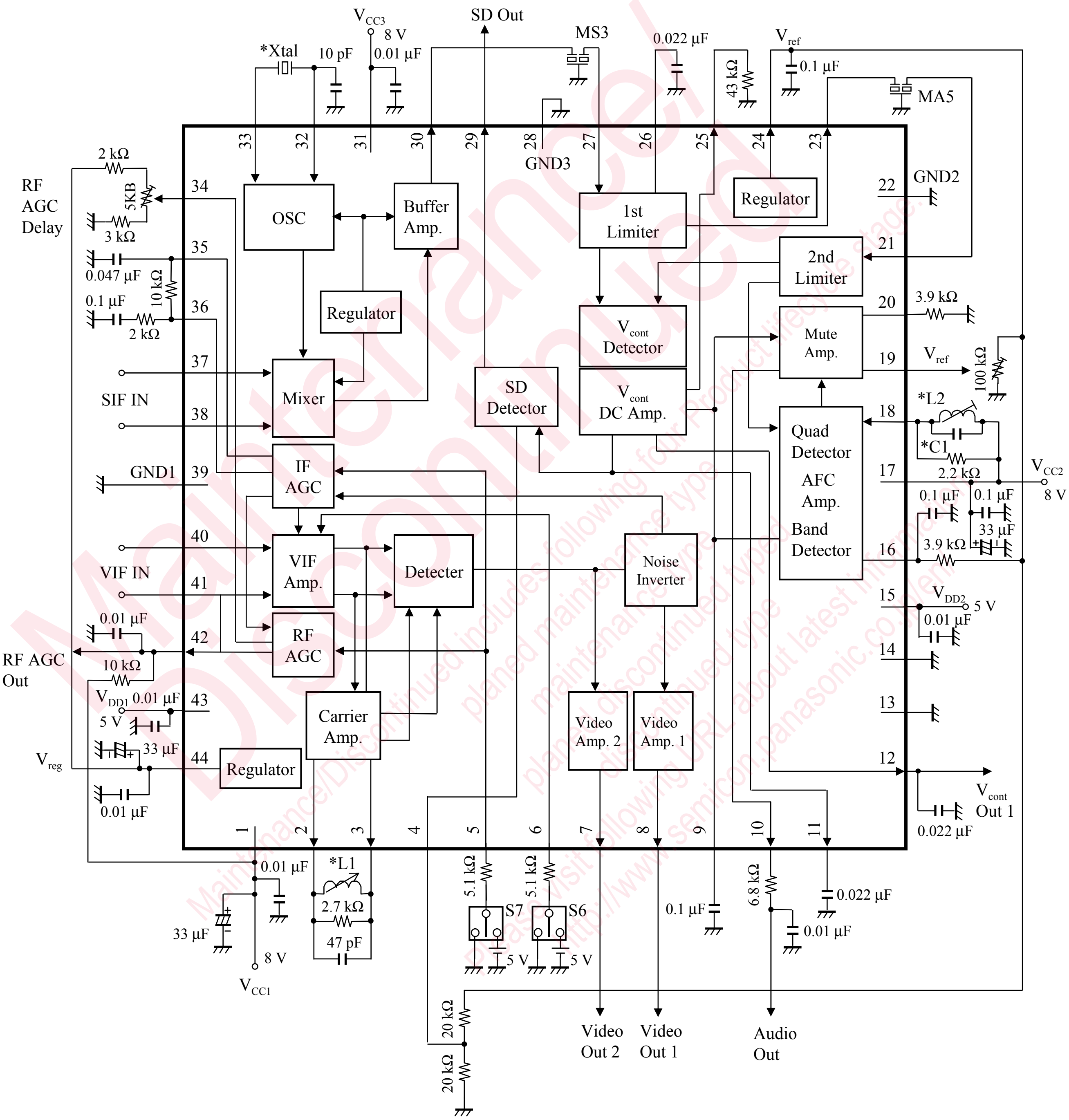
■ Package

- 44-pin plastic quad flat non-leaded package (QFN type)

■ Type

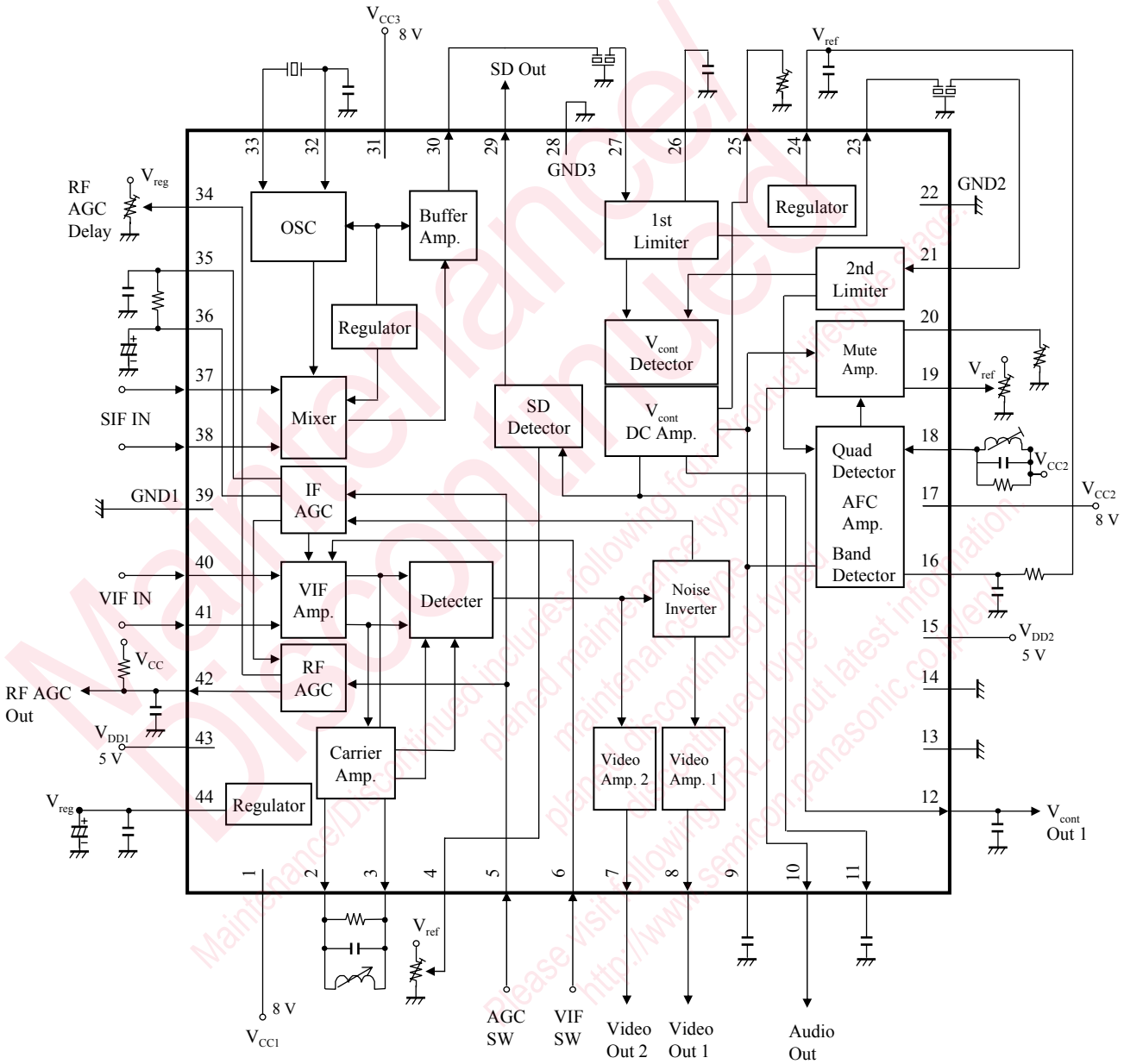
- Silicon monolithic bipolar IC

■ Application Circuit Example



VCC3
8 V
0.01 µF
*Xtal
10 pF
SD Out
MS3
0.022 µF
Vref
0.1 µF
43 kΩ
MA5
GND3
GND2
RF AGC Delay
2 kΩ
5KB
3 kΩ
0.047 µF
10 kΩ
0.1 µF
2 kΩ
SIF IN
GND1
VIF IN
0.01 µF
RF AGC Out
10 kΩ
VDD1 0.01 µF
5 V
33 µF
Vreg
0.01 µF
OSC
Buffer Amp.
Regulator
Mixer
IF AGC
VIF Amp.
RF AGC
Detecter
Carrier Amp.
Regulator
SD Detector
1st Limiter
Vcont Detector
Vcont DC Amp.
Noise Inverter
Video Amp. 2
Video Amp. 1
Regulator
2nd Limiter
Mute Amp.
Quad Detector
AFC Amp.
Band Detector
3.9 kΩ
Vref
100 kΩ
*L2
*C1
2.2 kΩ
VCC2
8 V
0.1 µF
0.1 µF
33 µF
3.9 kΩ
VDD2
5 V
0.01 µF
Vcont Out 1
0.022 µF
0.01 µF
33 µF
8 V
VCC1
*L1
2.7 kΩ
47 pF
5.1 kΩ
S7
5.1 kΩ
S6
5 V
5 V
0.1 µF
6.8 kΩ
0.022 µF
0.01 µF
20 kΩ
20 kΩ
Video Out 2
Video Out 1
Audio Out

■ Block Diagram



■ Pin Descriptions

Pin No.	Pin name	Type	Description
1	V_{CC1}	Power supply	V_{CC1}
2	LC1	Out	VIF detection coil 1
3	LC2	Out	VIF detection coil 2
4	SSC	Out	SD detection adjustment
5	AGCSW	In	AGC switch
6	VIFSW	In	VIF switch
7	VIDEOOUT2	Out	Video output 2
8	VIDEOOUT1	Out	Video output 1
9	SMTC	Out	Muting voltage
10	AUDIOOUT	Out	Audio output
11	VASC	Out	ASC S-meter voltage
12	VCONOUT	Out	S-meter voltage
13	DMON	In	Test pin
14	RMON	In	Test pin
15	V_{DD2}	Power supply	V_{DD2}
16	AFCOUT	Out	AFC output
17	V_{CC2}	Power supply	V_{CC2}
18	QUADIN	In	SIF detection coil
19	SMA1	Out	Soft muting start point adjustment
20	SMA2	Out	Soft muting slope adjustment
21	2NDIFIN	In	Second limiter input
22	GND2	Ground	Ground 2
23	SIFLIMOUT	Out	First limiter output
24	VREF	Out	SIF reference voltage
25	VCONADJ	Out	S-meter voltage adjustment
26	IFAB	Out	First limiter bypass
27	IFIN	In	First limiter input
28	GND3	Ground	Ground 3
29	SDOUT	Out	SD output
30	MIXOUT	Out	Mixer output
31	V_{CC3}	Power supply	V_{CC3}
32	OSC1	In	OSC 1
33	OSC2	In	OSC 2
34	AGCDLY	Out	RF AGC delay adjustment
35	IFAGC1	Out	IF AGC output

■ Pin Descriptions (continued)

Pin No.	Pin name	Type	Description
36	IFAGC2	In	IF AGC input
37	SIFIN1	In	SIF input 1
38	SIFIN2	In	SIF input 2
39	GND1	Ground	Ground 1
40	VIFIN1	In	VIF input 1
41	VIFIN2	In	VIF input 2
42	RFAGCOUT	Out	RF AGC output
43	V_{DD1}	Power supply	V_{DD1}
44	VREG	Out	VIF reference voltage

■ Absolute Maximum Ratings

A No.	Parameter	Symbol	Rating	Unit	Notes
1	Supply voltage	V_{CC1}	9.0	V	*1
		V_{CC2}	9.0		
		V_{CC3}	9.0		
		V_{DD1}	6.2		
		V_{DD2}	6.2		
2	Supply current	I_{CC}	—	A	—
3	Power dissipation	P_D	229	mW	*2
4	Operating ambient temperature	T_{opr}	–30 to +85	°C	*3
5	Storage temperature	T_{stg}	–55 to +150	°C	*3

Notes) *1 : The values under the condition not exceeding the above absolute maximum ratings and the power dissipation.
*2 : The power dissipation shown is the value at T_a = 85°C for the independent (unmounted) IC package with out a heat sink.
*3 : Except for the power dissipation, operating ambient temperature, and storage temperature, all ratings are for T_a = 25°C.

■ Operating supply voltage range

Parameter	Symbol	Rangs	Unit	Notes
Supply voltage range	V_{CC1}	7.2 to 8.8	V	*
	V_{CC2}	7.2 to 8.8		
	V_{CC3}	7.2 to 8.8		
	V_{DD1}	4.6 to 5.5		
	V_{DD2}	4.6 to 5.5		

Note) * : The values under the condition not exceeding the above absolute maximum ratings and the power dissipation.

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