



Mixed Signal and RF Products





Silan in Tuner





Introduction

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- Silan provides total solution for TV tuner makers, includes IF Demodulators, Can Tuner ICs, Silicon Tuner ICs, RF Modulators, and 33V DC-DC converter for CAN tuner.
- All of the ICs in IF Demodulator, Can Tuner, Silicon Tuner, RF Modulator, DC-DC Converter are designed based on Silan's high frequency high performance BICMOS process. And there is no patent issue in our products.
- We are working on: Cost down the IF-Demodulator of analog TV; Customize the analog can tuner IC; Integrate the silicon tuner and demodulator into one chip.



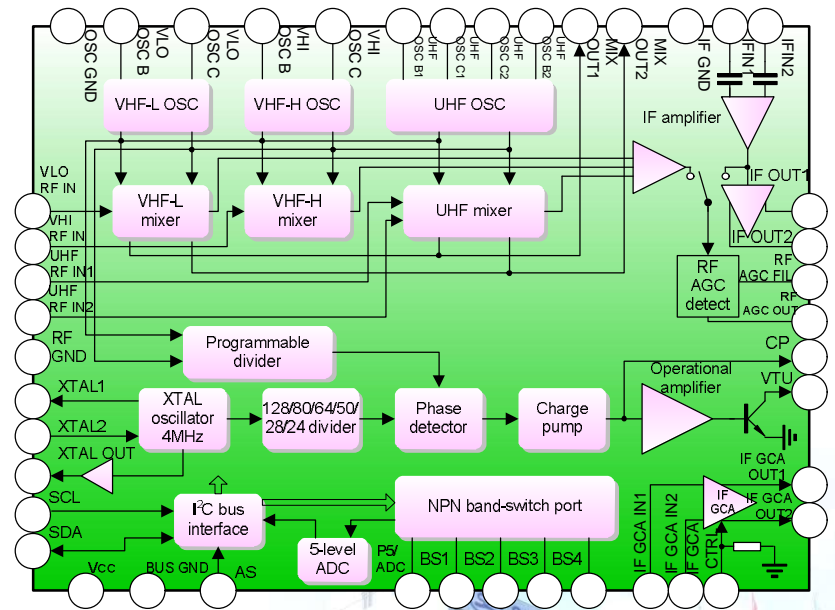


Can Tuner ICs for Digital TV

● Can Tuner ICs for Digital-TV application

□ SD1668/SD1639

- Three-Band LO and Mixer
- PLL Synthesizer
- RF AGC Detector Circuit
- Programmable Reference Divider
Ratio:24/28/50/64/80/128





Can Tuner ICs for Digital TV

- **Roadmap**

Products	Design Release (Sample/EV-B Ready)	Full Release (Mass Production)	Cross Reference
SD1668	2010/02	2010/04	SN761668 (TI)
SD1639	2010/03	2010/05	TUA6039 (Infineon)





Customize the Can Tuner ICs

- ***Customize the ICs for analog and digital tuner***

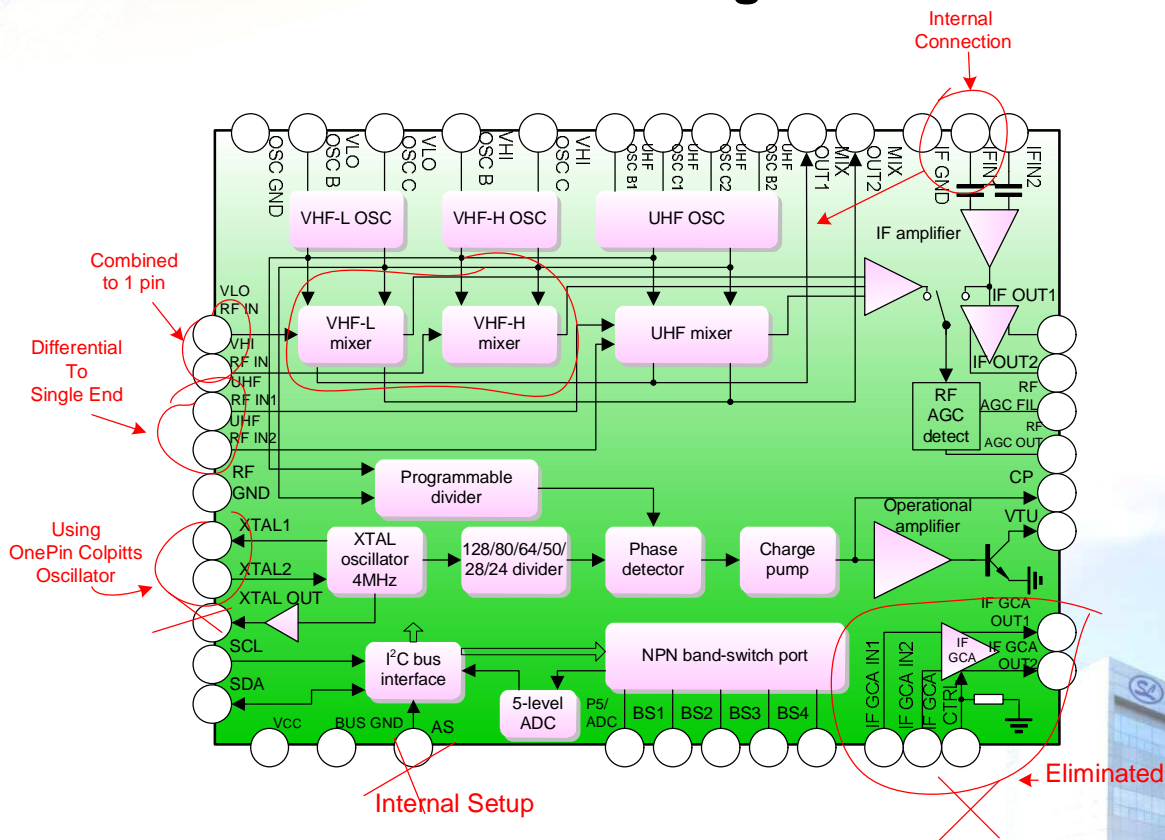
Holding the cores (the mixer and PLL) of the tuner, we can customize the IC for analog and digital tuner, for example, increase/decrease the ports, add a IF AMP, change the I2C register, and so on.





Cost Down the Can Tuner ICs

● Our Scheme1 to Cost Down the Digital Tuner IC



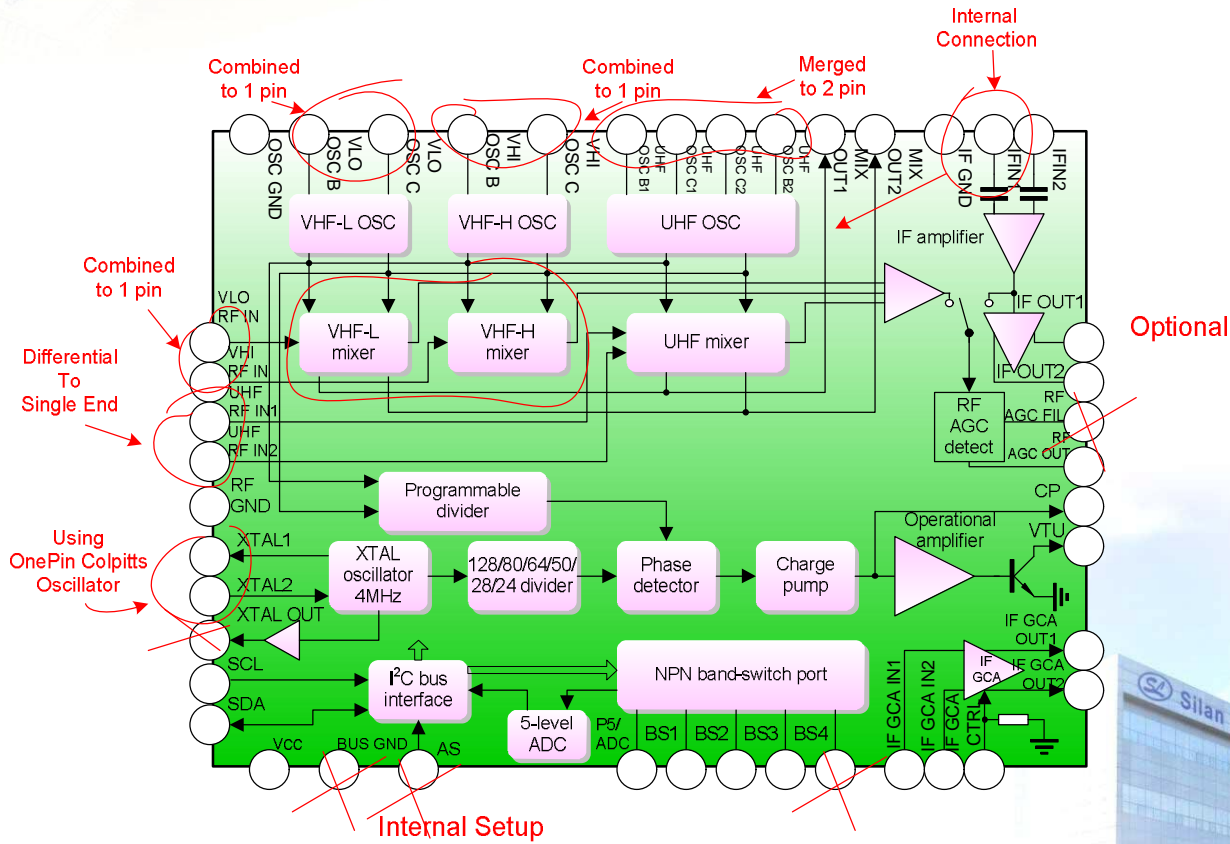
44PINS to 32PINS





Cost down the Can Tuner ICs

● Our Scheme2 to Cost Down the Digital Tuner IC



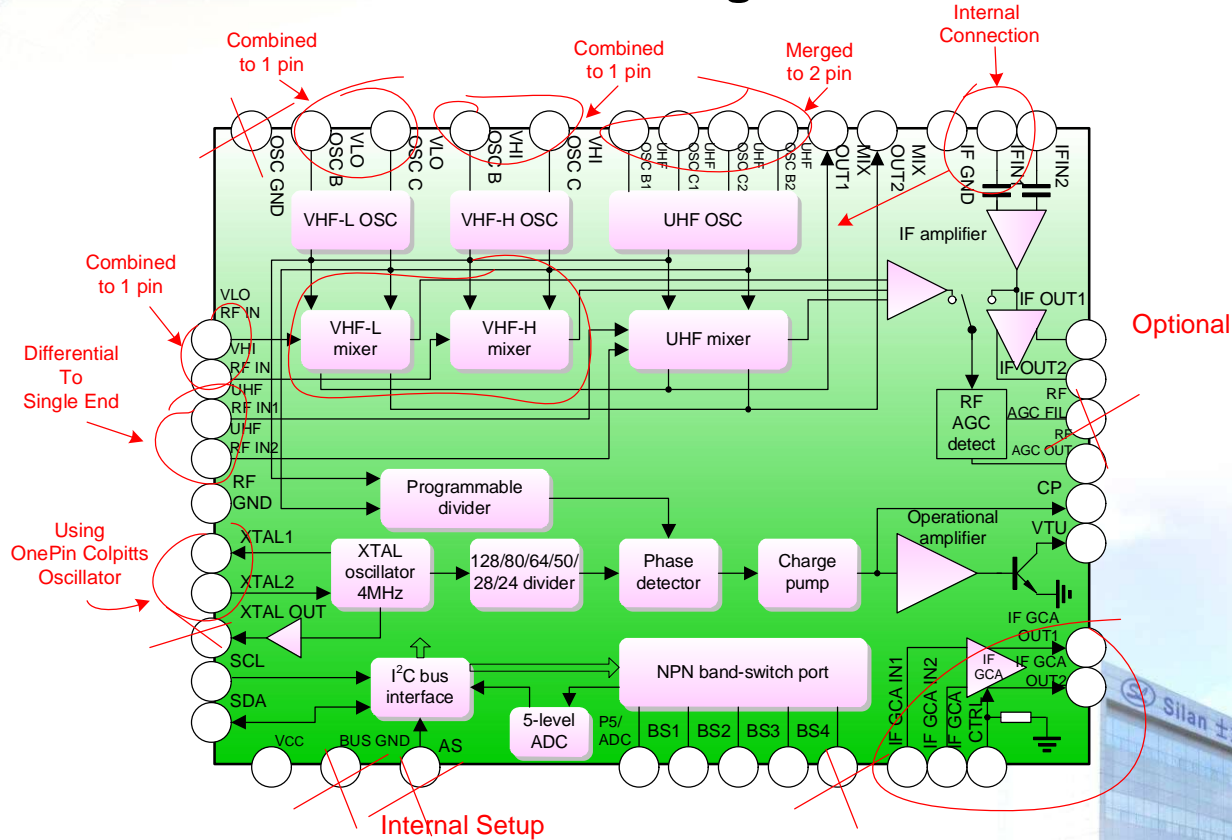
44PINS to 30PINS with IF GCA





Cost Down the Can Tuner ICs

● Our Scheme3 to Cost Down the Digital Tuner IC



44PINS TO 24PINS





Cost Down the Can Tuner ICs

● Our Schemes to Cost Down the Digital Tuner IC

VLO OSC B	1	●	44	BS4	VLO OSC B	1	●	32	BS4
VLO OSC C	2		43	UHF RF IN1	VLO OSC C	2		31	UHF RF IN
VHI OSC B	3		42	UHF RF IN2	VHI OSC B	3		30	VHF RF IN
VHI OSC C	4		41	VHI RF IN	VHI OSC C	4		29	RF GND
OSC GND	5		40	VLO RF IN	OSC GND	5		28	MIXOUT2
UHF OSC B1	6		39	RF GND	UHF OSC B1	6		27	MIXOUT1
UHF OSC C1	7		38	MIXOUT2	UHF OSC C1	7		26	IF IN
UHF OSC C2	8		37	MIXOUT1	UHF OSC C2	8		25	RF AGC OUT
UHF OSC B2	9		36	IF IN2	UHF OSC B2	9		24	RF AGC FIL
IF GND	10		35	IF IN1	IF GND	10		23	BS3
IF OUT1	11		34	RF AGC OUT	IF OUT1	11		22	BS2
IF OUT2	12		33	RF AGC FIL	IF OUT2	12		21	BS1
CP	13		32	BS3	VTU	13		20	SDA
VTU	14		31	BS2	CP	14		19	SCL
VCC	15		30	BS1	VCC	15		18	XTAL
IF GCA IN1	16		29	SDA	P5/ADC	16		17	BUS GND
IF GCA IN2	17		28	SCL					
IF GCA CTRL	18		27	AS					
IF GCA GND	19		26	BUS GND					
IF GCA OUT2	20		25	XTAL OUT					
IF GC OUT1	21		24	XTAL2					
P5/ADCUHF	22		23	XTAL1					





Cost Down the Can Tuner ICs

● Our Schemes to Cost Down the Digital Tuner IC

VLO OSC	1	●	30	UHF RF IN
VHI OSC	2		29	VHF RF IN
OSC GND	3		28	RF GND
UHF OSC B	4		27	MIXOUT2
UHF OSC C	5		26	MIXOUT1
IF GND	6		25	IF IN
IF OUT1	7		24	RF AGC FIL
IF OUT2	8		23	BS3
VTU	9		22	BS2
CP	10		21	BS1
VCC	11		20	SDA
IF GCA IN1	12		19	SCL
IF GCA IN2	13		18	XTAL
IF GCA CTRL	14		17	P5/ADCUHF
IF GCA OUT2	15		16	IF GC OUT1

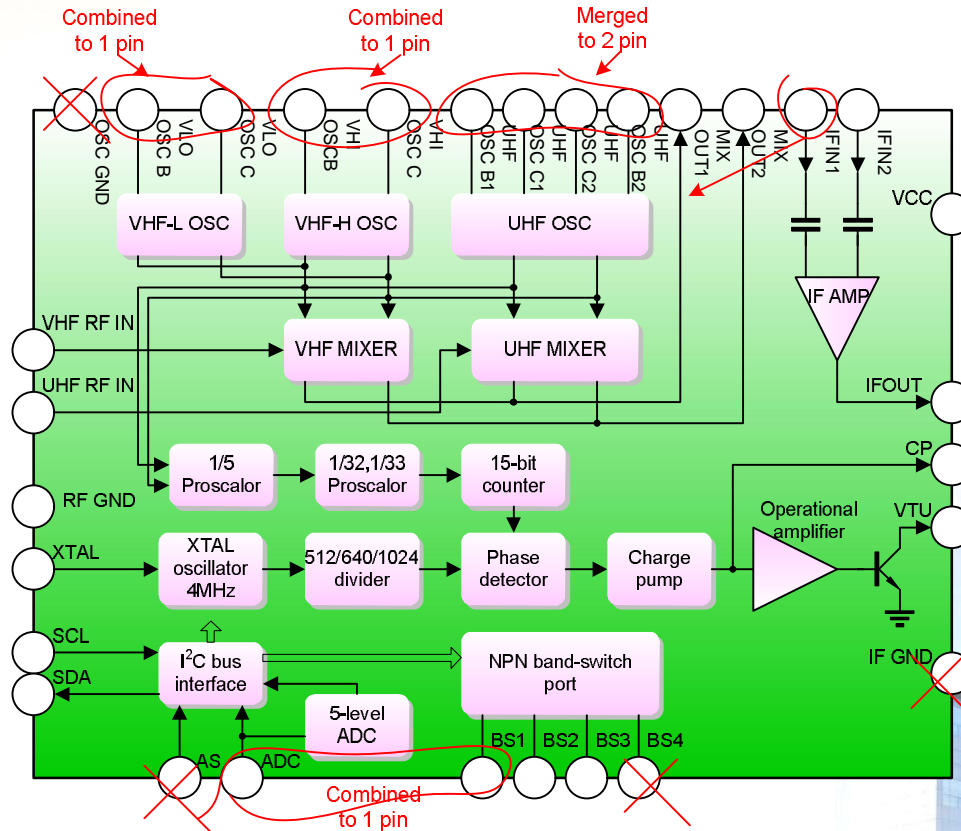
VLO OSC	1	●	24	UHF RF IN
VHI OSC	2		23	VHF RF IN
UHF OSC B	3		22	RF GND
UHF OSC C	4		21	MIXOUT2
IF GND	5		20	MIXOUT1
IF OUT1	6		19	IF IN
IF OUT2	7		18	RF AGC FIL
VTU	8		17	BS3
CP	9		16	BS2
VCC	10		15	BS1
P5/ADCUHF	11		14	SDA
XTAL	12		13	SCL





Cost Down the Can Tuner ICs

● Our Scheme to Cost Down the Analogue Tuner IC



30PINS TO 20PINS





Cost Down the Can Tuner ICs

● Our Scheme to Cost Down the Analogue Tuner IC

VHI OSC C	1	30	UHF RF IN
VHI OSC B	2	29	VHF RF IN
OSC GND	3	28	BS4
VLO OSC C	4	27	RF GND
VLO OSC B	5	26	MIXOUT2
UHF OSC B	6	25	MIXOUT1
UHF OSC C	7	24	IF IN2
UHF OSC C	8	23	IF IN1
UHF OSC B	9	22	BS2
IF GND	10	21	BS1
VCC	11	20	BS3
IF OUT	12	19	ADC
CP	13	18	AS
VTU	14	17	SDA
XTAL	15	16	SCL

VLO OSC	1	20	UHF RF IN
VHI OSC	2	19	VHF RF IN
UHF OSC B	3	18	GND
UHF OSC C	4	17	MIXOUT2
VCC	5	16	MIXOUT1
IF OUT	6	15	IF IN
CP	7	14	BS3
VTU	8	13	BS2
XTAL	9	12	BS1/ADC
SCL	10	11	SDA

30PINS TO 20PINS



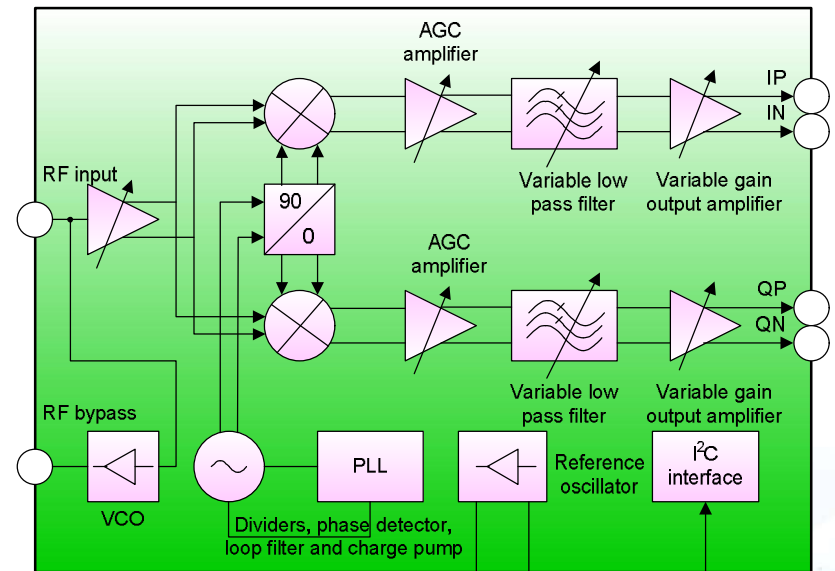


Silicon Tuner ICs

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● Silicon Tuner for DVB-S/DVB-S2/ABS-S: SC1812

- Single chip RF-to-Baseline Satellite receiver
- Low noise and wide dynamic range zero-IF receiver
- Input frequency range: 900-2250MHz
- More than 90dB gain control range
- Fully Integrated PLL and integrated LC-VCO
- Integrated baseband LPF with selectable frequency



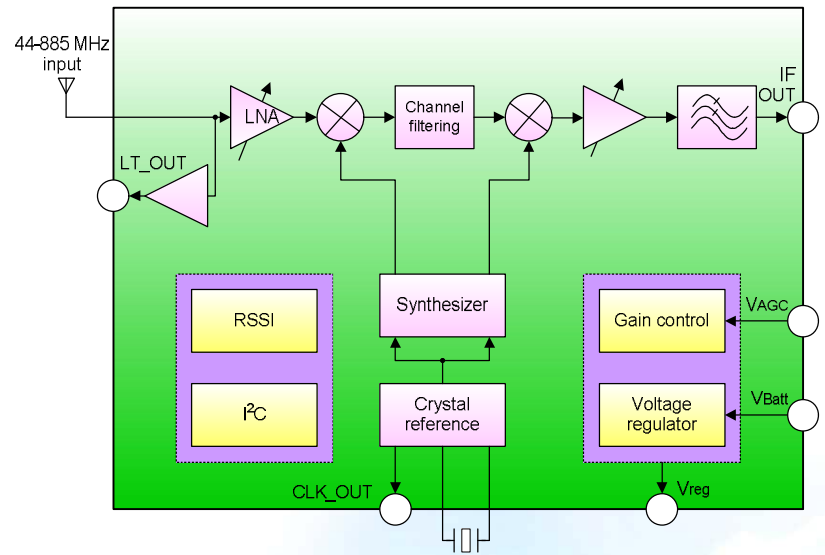
Programming and control



Silicon Tuner ICs

● Silicon Tuner for DVB-TH/DMP-TH: SC1007

- Tuning range from 44 to 885MHz
- on chip 94dB gain
- on chip 105dB gain control range with AGC
- Programmable IF
- Programmable channel bandwidths 6, 7, 8MHz
- On chip RF loopthrough





Silicon tuner

- ***Integrated with Demodulator***

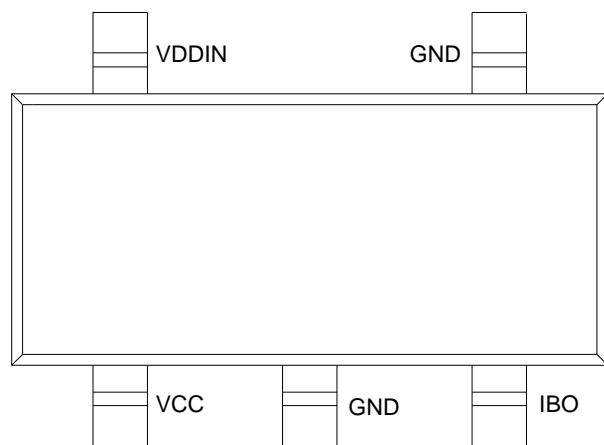
We plan to co-encapsulate silicon tuner with demodulator for minimize the complex of the customer board. The DVB-S tuner and demodulator are on the risk run.





35V DC-DC Converter IC

- **Pin Configuration (SOT23-5L)**



VDDIN: Supply Voltage;

GND: Ground;

VCC: Output Voltage;

IBO: Output 0.05mA Current from 35V;

- **Feature**

Only 1 external capacitor without inductor/transistor/diode.





35V DC-DC Converter IC

- **Brief Performance**

Input Voltage Range: 4.5 ~ 5.5V;

Output Voltage @50uA: 35V;

Settling Time($V_{in} > 4.5V$ to $V_{out} > 28V$): 100ms





Other information

Also Silan is developing **the Low Noise Gain Controlled Amplifiers** (eg. BF909, BF1204, and so on) based on our own process.

