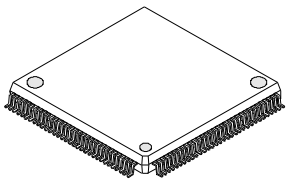
VCD SIGNAL-CHIP PROCESSOR

DESCRIPTION

SC9660 is a single chip SOC for VCD system, it integrates CD servo and correct decoder, Audio DAC, MPEG audio/video decode module and Video DAC. Working with the RF pre-processor of CD composes a low cost and high performance VCD system solution.



LQFP-128-14X14-0.4

FEATURES

* Periphery circuit is simple, servo and decoder integrated;
* Built-in TV code, support composite video, S-Video, PAL/NTSC video signal output;
* Compatible with VCD1.1 and VCD2.0 format;
* Kara OK function;
* Support CD-MP3 decode play;
* Embedded Audio DAC, PWM output;
* JPEG decode and play function;
* OSD function;
* Adopts CD servo arithmetic, strong correct function and good coherence;

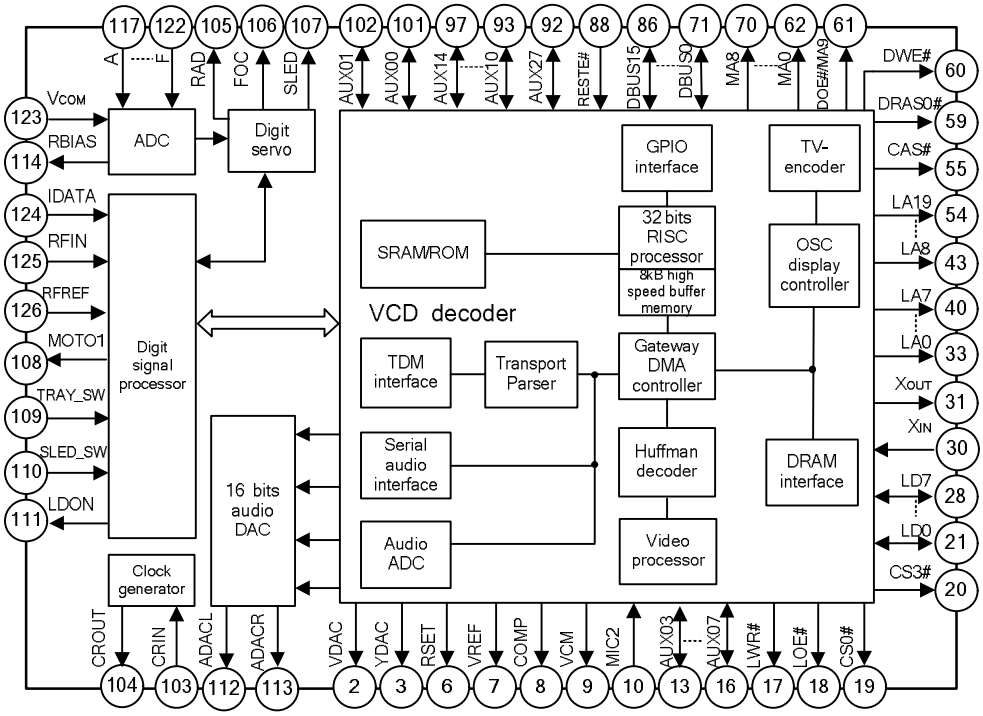
ORDERING INFORMATION

Device	Package
SC9660	LQFP-128-14x14-0.4

APPLICATION

* VCD system

BLOCK DIAGRAM



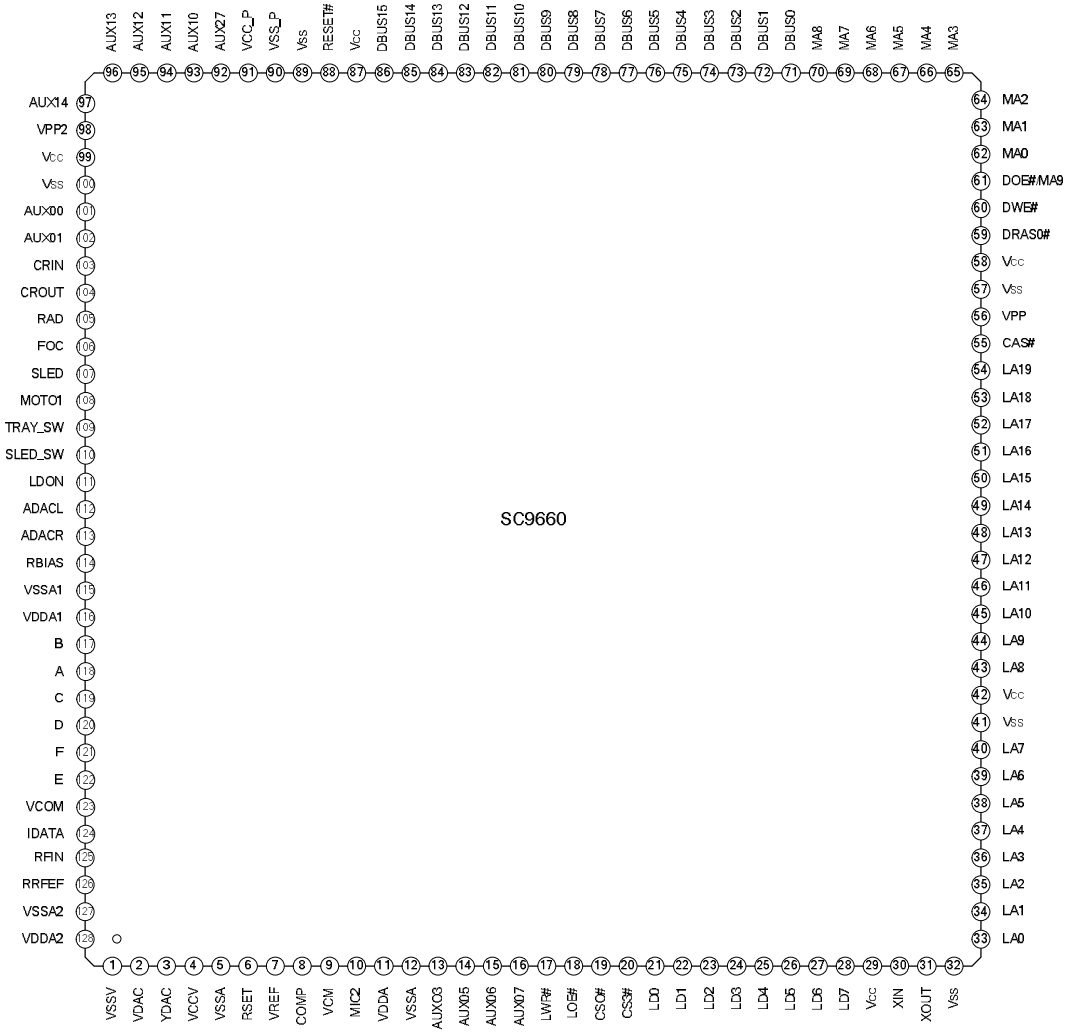
ABSOLUTE MAXIMUM RATING

Characteristics	Symbol	Rating	Unit
Power Supply Voltage	V_{DD}	-0.5 ~ +5.5	V
Input Voltage on Pins	V_{IN}	-0.5 ~V_{DD} + 0.5	V
Operating Temperature	T_{opr}	-20 ~ +75	°C

ELECTRICAL CHARACTERISTICS (unless otherwise specified, T_{amb}=25°C)

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Operating Voltage	V_{DD}		4.5	5	5.5	V
Operating Current	I_{DD}		48	50	52	mA
Quiescent Current	$I_{DD(q)}$	V_{DD}=5V; T_{amb}=25°C	--	--	300	μA
Operating Temperature	T_{amb}	V_{DD}=5V; T_{amb}=25°C	-10	--	+80	°C
DAC Total Harmonic Distortion	THD	0dB 1KHz signal input	-	-65	-	dB
DAC output Signal to Noise	S/N	No signal input	-	75	-	dB

PIN CONFIGURATION



PIN DESCRIPTION

Pin no.	Pin name	I/O	Function
1	VSSV	I	VDAC ground.
2	VDAC	O	Video DAC V port output.
3	YDAC	O	Video DAC Y port output.
4	VCCV	I	Video DAC 2.5V power supply.
5，12	VSSA	I	Analog ground.
6	RSET	O	Reset the internal current of generator; connect with a 510Ω resistor to ground.
7	VREF	O	Output reference voltage, connect a 0.01μF high frequency filter capacitor to VSSA.
8	COMP	O	Compensation capacitance for low-pass filter on VDAC. Connect to a 0.01μF high-frequency bypass capacitor to VSSA.
9	VCM	O	ADC analog reference voltage, connect to a 0.01μF high frequency filter capacitor to VSSA.
10	MIC2	I	Microphone input.
11	VDDA	I	Analog 5.0V power supply.
13	AUX03	I/O	General-purpose programmable I/O.
14~16	AUX0[5:7]	I/O	General-purpose programmable I/O.
17	LWR#	O	RISC interface writable (low active).
18	LOE#	O	RISC static memory output (low active).
19	CS0#	O	Chip select 0 for SRAM.
20	CS3#	O	Chip select 3 for SRAM.
21~28	LD[0:7]	I/O	Data bus.
29 42 58 87 99	VCC	I	Main power supply 2.5V
30	XIN	I	27MHz crystal oscillator input, the duty is 50%.
31	XOUT	O	Input clock crystal oscillator output.
32 41 57 89 100	VSS	I	Main ground.
33~40	LA[0:7]	O	Address bus.
43~54	LA[8:19]	O	Address bus.
55	CAS#	O	Column address filter to dynamic memory (low active).
56	VPP	I	5V power supply.
59	DRAS0#	O	Row address filter to dynamic memory.

(To be continued)

(Continued)

Pin no.	Pin name	I/O	Function
60	DWE#	O	Writable dynamic memory (low active).
61	DOE#/MA9	O	Output data to dynamic memory (low active), Multivariate memory row and column address.
62~70	MA[0:8]	O	Multivariate memory row and column address.
71~86	DBUS[0:15]	I/O	Input/output when Dynamic memory read/write.
88	RESET#	I	External system reset will make ES3890 reset.
90	VSS_P	I	PLL system ground.
91	VCC_P	I	PLL system 2.5V power supply.
92	AUX27	I/O	General-purpose programmable I/O.
93~97	AUX1[0:4]	I/O	General-purpose programmable I/O.
98	VPP2	I	5V power supply.
101~102	AUX0[0:1]	I/O	General-purpose programmable I/O.
103	CRIN	I	8M crystal oscillator input of Servo unit.
104	CROUT	O	8M crystal oscillator output of Servo unit.
105	RAD	O	Tracking driver signal.
106	FOC	O	Focus driver signal.
107	SLED	O	Sled motor driver signal.
108	MOTO1	O	Spindle motor driver signal.
109	TRAY_SW	I	Tray position monitor signal input.
110	SLED_SW	I	Sled motor position monitor signal input.
111	LDON	O	Laser control signal output.
112	ADACL	O	Audio DAC left channel output.
113	ADACR	O	Audio DAC right channel output.
114	RBIAS	O	Internal resistor adjust.
115	VSSA1	I	Analog ground 1 for servo unit.
116	VDDA1	I	Analog power supply 1 for servo unit.
117	B	I	Central diode current signal input 1
118	A	I	Central diode current signal input 2
119	C	I	Central diode current signal input 3
120	D	I	Central diode current signal input 4
121	F	I	Satellite diode current signal input
122	E	I	Satellite diode current signal input
123	VCOM	I	DC voltage input pin
124	IDATA	I	Output feedback current of data signal.
125	RFIN	I	CD pick up signal input.
126	RFREF	I	CD pick up signal reference voltage.
127	VSSA2	I	Analog ground 2 for servo unit.
128	VDDA2	I	Analog power supply 2 for servo unit.

FUNCTION DESCRIPTON

SC9660 is a single chip SOC for VCD system, it integrates CD servo and correct decoder, Audio DAC, MPEG audio/video decode module and Video DAC. Working with the RF pre-processor of CD composes a low cost and high performance VCD system solution.

CD servo decode module

CD servo decoder is the main module of SC9660, it can perform the CD servo and decode function, and support single/double speed switch, compatible with CD/CD-R/CD-RW.

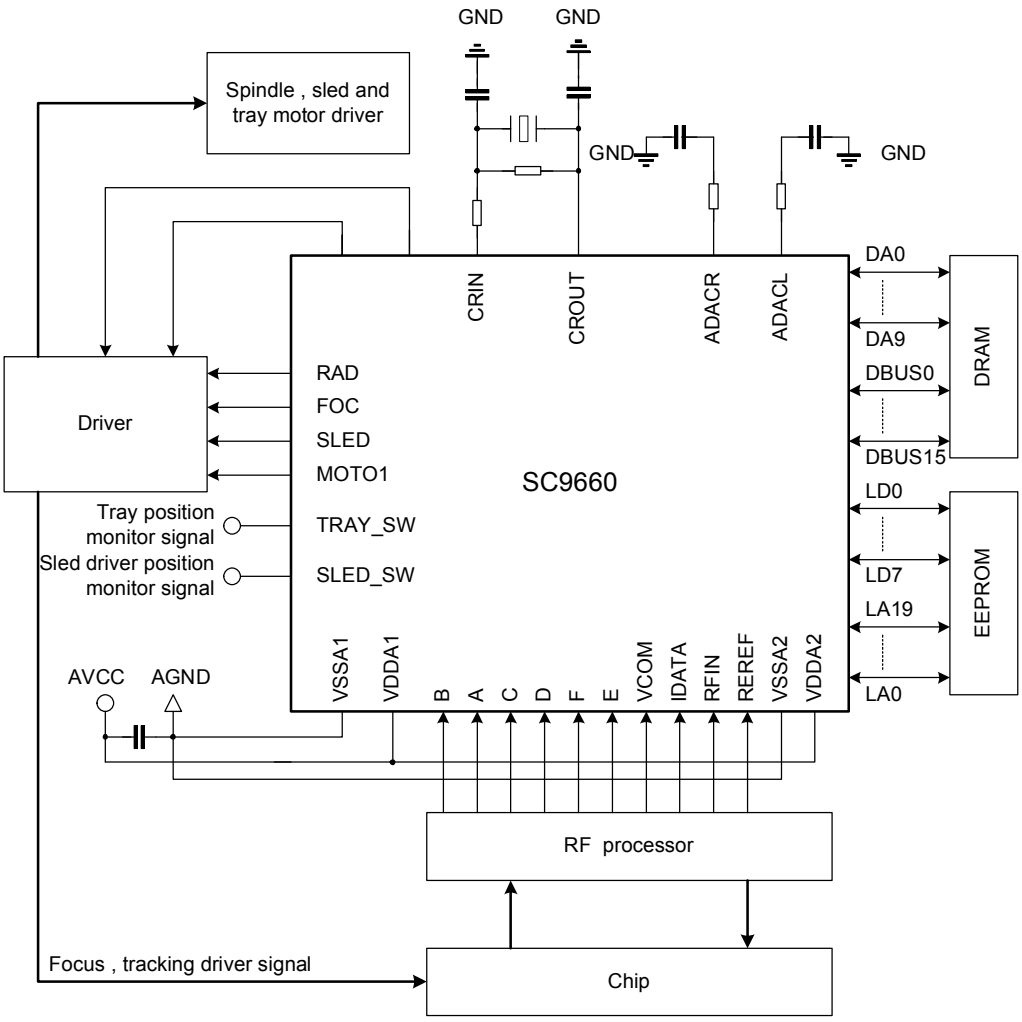
Audio DAC module

This unit is 16 bits audio DAC, output PWM waveform, and connect to low-filter.

VCD decode module

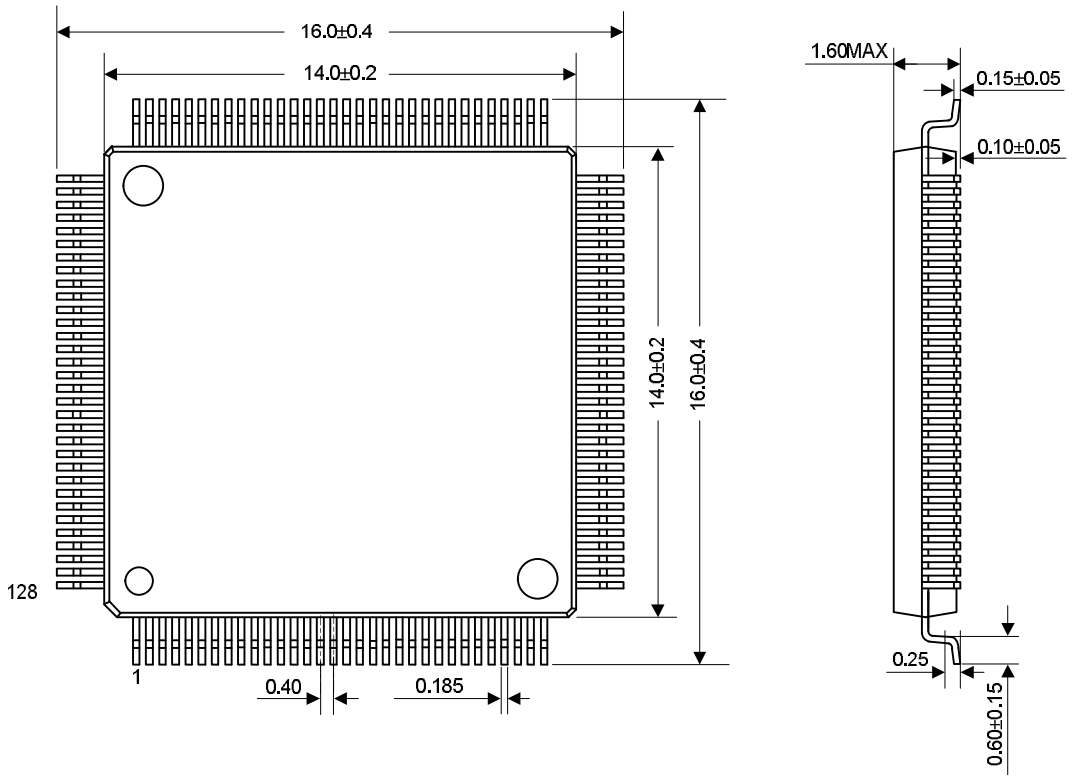
This module has VCD video decode and video DAC functions.

TYPICAL APPLICATION CIRCUIT



PACKAGE OUTLINE

LQFP-128-14x14-0.4 unit: mm



HANDLING MOS DEVICES:

Electrostatic charges can exist in many things. All of our MOS devices are internally protected against electrostatic discharge but they can be damaged if the following precautions are not taken:

- Persons at a work bench should be earthed via a wrist strap.
- Equipment cases should be earthed.
- All tools used during assembly, including soldering tools and solder baths, must be earthed.
- MOS devices should be packed for dispatch in antistatic/conductive containers.

ATTACHMENT

Revision History

Data	REV	Description	Page
2006.09.20	1.0	Original	
2006.12.31	1.1	Modify the "BLOCK DIAGRAM" , "ELECTRICAL CHARACTERISTICS" and "PIN DESCRIPTIONS"	

Note: Silan reserves the right to make changes without notice in this specification for the improvement of the design and performance. Silan will supply the best possible product for customers.