HA11525

Digital VCR Chroma Signal Processor, H/V Signal Processor

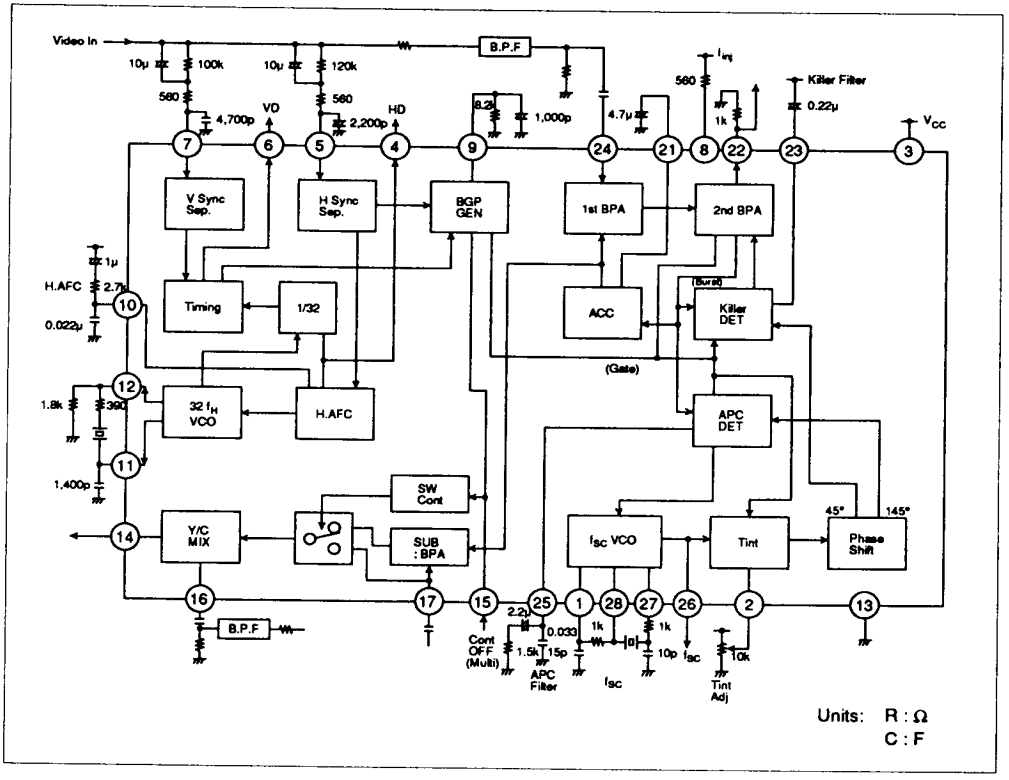
Functions

- Chroma signal processing (BPA, APC, VCO)
- H/V signal processing
- Y/C Mix

Features

- Chroma signal processing and H/V signal processing functions
- Optimum chroma signal processing for digital VCRs when used in conjunction with HA11532MP for .

Block Diagram



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V_{CC}	7.0	V
Power Dissipation	P_T	450	mW
Operating Temperature	T_{opr}	– 20 to +80	°C
Storage Temperature	T_{stg}	– 40 to +125	°C

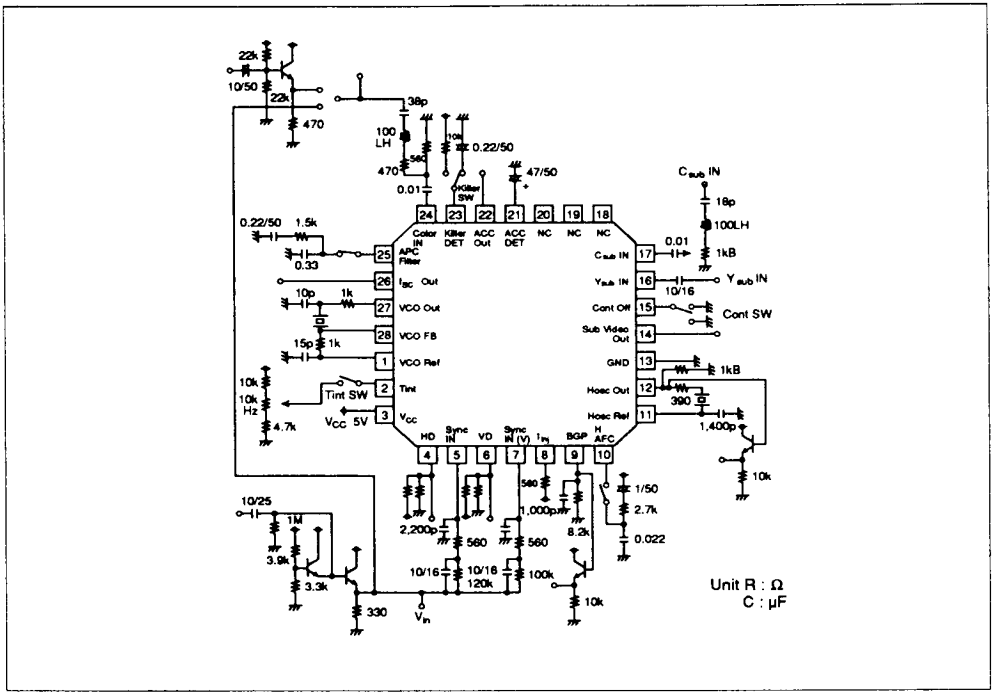
Electrical Characteristics (VSS = 0V, Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test Condition
1st BPA Rated Input		e_{MBI}	—	80	—	mVp-p	
2nd BPA Rated Output		e_{MBO}	380	430	480	mVp-p	
ACC Range	MAX	ΔG_{MAX}	–4	–2	+3	dB	Input burst level: –15dB e_{MBO} level ratio
	MIN	ΔG_{MIN}	–3	0.5	+3	dB	Output burst level: +6dB e_{MBO} level ratio
Killer Operating Point			—	–31	–26	dB	
1st BPA Input DC Voltage		E_{MBI}	2.75	2.85	2.95	V	
2nd BPA Output DC Voltage		E_{MBO}	2.1	2.4	2.7	V	
Killer Detection H-level		E_{KH}	3.4	3.8	4.3	V	
APC Pull Range	+	f_{P+}	+350	1000	—	Hz	Chroma input frequency (+) during pull
	–	f_{P-}	—	–700	–350	Hz	Chroma input frequency (–) during pull
APC Control Sensitivity		B	6	11	—	Hz/mV	
Killer Carrier Leak		e_K		32	30	dB	Forced killer
fsc Output Level		e_{fsc}	200	400	—	mVpp	
Chroma VCO Oscillation Frequency Offset			–70	0	+70	Hz	
BLK Threshold Value level		E_{DBI}	0.8	1.7	2.3	V	
Sub BPA Rated Input		e_{SBI}	—	310	—	mVpp	
Y/C Mix Y Rated Input		e_{YI}	—	500	—	mVpp	
Y/C Mix Amplifier Gain	Y	G_Y	5.8	6.3	6.8	dB	fi = 3.58MHz
	C	G_C	4.5	6.0	7.5	dB	fi = 3.58MHz
C Gain Control Tracking Error		ΔG_{CE}	–1.5	1.3	2.5	dB	See note 1

Item		Symbol	Min	Typ	Max	Unit	Test Condition
Y/C Mix Amplifier Frequency Characteristics	Y	f_{cy}	5	10	—	MHz	
	C	f_{cc}	4	15	—	MHz	
Sub BPA Input DC Voltage		E_{SBI}	2.5	2.6	2.7	V	
Y/C Mix Amplifier Input DC Voltage		E_{YI}	2.0	2.25	2.4	V	
Y/C Mix Amplifier Output DC Voltage		E_{MIX}	1.5	1.9	2.3	V	
Horizontal Free-running Frequency		f_{OH}	15434	15734	16034	Hz	
Horizontal Oscillation Frequency Current/Voltage Fluctuation		Δf_{HV}	—	+15 −30	±70	Hz	
HD Pulse Duration		T_{HD}	3.5	3.7	3.9	µs	
Horizontal Synchronization Pull Range	+	f_{HP+}	+400	+650	—	Hz	
	−	f_{HP-}	—	900	400	Hz	
Horizontal Pulse Output Open Channel Voltage		V_{MPOS}	—	3.3	4.0	V	Vcc: Increased gradually from 0V.
Synchronization Separation	H	V_{HSS}	3.4	3.6	3.8	V	
Power DC Level	V	V_{DSS}	3.4	3.6	3.8	V	
Vertical Free-running Frequency		f_{OV}	—	f_H/288.5	—	Hz	
VD Pulse Duration		T_{VD}	—	10.25H	—	sec	Video input: OPEN
HD Pulse Output Voltage (HI)		E_{HDH}	3.8	4.0	4.3	V	Load against GND 3kΩ
HD Pulse Output Voltage (LO)		E_{HDL}	0.7	0.8	1.2	V	Load against GND 3kΩ
VD Pulse Output Voltage (HI)		E_{VDH}	3.8	4.0	4.3	V	Load against GND 3kΩ
VD Pulse Output Voltage (LO)		E_{VDL}	0.7	0.9	1.2	V	Load against GND 3kΩ
Supply Current		I_D	30	42	54	mA	
BGP Mask Pulse Duration		T_{BNP}	—	12H	—	sec	
BGP Pulse Duration		T_{BGP}	—	2.5	—	µs	Pulse duration following sync. signal trailing edge

Note 1: Input burst level 0 → + 6dB, 0 → − 10dB

Test Circuit



Ordering Information

Type No.	Package
HA11525MP	MP-28
HA11525NT	DP-30S