太欣半導體股份有限公司
SYNTEK SEMICONDUCTOR CO., LTD.

VIDEO Decoder

STK6024

Product Brief

Revision 0.9

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Caution!

1 Product Overview:

The STK6024 is a Cost effective Multi-Standard Video Decoder, and which has the Low Power Consumption for Mobile TV. The STK6024 is the best solution for LCD TV, Car-Navigation, TFT Door Phone, and so on.

The STK6024 includes 10bit ADC, Clamp, AGC, Notch Filter and Color Decoding Block for the Multi-Standard Video Signal such as NTSC-M/4.43, PAL-B/D/G/I/H/M/N/60.

And it supports the CCIR-R601/656 Format.

2 Product Features:

- Two 10bit ADCs for CVBS/Y & C and analog Clamping
- Programmable Gain Control & Automatic Gain Control for CVBS/Y
- Advanced High Stable Sync. Slicing for Non-Standard Video
- Multi-Standard Video Input (NTSC-M/4.43, PAL-B/D/G/I/H/M/N/60)
- Multi-Standard Color Decoding include Sub-Standard
- PAL Delay line for PAL phase error correction
- Automatic color control and color killer
- Adaptive 2/4 Line Come filter for composite video input
- Brightness, Contrast, Hue, Cb/Cr Gain Control
- Black/White Stretch, Blue Stretch, Fresh Tone, CTI, Dynamic Peaking Control
- 10bit/20bit ITU-R 601/656 Output Format
- Horizontal Down-Scaling and Up-Scaling with arbitrary scale ratio
- Vertical Down-Scaling with arbitrary scale ratio
- VBI Raw Data Output

3 Applications:

- Basic Video Appliance
- Mobile TV
- LCD TV, Car Navigation, TFT LCD Door Phone, Etc

4 Miscellaneous:

- Single 27Mhz Crystal for System Clock
- 1.8V, 3.3V CMOS Process

5 Functional Block Diagram

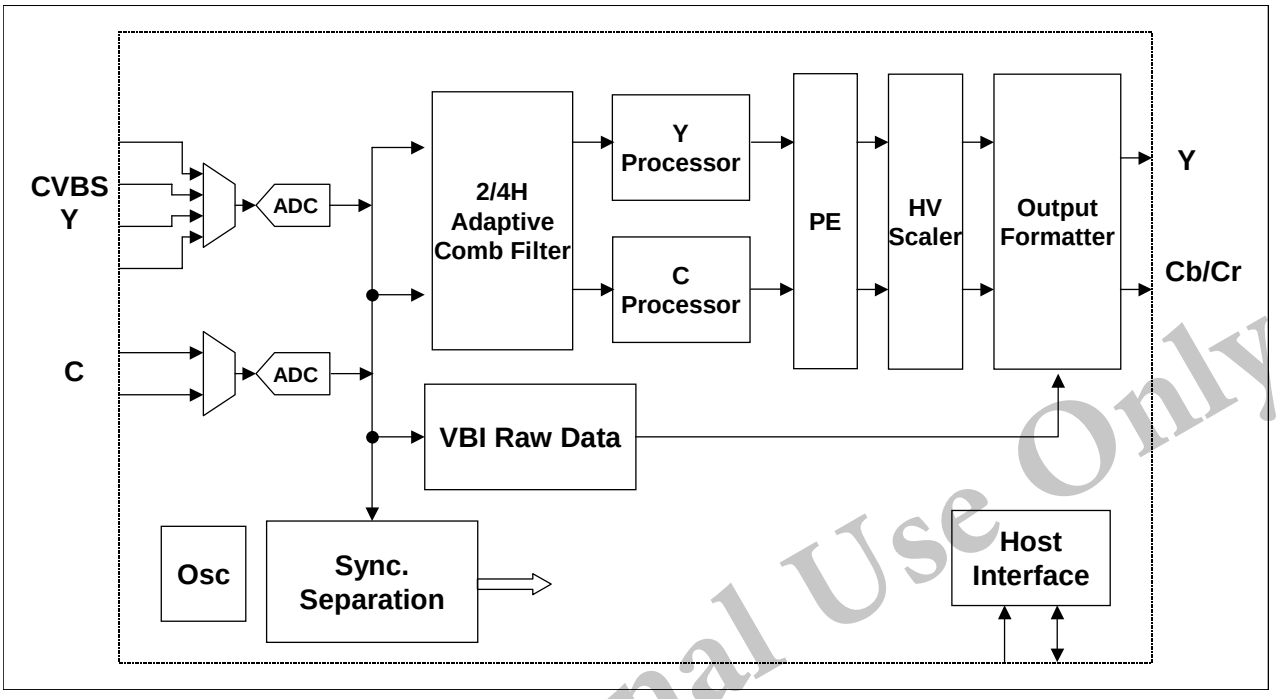
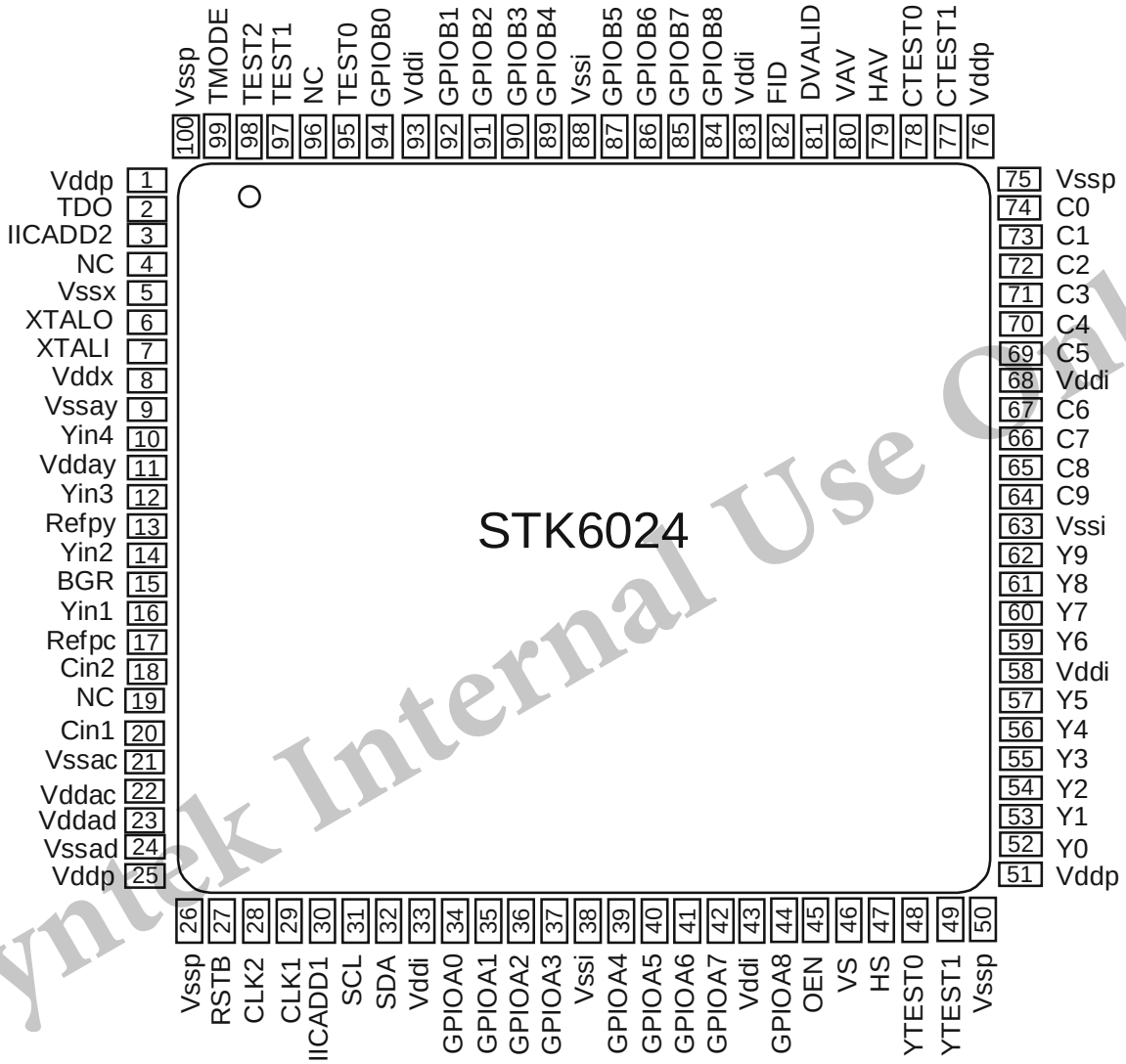


Fig.1 STK6024 Block Diagram

6 Pin Diagram



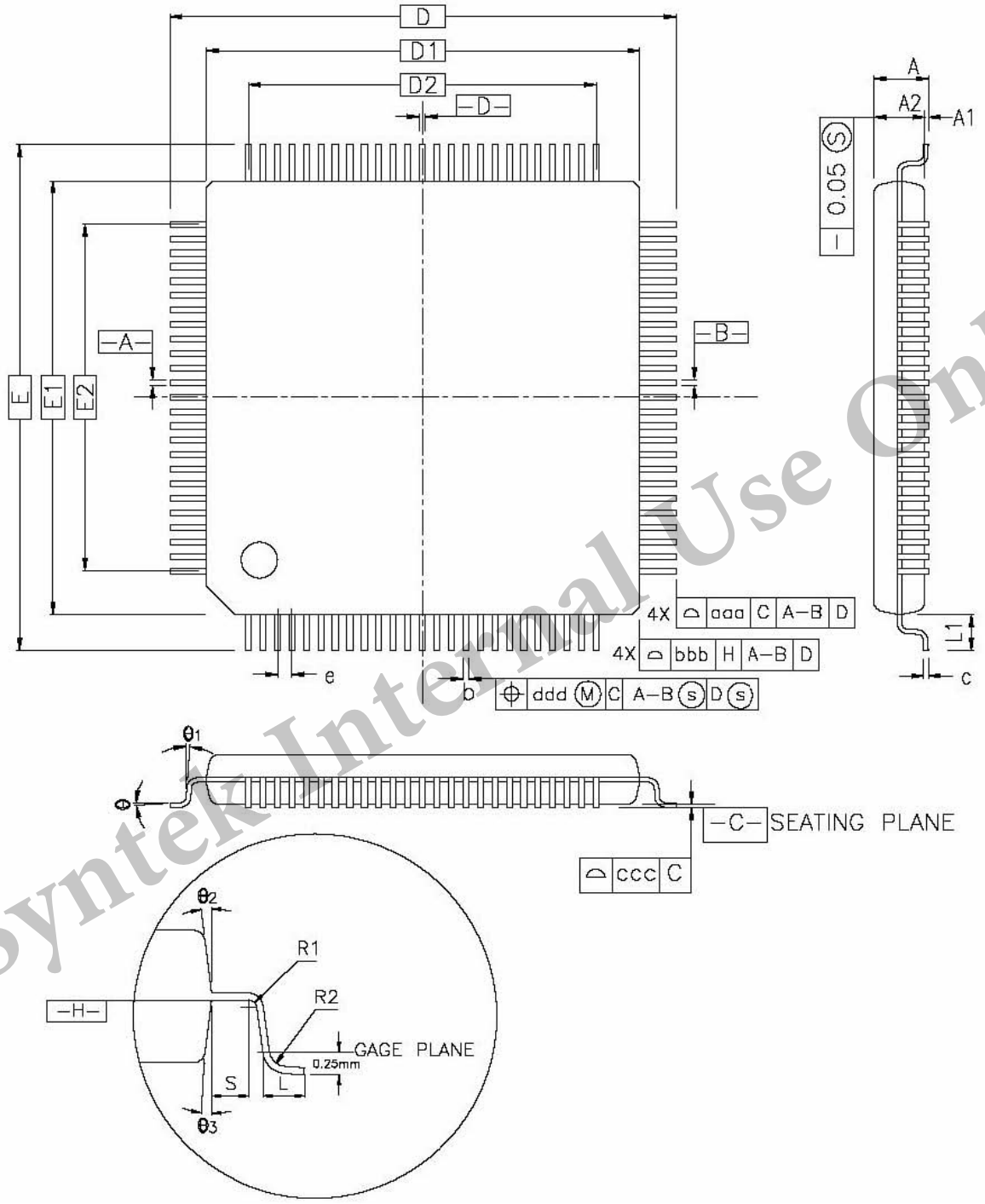
7 Pin Description

Pin No.	Pin Name	I/O/P	Description
1	Vddp	P	Digital Power 3.3V(ext. Pad Supply)
2	TDO	O	Test Data Output
3	IICADD2	I	IIC Address LSB2
4	NC		NC
5	Vssx	P	GND for XTAL
6	XTALO	O	XTAL Osc. Output
7	XTALI	I	Input For XTAL Osc.
8	Vddx	P	XTAL Power
9	Vssay	P	GND for Analog Y Inputs
10	Yin4	I	Analog Input Yin4
11	Vdday	P	Analog Power for Analog Y Inputs (3.3V)
12	Yin3	I	Analog Input Yin3
13	REFPY	I/O	Y channel Reference Top Voltage
14	Yin2	I	Analog Input Yin2
15	BGR	I/O	1.25V BGR In-Out
16	Yin1	I	Analog Input Yin1
17	REFPC	I/O	C channel Reference Top Voltage
18	Cin2	I	Analog Input Cin2
19	NC		NC
20	Cin1	I	Analog Input Cin1
21	Vssac	P	Analog GND
22	Vddac	P	Analog Power for Analog C Inputs (3.3V)
23	Vddad	P	Digital Power for Analog Front End(3.3V)
24	Vssad	P	Digital GND for Analog Front End
25	Vddp	P	Digital Power 3.3V(ext. Pad Supply)
26	Vssp	P	Digital GND(ext. Pad Supply)
27	RSTB	I	RESET Input, Active Low
28	CLK2	O	27MHz CLK Output
29	CLK1	O	13.5MHz CLK Output
30	IICADD1	I	IIC Address LSB1
31	SCL	I	IIC Serial Clock Line
32	SDA	I/O	IIC Serial Data Line
33	Vddi	P	Digital Power 1.8V(Internal Core)

34	GPIOA0	I/O	General Purpose I/O
35	GPIOA1	I/O	General Purpose I/O
36	GPIOA2	I/O	General Purpose I/O
37	GPIOA3	I/O	General Purpose I/O
38	Vssi	P	Digital GND (Internal Core)
39	GPIOA4	I/O	General Purpose I/O
40	GPIOA5	I/O	General Purpose I/O
41	GPIOA6	I/O	General Purpose I/O
42	GPIOA7	I/O	General Purpose I/O
43	Vddi	P	Digital Power 1.8V(Internal Core)
44	GPIOA8	I/O	General Purpose I/O
45	OEN	I/O	General Purpose I/O
46	VS	I/O	V Sync Output
47	HS	I/O	H Sync Output
48	YTEST0	I/O	Test Y0 output
49	YTEST1	I/O	Test Y1 output
50	Vssp	P	Digital GND(ext. Pad Supply)
51	Vddp	P	Digital Power 3.3V(ext. Pad Supply)
52	Y0	O	Digital video output(Y/YCbCr[0]) LSB
53	Y1	O	Digital video output(Y/YCbCr[1])
54	Y2	O	Digital video output(Y/YCbCr[2])
55	Y3	O	Digital video output(Y/YCbCr[3])
56	Y4	O	Digital video output(Y/YCbCr[4])
57	Y5	O	Digital video output(Y/YCbCr[5])
58	Vddi	P	Digital Power 1.8V(Internal Core)
59	Y6	O	Digital video output(Y/YCbCr[6])
60	Y7	O	Digital video output(Y/YCbCr[7])
61	Y8	O	Digital video output(Y/YCbCr[8])
62	Y9	O	Digital video output(Y/YCbCr[9]) MSB
63	Vssi	P	Digital GND (Internal Core)
64	C9	I/O	Digital video output(CbCr[9]) MSB
65	C8	I/O	Digital video output(CbCr[8])
66	C7	I/O	Digital video output(CbCr[7])
67	C6	I/O	Digital video output(CbCr[6])
68	Vddi	P	Digital Power 1.8V(Internal Core)
69	C5	I/O	Digital video output(CbCr[5])

70	C4	I/O	Digital video output(CbCr[4])
71	C3	I/O	Digital video output(CbCr[3])
72	C2	I/O	Digital video output(CbCr[2])
73	C1	I/O	Digital video output(CbCr[1])
74	C0	I/O	Digital video output(CbCr[0]) LSB
75	Vssp	P	Digital GND(ext. Pad Supply)
76	Vddp	P	Digital Power 3.3V(ext. Pad Supply)
77	CTEST1	I/O	CTEST1 Outout
78	CTEST0	I/O	CTEST0 Outout
79	HAV	I/O	HAV Outout
80	VAV	I/O	VAV Output
81	DVALID	I/O	Data Valid Output
82	FID	I/O	Field Indicator Output
83	Vddi	P	Digital Power 1.8V(Internal Core)
84	GPIOB8	I/O	General Purpose I/O
85	GPIOB7	I/O	General Purpose I/O
86	GPIOB6	I/O	General Purpose I/O
87	GPIOB5	I/O	General Purpose I/O
88	Vssi	P	Digital GND (Internal Core)
89	GPIOB4	I/O	General Purpose I/O
90	GPIOB3	I/O	General Purpose I/O
91	GPIOB2	I/O	General Purpose I/O
92	GPIOB1	I/O	General Purpose I/O
93	Vddi	P	Digital Power 1.8V(Internal Core)
94	GPIOB0	I/O	General Purpose I/O
95	TEST0	I	Should Be Connected to Gnd
96	NC		NC
97	TEST1	I	Should Be Connected to Gnd
98	TEST2	I	Should Be Connected to Gnd
99	TMODE	I	Should Be Connected to Gnd
100	Vssp	P	Digital GND(ext. Pad Supply)

8 Package Drawing



COTROL DIMENSIONS ARE IN MILLIMETERS.

SYMBOL	MILLIMETER			INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	—	—	1.60	—	—	0.063
A1	0.05	—	0.15	0.002	—	0.006
A2	1.35	1.40	1.45	0.053	0.055	0.057
D	14.00 BSC.			0.551 BSC.		
D1	12.00 BSC.			0.472 BSC.		
E	14.00 BSC.			0.551 BSC.		
E1	12.00 BSC.			0.472 BSC.		
R2	0.08	—	0.20	0.003	—	0.008
R1	0.08	—	—	0.003	—	—
θ	0°	3.5°	7°	0°	3.5°	7°
θ1	0°	—	—	0°	—	—
θ2	11°	12°	13°	11°	12°	13°
θ3	11°	12°	13°	11°	12°	13°
c	0.09	—	0.20	0.004	—	0.008
L	0.45	0.60	0.75	0.018	0.024	0.030
L1	1.00 REF			0.039 REF		
S	0.20	—	—	0.008	—	—

SYMBOL	80L						100L					
	MILLIMETER			INCH			MILLIMETER			INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
b	0.17	0.20	0.27	0.007	0.008	0.011	0.13	0.16	0.23	0.005	0.006	0.009
e	0.50 BSC.			0.020 BSC.			0.40 BSC.			0.016 BSC.		
D2	9.50			0.374			9.60			0.378		
E2	9.50			0.374			9.60			0.378		
TOLERANCES OF FORM AND POSITION												
aaa	0.20			0.008			0.20			0.008		
bbb	0.20			0.008			0.20			0.008		
ccc	0.08			0.003			0.08			0.003		
ddd	0.08			0.003			0.07			0.003		