

[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 μ , RFAOC VR=min | 7.6 | 8.0 | 8.3 | V |
| Minimum RFAOC Control Voltage | V_{e1L} | CW=85dB μ , 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%MOD). | 30 | 36 | 42 | dB μ |
| 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 μ |
| Video detector Output Differential Gain | V_{o11} | $V_i=80\text{dB}\mu$, AM=78%MOD | 1.7 | 2.0 | 2.3 | V $r-r$ |
| Differential Phase | DP | $V_i=80\text{dB}\mu$, 87.5%, VideoMOD | | 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%MOD)/CW | 47 | 53 | | dB |
| Video Frequency Characteristic | f_c | CW=80dB μ | 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} | $V_3=58\text{MHz}/1920\text{kHz}$, $V_i=80\text{dB}\mu$ | 35 | 42 | | dB |
| Minimum AFT Control Voltage | V_{e1L} | CW=80dB μ , 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 | Δf_U | | 1.2 | 2.1 | | MHz |
| VCD Control Sensitivity | Δf_L | | | -2.1 | -1.2 | MHz |
| [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 μ |

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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_{4a} | Quiescent | | 4.8 | | V |
| External Video Input Voltage | V_{4b} | Quiescent | | 4.8 | | V |
| External Audio Input Voltage | V_3 | Quiescent | | 5.6 | | V |
| [Black Expansion] | | | | | | |
| Black Expansion Ratio | ΔV_{BL} | | | | | % |
| Ratio of DC Restoration Compensation | ΔV_{RC} | | | | | % |
| [Video] | | | | | | |
| Soft Video Tone Variable Range | Δ_{Soft} | $f=2\text{MHz}, 100\text{mV}_{p-p}$, Video Tone VR: 4V-0V | -6 | -4 | -2 | dB |
| Sharp Video Tone Variable Range | Δ_{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 | ΔC_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 _{r-r} |
| | | Contrast YR:9V | | | | |
| Color Control Center | W_c cen | Color YR:4.5V | 1.2 | 1.5 | 1.8 | V _{r-r} |
| | | Contrast YR:6V | | | | |
| Color Contrast | C_c | Color YR:B-Y=2.5V _{r-r} | 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 | ΔV_{c-Y} | Same as above | -30 | 0 | 30 | mV |
| Offset Voltage | | | | | | |
| Residual Carrier | E_{car} | | | | 0.03 | V _{r-r} |
| APC Pull-in Range | Δf_{APC} | | ± 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 | ΔT | Tint YR:0V-4.5V-9V | ± 40 | | | deg |
| | | Color YR:4.5V | | | | |
| | | Contrast YR:6V | | | | |
| Demodulator Output Ratio | R/B _N | | 0.81 | 0.9 | 0.98 | |
| | G/B _N | | 0.24 | 0.3 | 0.38 | |
| Demodulator Phase Angle | ΔRB_N | | 99 | 105 | 111 | deg |
| | ΔGB_N | | -130 | -120 | -110 | deg |
| Killer Operating Point | E_{KONH} | | | | | dB |
| Maximum Demodulator | E_c MAX _N | Color YR:9V | 4.0 | 5.0 | | V _{r-r} |
| 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 ₆₀ | | | 297 | | H |
| Running Period | | | | | | |
| Vertical Minimum | T_v min ₆₀ | | | 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 | Δf_H | Deviation from 15.734KHz | -70 | 30 | 130 | Hz |
| Horizontal Sync Pull-in Range | $\Delta f_H\ Pull$ | Deviation from 15.734KHz | | ± 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

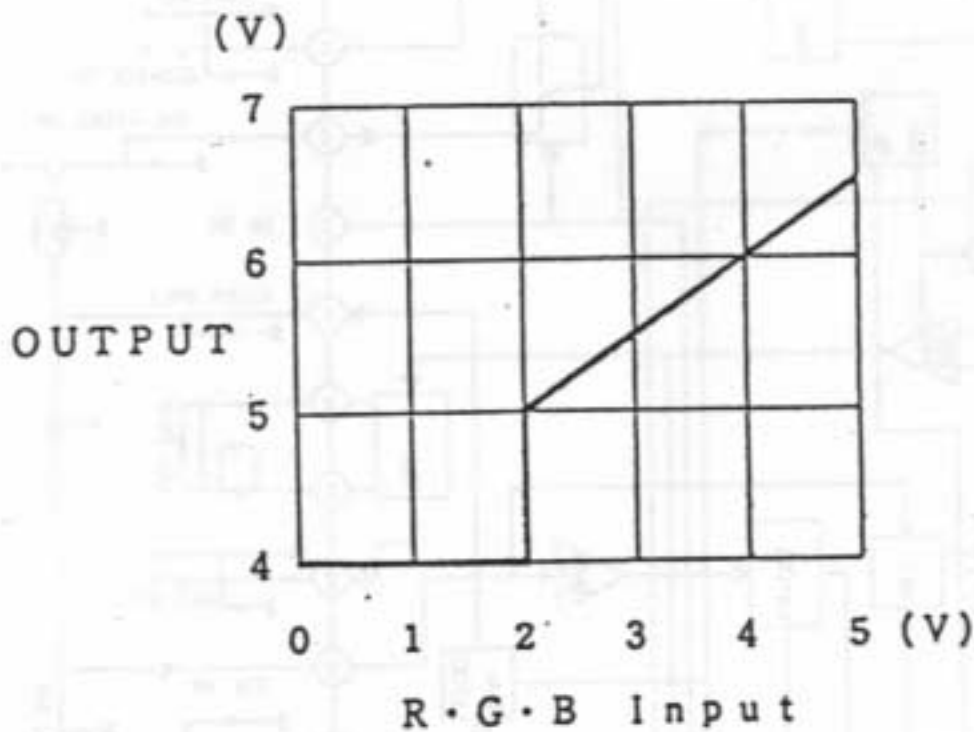
- Fast Blanking --- 1 V
- R·G·B Input --- 2 V

(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)

