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M52030ASP

NTSC SYSTEM SINGLE-CHIP COLOR TV SIGNAL PROCESSOR

DESCRIPTION

The M52030ASP is a single-chip semiconductor integrated circuit that processes color television signals.
It features a variety of signal processing functions including video IF, sound IF, picture, color, on-screen character display and deflection signal processing. The M52030ASP also combines tuner and simple transistor output level to facilitate practical NTSC type color television set design.

FEATURES

- Large-scale, single-chip construction enhances practicality and reliability of the television set itself while contributing to lower power consumption.
- Equipped with direct output pins for FM sound detector and can be used with sound multiplex.
- Enables use of AFT defeat and sound muting.
- Employs a fully synchronized detector circuit that uses PLL as a video detector; exhibits good performance for DG, DP, 920kHz beat, crosscolor, etc.
- Equipped with quadrature detector circuit for FM detection of sound IF. Features exclusive coil, simple external circuitry and exhibits good linearity.
- Does not require horizontal free run frequency adjustment.
- Is capable of R, G, B signal output.
- Features built-in on-screen character display circuit and easy connection with exterior RGB input.
- Features DC voltage control for picture quality, contrast, luminance, color saturation, tint and volume.
- Double AFC in the horizontal circuit effectively reduces weak electric field horizontal "jitter," and minimizes "bending" on the screen due to luminance alteration. Sync detection circuit enables detection signaling for sound muting, automatic tuning.
- Contained inside 52-pin shrink DIP for compact mounting.

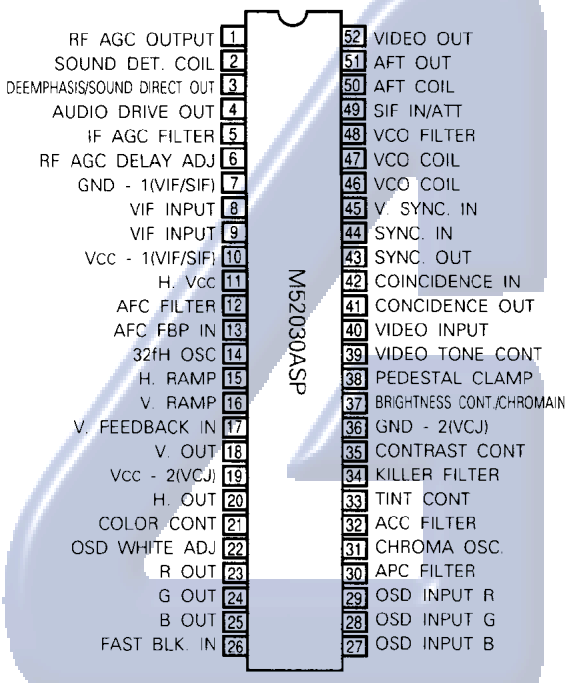
APPLICATION

NTSC-Type Color Television Receiver

RECOMMENDED OPERATING CONDITION

Supply Voltage	5V, 9V
Horizontal Supply Current	21mA
Operating Supply Voltage	4.5~5.5V, 8.5~9.5V
Operating Supply Current	18~25mA

PIN CONFIGURATION (TOP VIEW)



Outline 52P4B

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CHROMA SECTION

Symbol	Parameter	Test point	Input (G)	Test conditions*													Limits			Unit
				10	11 A	19	21	33	35	37	39	S 10	S 19	S 34	S 11 A	Note	Min.	Typ.	Max.	
Cmax	Demodulated Maximum Output	25	SG.L 0dB	5V	11 V	9V	4V	2.5 V	4V	4V	0V	ON	ON		ON		4.5	5.0	–	VP-P
Cnorm	Demodulated Typical Output	25	SG.L 0dB	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	21	2.3	3.0	3.7	VP-P
ACC1	ACC Characteristics 1	25	SG.L Vari	5V	11 V	9V		2.5 V		4V	0V	ON	ON		ON	22	–7.3	–2.3	2.7	dB
ACC1	ACC Characteristics 1																–3.2	–0.2	2.8	
CSmin	Color Control Variation Characteristics	25	SG.L 0dB	5V	11 V	9V	1V 2.3 V		2.5 V	4V	0V	ON	ON		ON	23	–	–30	–25	dB
CSmax		25		5V	11 V	9V	1V 2.3 V		2.5 V	4V	0V	ON	ON		ON	23	2	4	8	dB
CUmin	Color Tracking Variation Characteristics	25	SG.L 0dB	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	24	–	–15	–8	dB
CUmax		25		5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	24	2	4	8	dB
Fpc	APC Pull-In Range	25	SG.M 0dB	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	25	±400	±650	–	Hz
ViK	Killer Operation Input Level	25	SG.L Vari	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON	ON	ON	26	–42	–38	–32	dB
R/B	Demodulated Output Amplitude Ratio	23 25	SG.N 50mV	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	27	0.90	1.00	1.10	Ratio
G/B		24 25		5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	27	0.25	0.30	0.35	Ratio
θR-Y	Demodulated Output Phase Angle	23 25	SG.M	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	28	102	112	122	deg.
θG-Y		24 25		5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON	28	237	247	257	deg.
Tint Va	Tint Control Variation	23 24 25	SG.M	5V	11 V	9V	2.3 V		2.5 V	4V	0V	ON	ON		ON		75	90	–	deg.
Tmax	Tint Control Characteristics	25	SG.M	5V	11 V	9V	4V 1V		2.5 V	4V	0V	ON	ON		ON		–65	–45	–25	deg.
Tmin																	+25	+45	+65	
Tcen	Tint Center	25	SG.M	5V	11 V	9V	2.65 V		2.5 V	4V	0V	ON	ON		ON		–8.0	0	+8.0	deg.

* : Indicates OPEN.

DEFLECTION SECTION

Symbol	Parameter	Test point	Input (D)	Test conditions*													Limits			Unit
				10	11 A	19	S 10	S 11 A	S 11 B	S 12	S 12 A	S 15 A	S 19	S 20	S 44	Note	Min.	Typ.	Max.	
Icc11	Circuit Current (H/V)	A11	–	5V	11 V	9V	ON		ON	ON	ON	ON	ON	ON		29	18	21	24	mA
fH	Free Run Frequency	20	–	5V	11 V	9V	ON	ON		ON	ON	ON	ON	ON			15.300	15.734	16.000	kHz
V11 min	Oscillator Starting Voltage	11, 20	–	5V	Vari	9V	ON	ON		ON	ON	ON	ON	ON			–	4.4	5.3	V
fPH	Pull-In Range	D, 20	SG. B fVar	5V	11 V	9V	ON	ON		ON	ON	ON	ON	ON	ON	30	±500	±700	–	Hz
V20H	Horizontal Output Maximum Voltage	20	SG. B	5V	11 V	9V	ON	ON		ON	ON	ON	ON	ON	ON	31	3.0	3.8	–	VO-P

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