

[VIF]

- \* PLL type video detector for the high picture & sound quality
- \* High gain VIF amp ( Pre-amp unnecessary )
- \* High speed AGC
- \* Built in APC time constant SW

[SIF]

- \* Audio IN/OUT at same time
- \* Video/Audio simultaneous muting, or audio-only muting possible

[AV SW]

\* INT/EXT AV SW

Delay Line	Video EXT, Audio EXT	SW Condition
OFF	IN	D
OFF	EXT	C
ON	EXT	B
ON	IN	A

[OSD]

- \* RGB 3 input
- \* RGB Liner amp ( -6dB Input:2v-5v )
- \* Fast blanking ( With B IN )

[CHROMA]

- \* Built in ACC filter, Killer filter
- \* Built in carrier filter

[VIDEO]

- \* BlackExpansion
- \* DC restoration compensation
- \* Built in Delay Line
- \* Wide band width ( 9MHz ): Delay Line short
- \* A quadratic differentiation circuit allowing soft video tone operation also incorporated
- \* S Input for VCR
- \* DC restoration variable ( by external circuit )

[DEFLECTION]

- \* Hor. and Vert. sync are no-adjustable
- \* Dual AFC system with excellent horizontal noise characteristics
- \* Y-sync sensitivity external adjustable
- \* Vertical size is constant with no-signal ( 60Hz constant frequency )
- \* High stability for copy guard tape ( macrovision )
- \* High stability for skew of VCR

Electrical Characteristics at  $T_a=25^\circ\text{C}$ ,  $V_{CC}=V_{EE}=V_{DD}=9\text{V}$ ,  $I_{CC}=I_{EE}=13\text{mA}$

			min	typ	max	unit
[VIF] $f_p=5.7\text{MHz}$						
Video Detector DC Output Voltage-1	$V_{e1}$	Quiescent	4.2	4.6	5.0	V
AFT Output Voltage	$V_{e1}$	Quiescent	2.8	4.4	5.8	V
Maximum RFAOC Control Voltage	$V_{e1H}$	CW=85dB $\mu$ , RFAOC VR=min	7.6	8.0	8.3	V
Minimum RFAOC Control Voltage	$V_{e1L}$	CW=85dB $\mu$ , RFAOC VR=max	0	0.01	0.3	V
VIF Input Sensitivity	$V_i$	VIF input level at which video output is 0.8V $_{r-r}$ (40 $\mu$ MOD).	30	36	42	dB $\mu$
VIF AGC Control Range	GR	Maximum input( $V_o=0.8V_{r-r}$ ) -input sensitivity	60	68		dB
VIF Maximum Permissible Input	$V_i$	VIF input level at which video output is +1dB.	100	107		dB $\mu$
Video detector Output Differential Gain	$V_{o11}$	$V_i=80\text{dB}\mu$ , AM=78 $\mu$ MOD	1.7	2.0	2.3	V $_{r-r}$
Differential Phase	DP	$V_i=80\text{dB}\mu$ , 87.5 $\mu$ , Video $\mu$ MOD		3.0	10	deg
Video S/N	S/N	Same as above		3.0	10	deg
Sync-Tip level	$V_{e1TIP}$	$V_i=80\text{dB}\mu$ (AM78 $\mu$ MOD)/CW	47	53		dB
Video Frequency Characteristic	$f_c$	CW=80dB $\mu$	2.0	2.3	2.6	V
VIF Intermodulation	$I_{330}$	Frequency at which video output is down 3dB	5.0	7.0		MHz
Maximum AFT Control Voltage	$V_{e1H}$	V3.58MHz/V920KHz, $V_i=80\text{dB}\mu$	35	42		dB
Minimum AFT Control Voltage	$V_{e1L}$	CW=80dB $\mu$ , frequency change	8.0	8.6	8.9	V
AFT Detector Sensitivity	Sf	Same as above	0.1	0.4	0.9	V
AFT Switch Operation Start Voltage	$V_{AFT SW}$	Test with sweep signal	30	45	65	mV/KHz
Black Noise Threshold level	$V_{BTH}$	Same as above	0.5	1.2		V
White Noise Threshold level	$V_{WTH}$	Same as above	1.2	1.5	1.8	V
APC Pull-in Range(U)1	$f_{PU-1}$		0.45	0.8		MHz
APC Pull-in Range(L)1	$f_{PL-1}$			-0.8	-0.45	MHz
APC Pull-in Range(U)2	$f_{PU-2}$		1.0	1.7		MHz
APC Pull-in Range(L)2	$f_{PL-2}$			-1.7	-1.0	MHz
VCD Maximum Variable Range	$\Delta f_U$		1.2	2.1		MHz
VCD Control Sensitivity	$\Delta f_L$			-2.1	-1.2	MHz
	$\beta$		1.4	2.8	5.6	KHz/mV
[SIF, AF] $f_s=4.5\text{MHz}$						
SIF Input Limiting Sensitivity	$V_i(\text{lim})$	SIF input level at which detection output is down 3dB.		5	52	dB $\mu$

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			min 380	typ 550	max 750	unit mVrms
FM Detector Output Voltage	$V_{DO}$	$V_i=100\text{dB}\mu, \Delta f=\pm 25\text{kHz}$				
FM Detector Output Distortion	THD	$V_i=100\text{dB}\mu, \Delta f=\pm 25\text{kHz}$		0.4	1.0	%
AM Rejection	AMR	$V_i=100\text{dB}\mu$ (FM: $\Delta f=\pm 25\text{kHz}$ )/(AM: 30%)	43	56		dB
AF Amp Voltage Gain	$G_{AF}$	$V_i=100\text{mVrms}, f=400\text{Hz}$	18	20	22	dB
AF Maximum Output Voltage	$V_{O6 \text{ max}}$	Output level at which AF Amp Output distortion is 10%.	2.0	2.8		Vrms
AF Electronic Attenuator Range	ATT	$V_i=200\text{mVrms}, f=400\text{Hz}$	70	80		dB
[AV SW]						
Video Detector DC Output Voltage-2	$V_{2a}$	Quiescent		3.3		V
Internal Video Input Voltage	$V_{42}$	Quiescent		4.8		V
External Video Input Voltage	$V_{40}$	Quiescent		4.8		V
External Audio Input Voltage	$V_3$	Quiescent		5.6		V
[Black Expantion]						
Black Expansion Ratio	$\Delta V_{BL}$					%
Ratio of DC Restoration Compensation	$\Delta V_{RC}$					%
[Video]						
Soft Video Tone Variable Range	$\Delta\text{Soft}$	$f=2\text{MHz}, 100\text{mV}_{p-p}$ , Video Tone VR: 4V-0V	-6	-4	-2	dB
Sharp Video Tone Variable Range	$\Delta\text{Sharp}$	$f=2\text{MHz}, 100\text{mV}_{p-p}$ , Video Tone VR: 4V-9V	3	6	9	dB
Video Voltage Gain	$G_V$	$f=100\text{kHz}, 100\text{mV}_{p-p}$ Contrast VR: 9V, Video Tone VR: 4V	17	20	23	dB
Contrast Control Center	$C_{CEN}$	$f=100\text{kHz}, 100\text{mV}_{p-p}$ Contrast VR: 9V	0.45	0.57	0.69	$V_{p-p}$
Contrast Control Variable Range	$\Delta C_V$	$f=100\text{kHz}, 100\text{mV}_{p-p}$ Contrast VR: 3V-9V	20	22	24	dB
Bright Control	$BR_U$ $BR_{CEN}$ $BR_L$	Bright VR: 2V Bright VR: 4.5V Bright VR: 7V	5.8 2.6	3.1	3.6 1.2	V V V
Frequency Response 1	$fV_1$	Contrast VR: 9V at delay line short. Video Tone VR: 4V, 3dB down	7	9		MHz
Frequency Response 2	$fV_2$	Contrast VR: 9V Video Tone VR: 4V, 3dB down	3	5		MHz

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			min	typ	max	unit
[On Screen Display]						
Blanking Pulse			0.7	1.0	1.3	V
Threshold level						
-Y Out DC Voltage		B-In:2V	2.7	3.0	3.3	V
R.G.B Input			1.7	2.0	2.3	V
Threshold level						
R.G.B. Output DC Voltage		Input:3V		5.5		V
		Input:4V		6.0		V
		Input:5V		6.5		V
[Chroma]						
Color Control Minimum	$E_c$ min	Color YR:0V			30	mV <sub>r-r</sub>
		Contrast YR:9V				
Color Control Center	$W_c$ cen	Color YR:4.5V	1.2	1.5	1.8	V <sub>r-r</sub>
		Contrast YR:6V				
Color Contrast	$C_c$	Color YR:B-Y=2.5V <sub>r-r</sub>	18.5	20	21.5	dB
Variable Range		Contrast YR:3V-9V				
Demodulator Output	$V_{c-Y}$	Burst signal only	4.7	5.2	5.7	V
DC Voltage		Color YR:0V				
Demodulator Output	$\Delta V_{c-Y}$	Same as above	-30	0	30	mV
Offset Voltage						
Residual Carrier	$E_{car}$				0.03	V <sub>r-r</sub>
APC Pull-in Range	$\Delta f_{APC}$		$\pm 500$			Hz
ACC Amplitude	$ACC_{MIN}$	+6dB	-3	0	+3	dB
Characteristics	$ACC_{MAX}$	-20dB	-7		+2	dB
ACC Phase Characteristics	$ACC_{MIN}$	+6dB	-3	0	+3	deg
	$ACC_{MAX}$	-20dB	-7		+7	deg
Tint Control Center	$T_{CEN}$	Tint YR:4.5V	-9	+3	+15	deg
		Color YR:4.5V				
		Contrast YR:6V				
Tint Variable Range	$\Delta T$	Tint YR:0V-4.5V-9V	$\pm 40$			deg
		Color YR:4.5V				
		Contrast YR:6V				
Demodulator Output Ratio	R/B <sub>N</sub>		0.81	0.9	0.98	
	G/B <sub>N</sub>		0.24	0.3	0.38	
Demodulator Phase Angle	$\Delta RB_N$		99	105	111	deg
	$\Delta GB_N$		-130	-120	-110	deg
Killer Operating Point	$E_{KONN}$					dB
Maximum Demodulator	$E_c$ MAX <sub>N</sub>	Color YR:9V	4.0	5.0		V <sub>r-r</sub>
Output		Contrast YR:9V				
[Deflection]						
Sync Separator Input	$V_s$ DC		6.0	6.3	6.6	V
DC level						
Vertical Maximum	$T_v$ MAX <sub>60}</sub>			297		H
Running Period						
Vertical Minimum	$T_v$ MIN <sub>60}</sub>			25		H
Running Period						

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			<u>min</u>	<u>typ</u>	<u>max</u>	<u>unit</u>
Vertical Blanking Pulse Voltage	$V_{II\ VBL}$		7.0	7.5		V
Vertical Output Pulse Width	$P_W\ V_{OUT}$			8.5		H
Vertical Output Pulse Voltage	$Y_{OUT\ H}$			6		V
	$Y_{OUT\ M}$			4.6		V
	$Y_{OUT\ L}$				0.3	V
Vertical External Trigger Load Resistor	$R_{TR}$			2.5	3.6	Kohm
Vertical Automatic Synchronizer Stop Voltage	$Y_{SAS}$			1.9	2.4	V
Vertical Operation Start Voltage	$S_{VV}$				4	V
Horizontal Free Running Frequency Deviation	$\Delta f_H$	Deviation from 15.734KHz	-70	30	130	Hz
Horizontal Sync Pull-in Range	$\Delta f_H\ Pull$	Deviation from 15.734KHz		$\pm 400$		Hz
Horizontal Operation Start Voltage	$S_{HV}$			4.3	5	V
AFC II FBP Peak Voltage	$FBP_H$		4.1	4.6	5.1	V
VCR SW Input Voltage	$YCR$			1.3	2.0	V

# OSD (On Screen Display) CHARACTERISTIC

## (1) INPUT THRESHOLD LEVEL

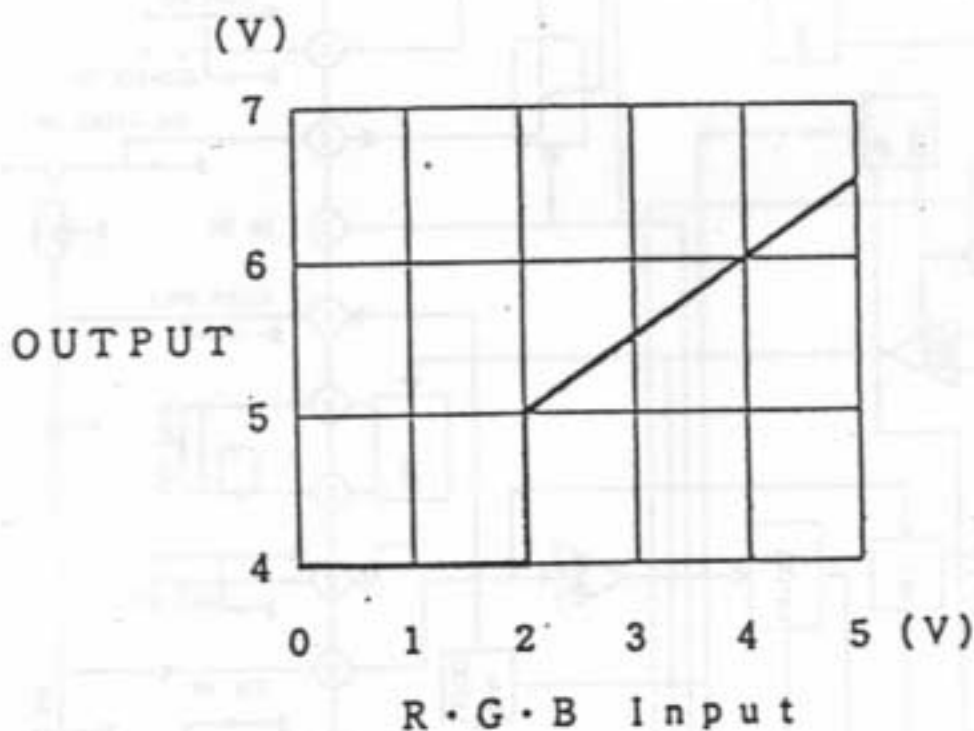
- Fast Blanking --- 1 V
- R·G·B Input --- 2 V

## (2) -Y OUT

- -Y Output DC Voltage --- 3 V  
(at B-Input > 1 V)

## (3) R-Y, G-Y, B-Y OUT

### R·G·B AMP CHARACTERISTIC





# LA7670(NTSC 1CHIP IC) TENTATIVE (USA)

