查询TA8725AN供应商 捷多邦，专业PCB打样工厂，24小时加急出货

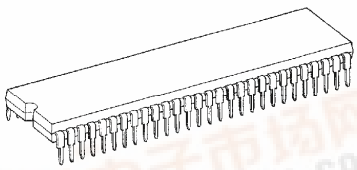


TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA8725AN

## 1CHIP COR NTSC CTV

The TA8725AN combines all the functions required for an NTSC CTV system in a 56-lead, dual-in-line shrink-type plastic package.
This IC includes PLL type PIF / SIF circuits, video / chroma / deflection circuits and OSD interfaces.



SDIP56-P-600-1.78

Weight : 5.55g (Typ.)

### FEATURES

PIF stage

- Split carrier PLL type PIF
- High speed 3-stage variable gain PIF amplifier with dual time constants (Peak AGC)
- Single-end AFT output with defeat function
- RF AGC output (Reverse AGC)
- Sync. negative detected video output
- Internal black / white noise inverter with EIA decoder SW (for IS-15)

SIF stage

- Split carrier SIF
- 20dB SIF AGC
- Quadrature FM detector circuit with sound mute function

Video stage

- Black expander
- Variable DC restoration ratio
- Built-in video delay-line with 3.58MHz trap
- Picture sharpness with internal delay-line (160ns)
- Contrast control with uni-color function
- Brightness control

961001EBA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.



找PDF 维库一下 pdf.dzsc.com

Chroma stage

- Built-in take off or 3.58MHz Band-pass filters can be selected.
- Built-in ACC and killer filters
- Color control
- Tint control
- Color differential outputs
- Filter automatic tuning

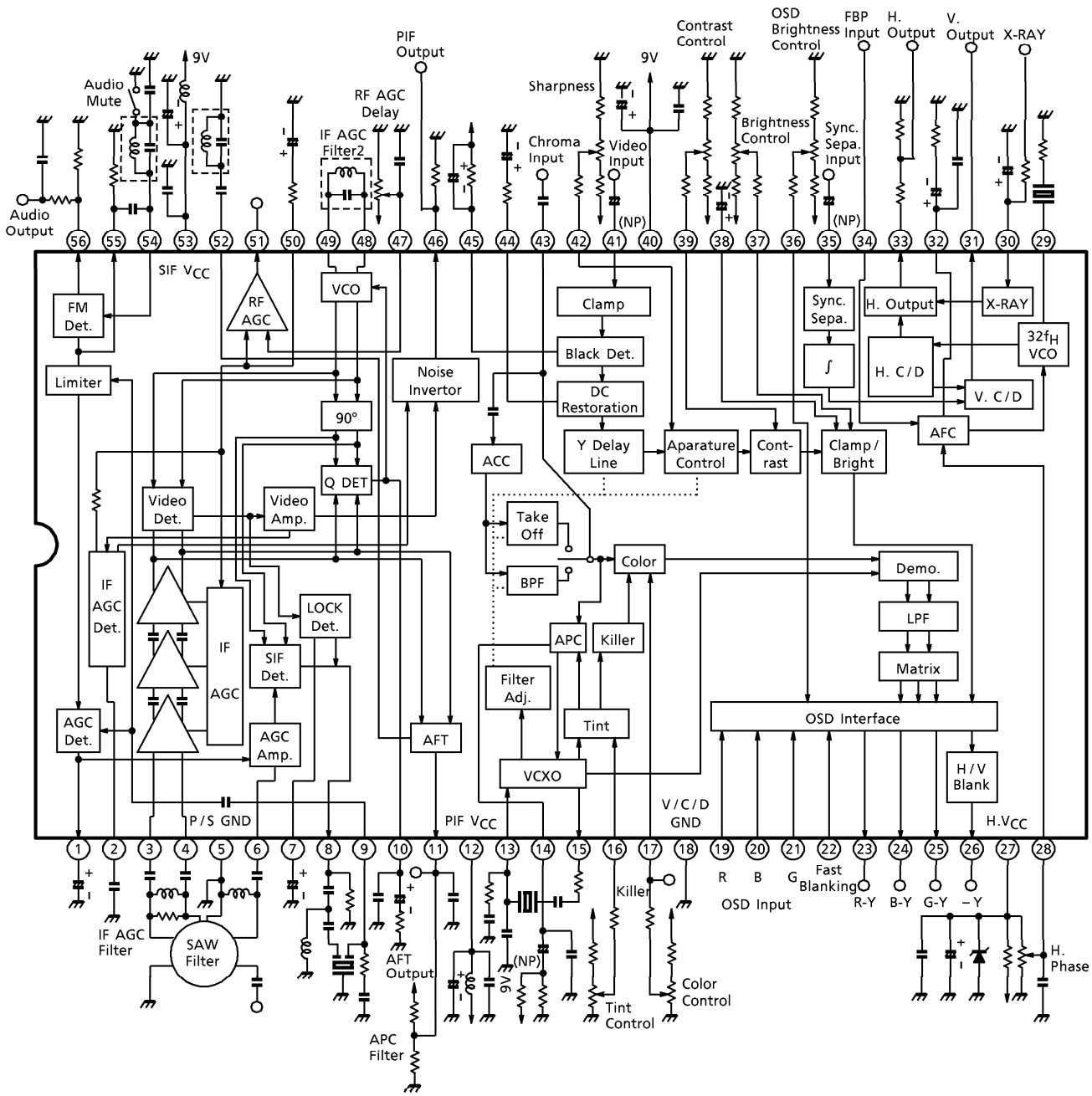
Detection stage

- Adjustment-free horizontal and vertical count down system
- Built-in vertical integral and V. sepa. circuit
- Vertical drive pulse output for TA8445K
- X-ray protect circuit

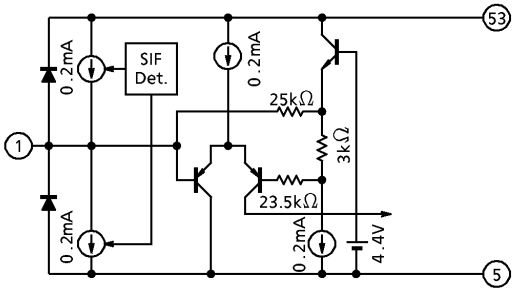
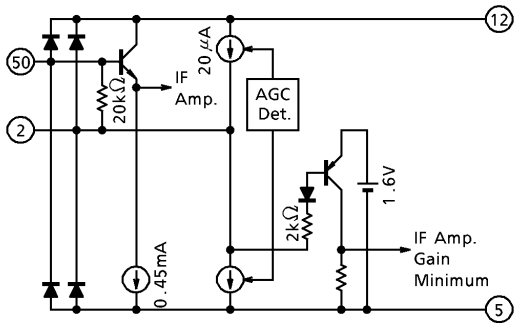
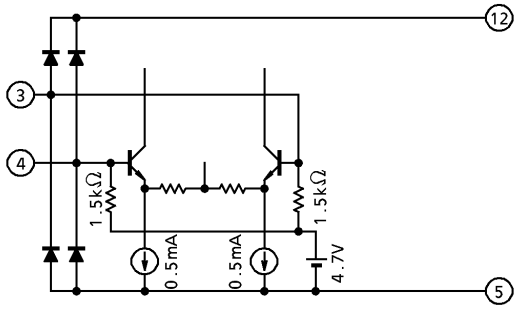
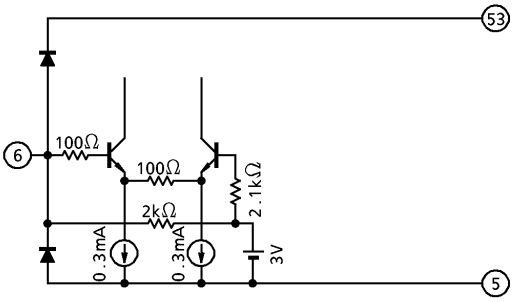
OSD interface stage

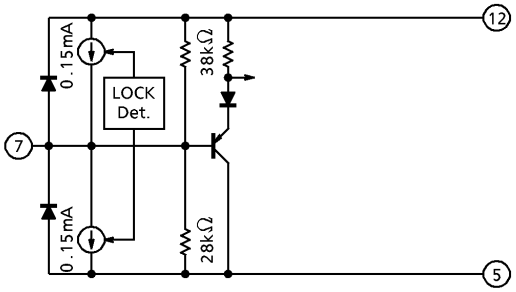
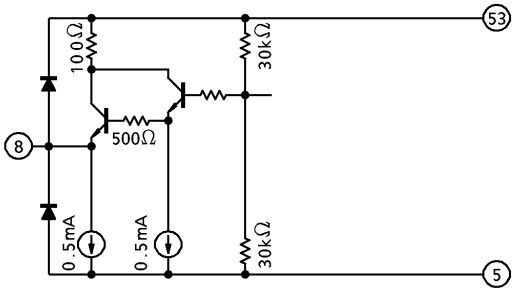
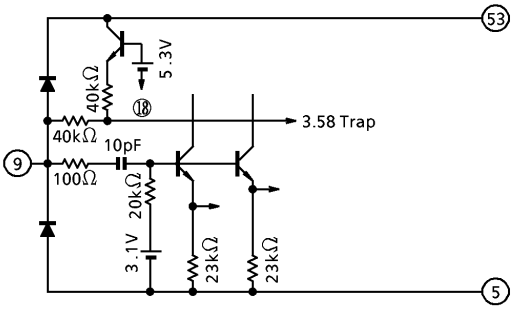
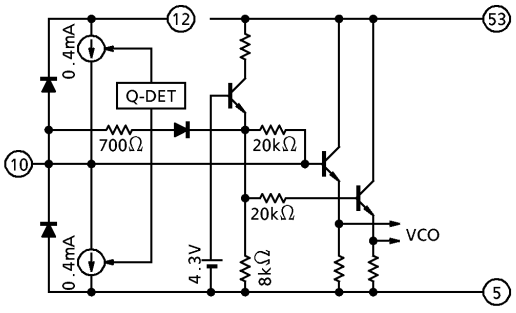
- R, G and B OSD input
- Fast-blanking SW input
- OSC brightness control

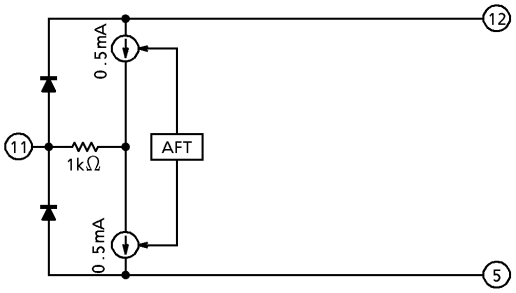
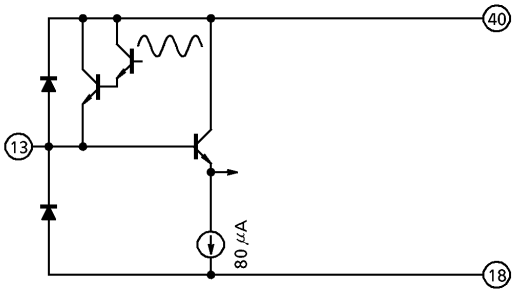
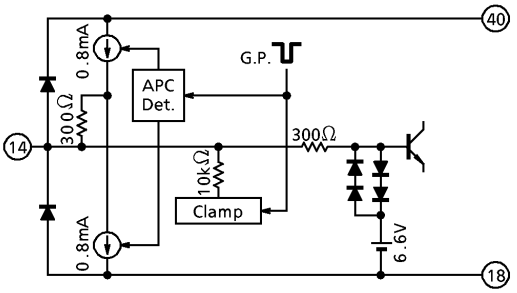
## BLOCK DIAGRAM

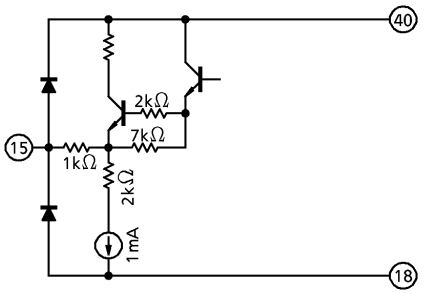
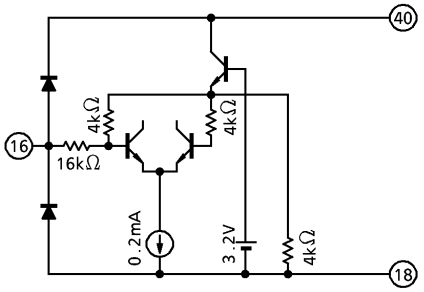
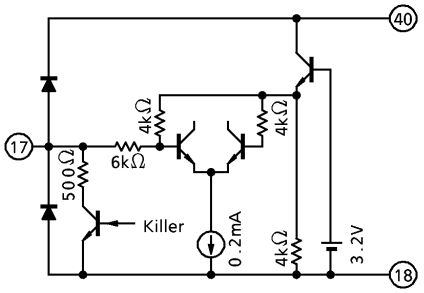
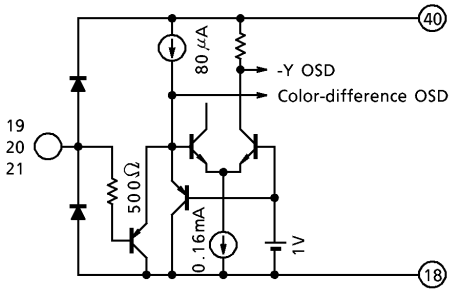


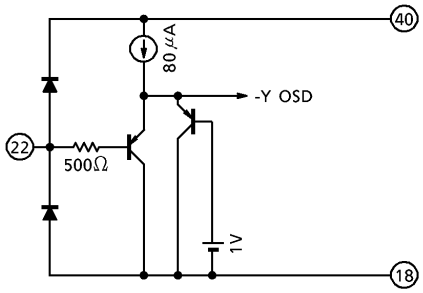
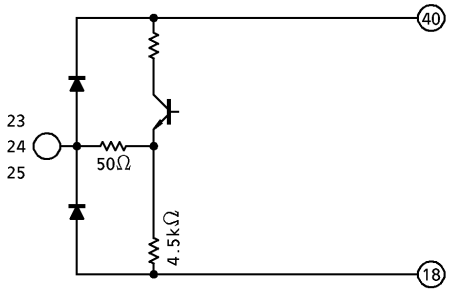
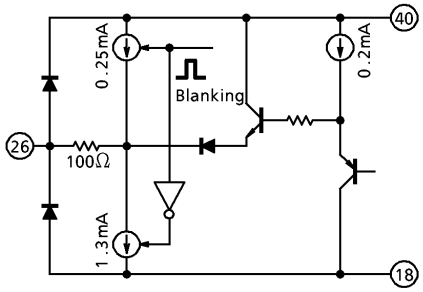
**TERMINAL FUNCTION**

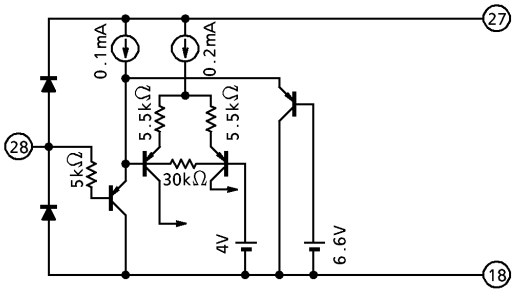
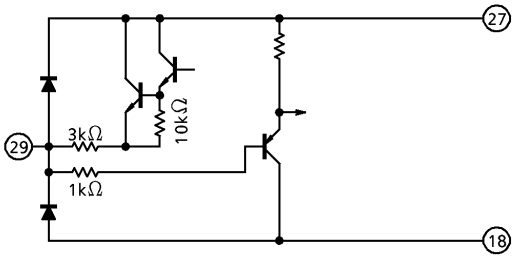
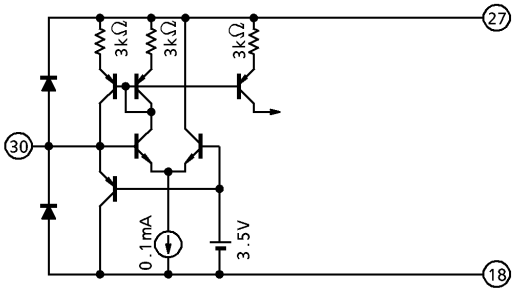
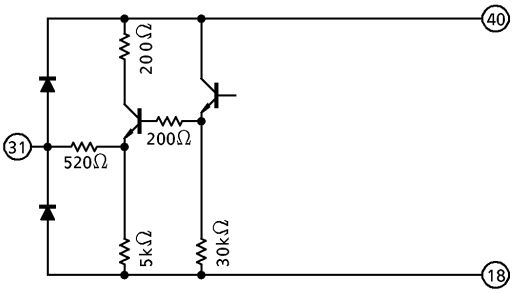
| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 1 | SIF AGC | This is a SIF AGC filter terminal.<br>AGC is applied in the SIF input stage.<br>This AGC is referenced to the limiter input signal. |  |
| 2 | 1st AGC | This is a PIF 1st AGC filter terminal.<br>Peak AGC is applied in the PIF 3-stage amp. This AGC is referenced to the PIF-detection output signal after the video amp.<br>A high-speed AGC circuit based on dual time constants is used here.<br>By connecting this pin to GND, requirements under the U.S. IS-15 standards can be met. |  |
| 3<br>4 | PIF Input 1<br>PIF Input 2 | This is a PIF differential amp. input pin.<br>A 3-stage, dual-time constant, high-speed AGC amp. is incorporated here.<br>The standard PIF input level is 84dBμV. |  |
| 5 | P/S GND | This is a GND pin for the PIF and SIF circuits. | — |
| 6 | SIF Input | This is a SIF amp. input pin.<br>An AGC amp. with a gain variable range of approx. 20dB is incorporated here.<br>The standard SIF input signal level is 75dBμV.<br>The AGC response range is −10dB. |  |

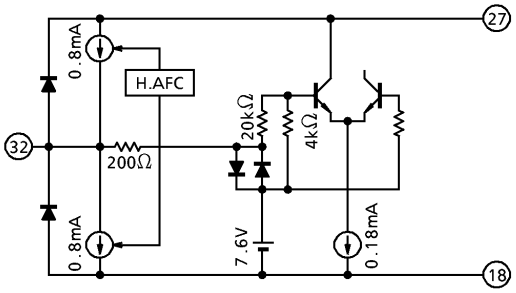
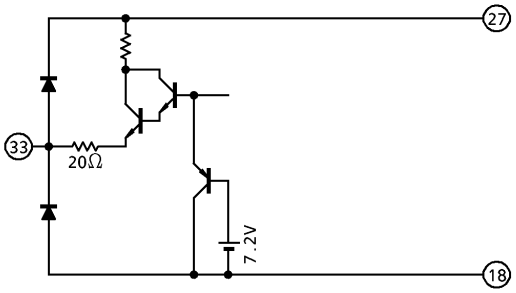
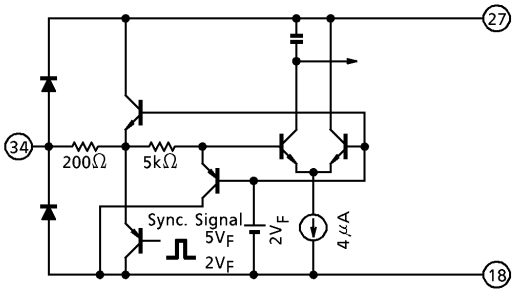
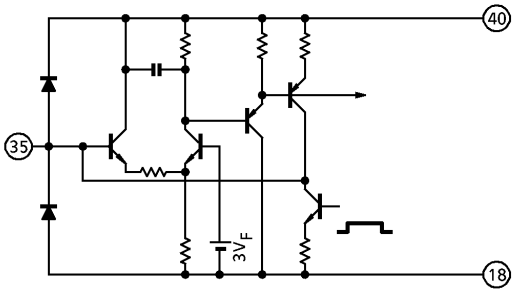
| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 7 | PLL Sync. Det. | This is a PLL sync. Det. filter terminal. The PLL synchronization is detected by identifying whether or not signal is present after meanvalue-demodulating the PIF-Det. output signal. The result of sync. Det. is output from the SIF output pin as a DC voltage. When locked in phase : HIGH level When not locked in phase : LOW level |   |
| 8 | SIF Output | This is a SIF-Det. output pin. Make sure that the output from this pin is fed to the limiter input terminal through a 4.5MHz band-pass filter. This pin also functions as a PLL sync. Det. output pin. Check the DC voltage from this pin to see the locked condition of the PLL circuit. The DC voltage is as follows : When locked in phase : HIGH level When not locked in phase : LOW level |   |
| 9 | Limiter Input | This is a limiter amp. input pin. Use this pin to input an audio FM modulation signal. AGC control is applied using the SIF amp. to maintain the limiter amp. input signal level at about 100dBμV. This pin also functions as a chroma trap switch in the video section. LOW level : ON HIGH level : OFF |   |
| 10 | Loop Filter | This is a PIF PLL loop filter terminal. This terminal contains a circuit to select the desired loop filter time constant during PLL sync. Det. |   |

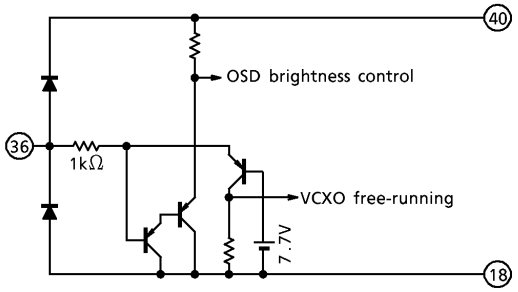
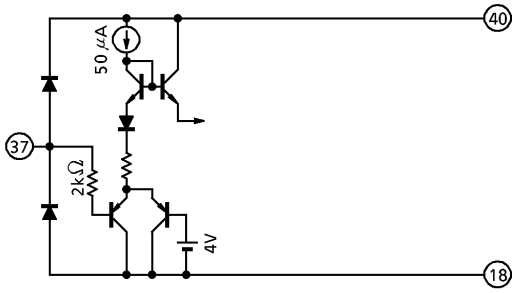
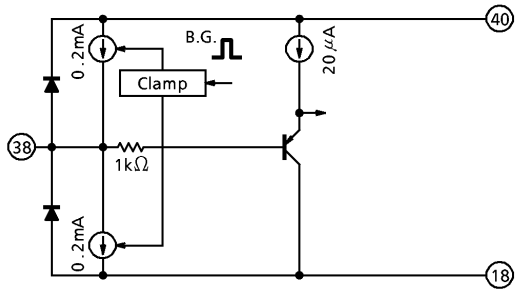
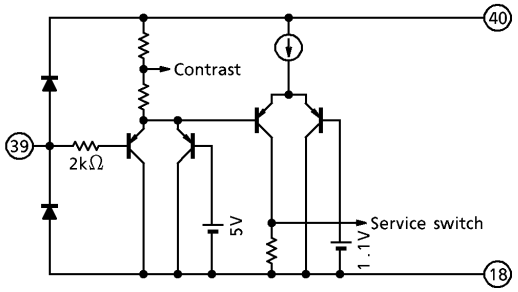
| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 11 | AFT Output | This is an AFT output pin.<br>The AFT output is monopolarity.<br>The AFT function can be muted by driving the AFT tank pin LOW. |  |
| 12 | PIF $V_{CC}$ | This is a PIF circuit $V_{CC}$ pin.<br>It is recommended that a trap for the PIF carrier frequency be inserted in series to prevent characteristics degradation due to current leakage from $V_{CC}$. (In the applications circuit example, a 68$\mu$H coil is inserted.)<br>$V_{CC}$ = 9V (Typ.) | — |
| 13 | VCXO Input | Connect a crystal resonator-based resonance circuit between this pin and the VCXO drive pin to configure a color sub-carrier oscillator circuit.<br>Although APC is applied to the burst signal when the chroma signal is input, VCXO becomes a free-running oscillator by connecting the OSD brightness control pin to $V_{CC}$ with 100. |  |
| 14 | APC Filter | This is an APC filter terminal for color sub-carrier PLL.<br>APC is applied to ensure that the burst signal of chroma input is phase-locked to the VCXO oscillator output signal. |  |

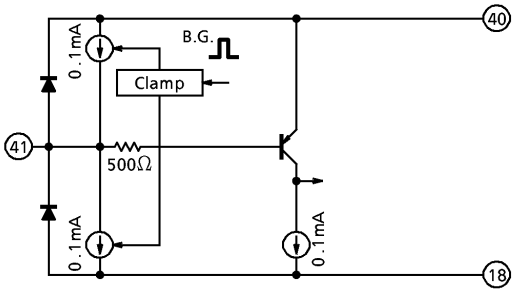
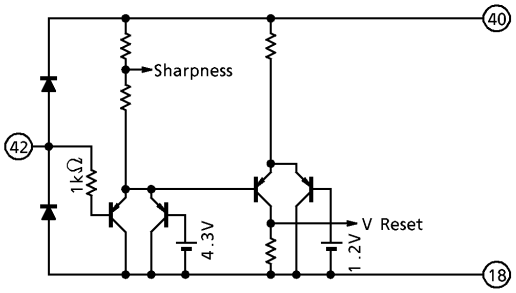
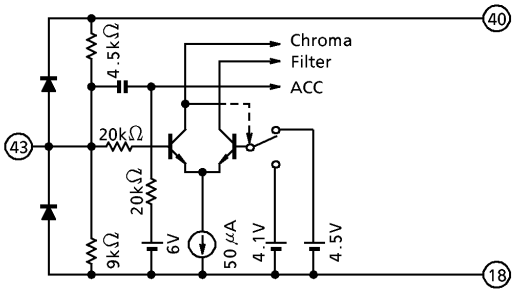
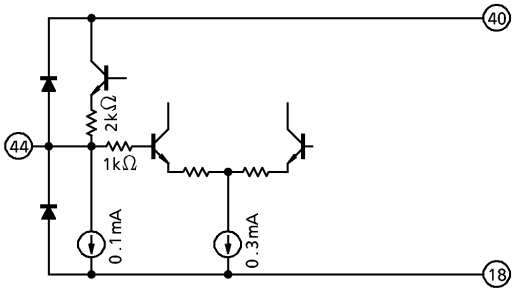
| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 15 | VCXO Drive | Connect a crystal resonator-based resonance circuit between this pin and the VCXO input pin to configure a color sub-carrier oscillator circuit. Because the VCXO oscillator output signal is referenced to by the built-in filter automatic adjustment circuit, it is necessary that the VCXO free-running frequency be adjusted to 3.579545MHz by using an external time constant. |  |
| 16 | Tint Control | This is a Tint control pin. The tint can be adjusted +55° by using DC voltages of 1 to 4V. An APC tint circuit is used here. |  |
| 17 | Color Control | This is a color control pin. The color gain can be adjusted 40dB by using DC voltages of 1 to 4V. When the killer circuit turns on, the voltage on this pin is pulled LOW to turn off the color-difference output. When connected to $V_{CC}$ with 2.2kΩ, this pin can be used to observe the chroma filter output signal. |  |
| 18 | V/C/D GND | This is a GND pin for the video, chroma and deflection circuits. | — |
| 19<br>20<br>21 | OSD R<br>OSD B<br>OSD G | These are R, B and G OSD input pins. When OSD is ON, the color-difference output for that color is set to 6.9V, and other color-difference outputs are set to 5.4V. The -Y output generates a DC voltage that is determined by the voltage on the OSD brightness control pin during that time. The OSD-ON threshold voltage is 1.0V. OSD is ON when the voltage is HIGH or open : OSD is OFF when the voltage is LOW. |  |

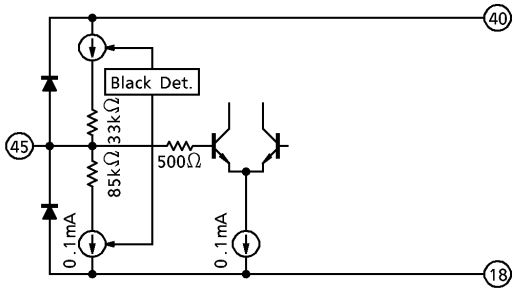
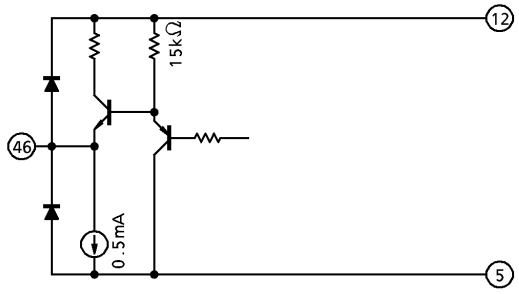
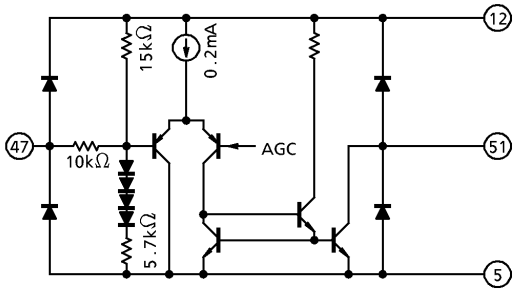
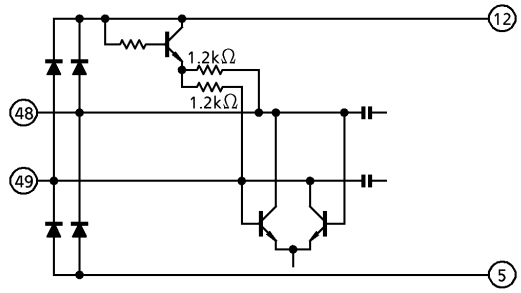
| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 22 | Fast Blanking Input | This is a fast blanking input pin.<br>When OSD is ON, the color-difference output generates 5.4V, and the -Y output generates a DC voltage that is determined by the voltage on the OSD brightness control pin during that time.<br>The OSD-ON threshold voltage is 1.0V. OSD is ON when the voltage is HIGH or open : OSD is OFF when the voltage is LOW.<br>OSD R, B and G are given priority. |  |
| 23<br>24<br>25 | R-Y Output<br>B-Y Output<br>G-Y Output | These are color-difference output pins.<br>The minimum load resistance these outputs can drive is 2.5kΩ. |  |
| 26 | -Y Output | This is a -Y output pin.<br>Vertical blanking is disabled by connecting the OSD brightness control pin to $V_{CC}$ with 100Ω.<br>The minimum load resistance this output can drive is 3.5kΩ. |  |
| 27 | H.$V_{CC}$ | This is a $V_{CC}$ pin for the horizontal sync. circuit.<br>Because a large current flows in the horizontal output circuit, make sure that the impedance of the wiring patterns, etc. is sufficiently small and that the bypass capacitors are sufficiently strong.<br>H.$V_{CC}$ = 6.8V (Typ.) | — |

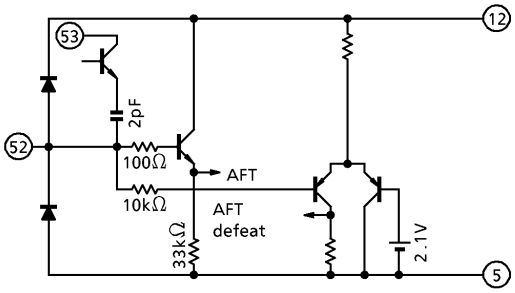
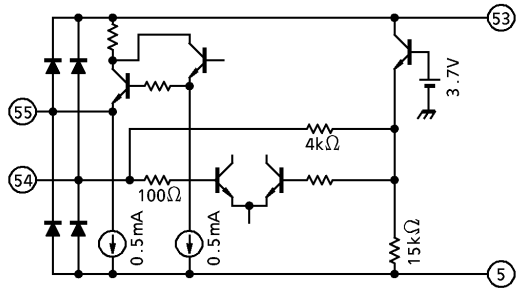
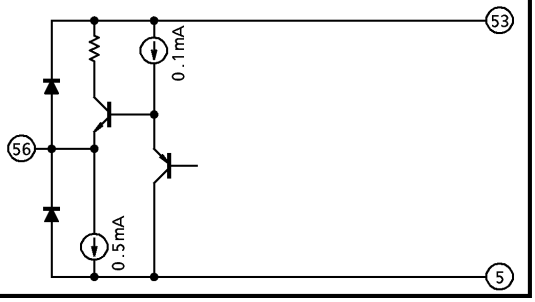
| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 28 | H. Phase Adjustment | This is a horizontal phase control pin. The horizontal phase can be adjusted $-1\mu s$ by using a DC voltage from GND to H.$V_{CC}$. Use this function to adjust the offset of the horizontal screen position. |   |
| 29 | 32$f_H$ VCO | Connect a 32$f_H$ ceramic filter to this pin. Because the horizontal sync. and vertical sync. circuits use a count-down system. no adjustments are required for these sync. circuits. |   |
| 30 | X-RAY | This is an overvoltage protection input pin. When the voltage applied to this pin is 3.5V or more, the horizontal oscillator output is turned off, and the chip is placed in an overvoltage-protected state (pin voltage = 4.2V). The protected state is cleared when a holding current of 100 is absorbed from an external source. Connect a bypass capacitor of about 10$\mu$F to prevent erratic operation caused by pulse leakage from the vertical output pin or inclusion of external noise. |   |
| 31 | V. Output | This is a vertical pulse output pin. This pin outputs a TTL-level, 10H-wide pulse of the positive polarity. Connect this pin to a pulse input type of vertical output IC. (e.g., the TA8445K) The vertical oscillator circuit uses a count-down system : when an off-standard signal is input, it oscillates at 60Hz. The minimum load resistance this output can drive is 4.1kΩ. |   |

| PIN No. | PIN NAME | FUNCTION | INTERFACE |
|---|---|---|---|
| 32 | AFC Filter | This is an AFC filter terminal for the horizontal oscillator PLL.<br>AFC is applied using the sync. signal and FBP to control the 32$f_H$ VCO oscillator. |  |
| 33 | H. Output | This is a horizontal output pin.<br>Its duty cycle is 37.5%.<br>The minimum load resistance this output can drive is 500Ω. |  |
| 34 | FBP Input | This is a FBP input pin.<br>This signal is referenced to when generating the horizontal AFC, gate pulse, and horizontal blanking.<br>Because a sync. separation output is superimposed on the pulse as it is input to this pin. this input can be used for the microcomputer to determine whether or not a signal is present.<br>The FBP width is 12$\mu$s (Typ.) |  |
| 35 | Sync. Sepa. Input | This is a horizontal / vertical sync. separation input pin.<br>The horizontal sync. is separated as the input coupling capacity is charged and discharged, and the vertical sync. is separated as the built-in capacity is charged and discharged.<br>The continuity of the vertical sync. separation signal is checked to determine whether standard or not.<br>The sync. separation level is<br>Horizontal sync. : 30%<br>Vertical sync. : 35% |  |

| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 36 | OSD Brightness Control | This is an OSC brightness control pin. The -Y output voltage when OSD is on can be adjusted using a DC voltage of 0 to 8V. When this pin is connected to $V_{CC}$ with 100Ω, VCXO becomes a free-running oscillator and the horizontal and vertical blanking for the -Y output are disabled. |  |
| 37 | Brightness Control | This is a -Y brightness control pin. The -Y output pedestal level can be adjusted between 2 to 7V for brightness control by using a DC voltage of 1 to 4V. |  |
| 38 | Clamp. Filter | This is a clamp. filter terminal for the -Y signal DC restoration. The DC restoration rate correcting pulse added in the APL Det. circuit is DC-restored 100%. |  |
| 39 | Contrast Control | This is a -Y contrast control /chroma uni-color control pin. The contrast and uni-color can respectively adjusted 20dB by using a DC voltage of 1 to 4V. This pin is pulled LOW, the vertical output pulse is disabled. This pin can be used for service mode when shipping from the factory. |  |
| 40 | V/C/D $V_{CC}$ | This is a $V_{CC}$ pin for the video, chroma and deflection circuits. | — |

| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 41 | Video Input | This is a video (-Y) signal input pin. Because a video trap and delay line are built-in here, you can do away with an external filter. The standard input signal is a 1.0$V_{p-p}$ composite video signal. |  |
| 42 | Sharpness Control | This is a sharpness control pin. The added pulse quantity can be adjusted from −5% to 15% by using a DC voltage of 1 to 4V. When this pin is pulled LOW, the vertical counter of the sync. count-down circuit is reset. Make sure this pin is pulled LOW when the TV set is switched on and channels are switched over. |  |
| 43 | Chroma Input | This is a chroma signal input pin. This terminal contains a take-off filter for signal from PIF and a band-pass filter for external input. Selection between the two chroma filters is determined by the DC voltage on this pin.<br>LOW level : Band-pass filter<br>HIGH level : Take-off filter<br>This pin has a 0.4V hysteresis to prevent the filters from being inadvertently switched over by the chroma signal. The standard chroma input is 280m$V_{p-p}$. |  |
| 44 | APL Filter | This is an APL Det. filter terminal. The DC restoration rate is eased by adding a DC restoration rate correction pulse to the Y signal after detecting APL in video input signal and then restoring this pulse 100% in the final stage. The DC restoration rate can be adjusted by changing the filter constant. |  |

| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 45 | Black Level Det. | This is a black level Det. filter terminal.<br>If detects the blacker-than-black level that determines the black-stretch gain.<br>Its Det. sensitivity is determined by the value of an external resistor.<br>The recommended value of the external CR time constant is approximately 0.1s.<br>The black-stretch start point is 50 IRE.<br>The peak black-stretch level is 15 IRE. |  |
| 46 | PIF Output | This is a PIF Det. output pin.<br>It generates a $2V_{p-p}$ Det. output for the standard PIF input.<br>Although this is a split input type of PIF, make sure that this output is passed through and SIF trap before it is input to V/C/D, because the SIF component cannot always be completely removed depending on the SAW filters used.<br>The minimum load resistance this output can drive is 2.7kΩ. |  |
| 47<br>51 | RF AGC Delay<br>RF AGC Output | These are RF AGC delay level adjustment pins.<br>Use these pins to adjust the tuner's gain according to the field strength. |  |
| 48<br>49 | VCO Tank 1<br>VCO Tank 2 | Connect a PLL VCO tank coil for PIF Det. to this pin.<br>Vary the capacitance of the built-in varicap to adjust the VCO oscillation frequency. The adjustment range is determined by the capacitance ratio with respect to the resonance capacitor. An approximate guide for this adjustment is such that a 30pF resonance capacitor provides a 2.3MHz wide adjustment range. |  |
| 50 | 2nd AGC | This is a PIF 2nd AGC filter terminal. | See pin 2. |

| PIN No. | PIN NAME | FUNCTION | INTERFACE CIRCUIT |
|---|---|---|---|
| 52 | AFT Tank | Connect an AFT tank coil to this pin. The AFT function can be muted by driving the voltage on this pin below 2.1V . |   |
| 53 | SIF $V_{CC}$ | This is a $V_{CC}$ pin for the SIF demodulation circuit. It is recommended that a trap for the PIF carrier frequency be inserted in series to prevent characteristics degradation due to current leakage from $V_{CC}$. (In the applications circuit example a 68$\mu$H coil is inserted.) $V_{CC}$ = 9V (Typ.) | — |
| 54 55 | FM Demodulation Input Limiter Output | These pins generate a 90° phase-shift signal for FM demodulation. The audio signal is muted by driving the voltage on pin 54 below 0.3V. The voltage on pin 56 at this time is about 4.5V. This terminal can be made adjustment-free by connecting a ceramic discriminator. However, adjustment is required for sound-multiplex demodulation, because the Det. bandwidth must be sufficiently large. For this adjustment, it is recommended that a tank coil and damping resistor be inserted in parallel. |   |
| 56 | Audio Output | This is an audio output pin. When feeding this output to and external circuit, connect a 75$\mu$s de-emphasis circuit. The audio output is $1V_{p-p}$ (Typ.). The minimum load resistance this output can drive is 3.5kΩ. |   |

**CONTROL SWITCH FUNCTION**

| PIN No. | CHARACTERISTIC | FUNCTION | CONDITION |
|---|---|---|---|
| 2 | EIA Decoder | Low : IF Amp. gain is fixed min. | 0.2V |
| 50 | AFT Defeat | Low : AFT Defeat | 2.1V |
| 54 | Audio Mute | Low : Sound Mute Pin 56 : 4.1V | 0.3V |
| 17 | Chroma Output | High : Chroma signal can be Monitored at pin 17 | Connected with $V_{CC}$ by 2.2kΩ |
| 36 | VCXO Free-run | High : VCXO Free-run, H, V-Blanking on -Y output stop | 8.3V |
| 39 | V Stop | Low : V. Pulse Stop | 0.4V |
| 42 | V Counter Reset | Low : Internal V. Counter reset | 0.5V |
| 43 | Chroma Filter Select | High : BPF<br>Low : TOF selected | 4.1V, 4.5V Shmittriger |
| 9 | $f_{SC}$ Trap | Low : Chroma Trap is selected.<br>High : Pass the Trap | 0.3V |

**MAXIMUM RATINGS** (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Supply Voltage | $V_{CC}$ | 12 | V |
| Power Dissipation | $P_{Dmax}$ | 1.92 (Note) | W |
| Input Terminal Voltage | $V_{in}$ | GND − 0.3~$V_{CC}$ + 0.3 | V |
| Input Signal Amplitude | $e_{in}$ | 4 | $V_{p-p}$ |
| Operating Temperature | $T_{opr}$ | − 20~65 | °C |
| Storage Temperature | $T_{stg}$ | − 55~150 | °C |

(Note) When using the device at above Ta = 25°C, decrease the power dissipation by 15.3mW for each increase of 1°C.

**RECOMMENDED CONDITION FOR OPERATING**

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | NOTE |
|---|---|---|---|---|---|---|
| PIF Supply Voltage | $V_{CCP}$ | 8.1 | 9.0 | 9.5 | V | — |
| SIF Supply Voltage | $V_{CCS}$ | 8.1 | 9.0 | 9.5 | V | — |
| V/C/D Supply Voltage | $V_{CCV}$ | 8.1 | 9.0 | 9.5 | V | — |
| H.$V_{CC}$ Supply Voltage | H.$V_{CC}$ | 6.5 | 6.8 | 7.1 | V | — |
| Video Input Signal | $V_{in41}$ | — | 1.0 | — | $V_{p-p}$ | Involving Sync. Signal |
| Chroma Input Signal | $V_{in43}$ | — | 286 | — | $mV_{p-p}$ | Burst Signal Amp. |
| Sync. Input Signal | $V_{in35}$ | 1.0 | 2.0 | — | $V_{p-p}$ | — |
| DC Control Voltage | $V_{16, 17, 39}$ $V_{37, 42}$ | 1.0 | — | 4.0 | V | TINT, Color, Contrast Brightness, Sharpness |
| | $V_{36}$ | 3.0 | — | 6.0 | V | OSD Brightness |
| | $V_{28}$ | GND | — | H.$V_{CC}$ | V | H.Phase |
| FBP Width | $T_{FBP}$ | 10 | 12 | — | $\mu$s | Pin 34 $V_{th} = 2V_F$ |
| FBP Input Current | $I_{FBPmax}$ | — | 1.0 | 1.2 | mA | — |
| Video Output Load Resistance | $R_{OV}$ | 2.7 | 7.5 | — | kΩ | — |
| Sound Output Load Resistance | $R_{OS}$ | 2.6 | 8.2 | — | kΩ | — |
| -Y Output Load Resistance | $R_{O-Y}$ | 3.5 | 10 | — | kΩ | Observe these conditions during external blanking period. |
| Color Differential Load Resistance | $R_{ORGB}$ | 2.5 | 10 | — | | |
| H. Output Load Resistance | $R_{HOUT}$ | 0.5 | 0.8 | — | kΩ | — |
| V. Output Load Resistance | $R_{VOUT}$ | 4.1 | 5.7 | — | kΩ | — |

**ELECTRICAL CHARACTERISTICS** (Unless otherwise specified, $V_{CC}$ = 9V, H.$V_{CC}$ = 6.8V, Ta = 25°C)
DC CHARACTERISTIC
Terminal voltage

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| PIF Input 1 | $V_3$ | — | — | 4.3 | 4.6 | 4.9 | V |
| PIF Input 2 | $V_4$ | — | — | 4.3 | 4.6 | 4.9 | |
| SIF Input | $V_6$ | — | — | 3.0 | 3.3 | 3.6 | |
| SIF Output | $V_8$ | — | $V_7$ = 2.5V | 2.7 | 3.0 | 3.3 | |
| Limiter Input | $V_9$ | — | — | — | 4.6 | — | |
| Loop Filter | $V_{10}$ | — | $V_{30}$ = 3V | 3.8 | 4.1 | 4.4 | |
| VCXO Input | $V_{13}$ | — | — | 2.8 | 3.1 | 3.4 | |
| APC Filter | $V_{14}$ | — | — | 5.9 | 6.35 | 6.8 | |
| VCXO Drive | $V_{15}$ | — | — | 5.9 | 6.25 | 6.6 | |
| Tint Control | $V_{16}$ | — | OPEN | — | 5.0 | — | |
| Color Control | $V_{17}$ | — | OPEN, $V_{36}$ = 9V | — | 5.0 | — | |
| R-Y Output | $V_{23}$ | — | — | 5.0 | 5.35 | 5.7 | |
| B-Y Output | $V_{24}$ | — | — | 5.0 | 5.35 | 5.7 | |
| G-Y Output | $V_{25}$ | — | — | 5.0 | 5.35 | 5.7 | |
| 32$f_H$ VCO | $V_{29}$ | — | — | 3.4 | 3.7 | 4.0 | |
| AFC Filter | $V_{32}$ | — | — | 2.1 | 2.35 | 2.6 | |
| Video Input | $V_{41}$ | — | — | 3.6 | 3.9 | 4.2 | |
| Chroma Input | $V_{43}$ | — | OPEN | 5.7 | 6.1 | 6.5 | |
| APL Filter | $V_{44}$ | — | OPEN | 4.8 | 5.25 | 5.7 | |
| Black Level Det. | $V_{45}$ | — | — | 5.5 | 5.9 | 6.3 | |
| RF AGC Delay | $V_{47}$ | — | OPEN | 4.3 | 4.7 | 5.0 | |
| FM Det. Input | $V_{54}$ | — | — | 3.15 | 3.45 | 3.75 | |

Supply current

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| PIF Supply Current | $I_{CCP}$ | — | $V_{CC}$ = 9V | 10 | 20 | 25 | mA |
| SIF Supply Current | $I_{CCS}$ | — | $V_{CC}$ = 9V | 10 | 20 | 25 | |
| V/C/D Supply Current | $I_{CCV}$ | — | $V_{CC}$ = 9V | 55 | 72 | 90 | |
| H.$V_{CC}$ Supply Current | H.$I_{CC}$ | — | H.$V_{CC}$ = 6.8V | 13 | 15 | 25 | |

AC CHARACTERISTICS
PIF stage (PIF typical input level : 58.75MHz, 95dBμV)

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| PIF Detected Output Level | $V_{01}$ | — | PIF typical input level m = 87.5%AM | 1.7 | 2.0 | 2.3 | $V_{p-p}$ |
| | $V_{02}$ | — | PIF typical input level m = 110%AM | 2.0 | 2.5 | 3.0 | |
| PIF Sensitivity | $V_{IN\ MIN}$ | — | $f_m$ = 15.75kHz, m = 30%AM −3dB Point | 39 | 43 | 47 | dBμV |
| Max. PIF Input Level | $V_{IN\ MAX}$ | — | $f_m$ = 15.75kHz, m = 30%AM +0.5dB Point | 94 | 100 | — | dBμV |
| Sync. Tip Level | $V_{SYNC}$ | — | PIF typical input level m = 87.5%AM | 2.6 | 2.9 | 3.2 | V |
| No Signal Level | $V_{IF}$ | — | No input, $V_{50}$ = 3V, Measure the $V_{46}$ | 4.8 | 5.2 | 5.6 | V |
| DG | DG | — | PIF typical input level m = 87.5%AM | — | 2 | 5 | % |
| DP | DP | — | PIF typical input level m = 87.5%AM | — | 2 | 5 | ° |
| PIF Output Frequency Characteristic | $f_c$ | — | (Note 1) | 5 | 7 | 10 | MHz |
| Suppression Carrier | CR | — | (Note 2) | 45 | 50 | — | dB |
| Suppression 2nd Harmonic Carrier | HR | | | 45 | 50 | — | |
| Black Noise Inverter Level | $V_{BTH}$ | — | (Note 3) | 1.9 | 2.1 | 2.4 | V |
| Black Noise Clamp Level | $V_{BCL}$ | | | 3.4 | 3.7 | 4.0 | |
| White Noise Inverter Level | $V_{WTH}$ | — | (Note 4) | 5.5 | 5.8 | 6.1 | V |
| White Noise Clamp Level | $V_{WCL}$ | | | 3.4 | 3.7 | 4.0 | |
| PIF Input Impedance | $R_{iPIF}$ | — | $V_{50}$ = 3V | — | 1.5 | — | kΩ |
| PIF Input Capacitance | $C_{iPIF}$ | — | $V_{50}$ = 3V | — | 3.8 | — | pF |
| S / N | S / N | — | (Note 5) | 52 | 55 | — | dB |
| 920kHz Beat | $I_{920}$ | — | (Note 6) | 38 | 45 | — | dB |
| IF AGC Range | $RW_{AGC}$ | — | $RW_{AGC} = V_{IN\ MAX} - V_{IN\ MIN}$ | 54 | 57 | 60 | dBμV |

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| IF AGC Voltage | $V_{50MRAN}$ | — | PIF Input : 58.75MHz CW<br>Measure the voltage of pin 50.<br>Input Level<br>84dB$\mu$V : $V_{50MEAN}$<br>110dB$\mu$V : $V_{50MIN}$<br>No Input : $V_{50MAX}$ | 5.3 | 5.6 | 5.9 | V |
| | $V_{50MAX}$ | | | 8.3 | 8.5 | — | |
| | $V_{50MIN}$ | | | — | 3.0 | — | |
| RF AGC Output | $V_{51MAX}$ | — | Adjustment $VR_{47}$ to maintain $V_{51}$ = 4.5V.<br>Input Level<br>$V_{51MAX}$ : No input<br>$V_{51MIN}$ : 110dB$\mu$V | 8.5 | 9.0 | — | V |
| | $V_{51MIN}$ | | | — | 0 | 0.5 | |
| RF AGC Gain | $G_{RF\ AGC}$ | — | $G_{RF\ AGC} = 20\ell og \frac{\Delta V_{51}}{\Delta V_{50}}$ | 38 | 41 | 44 | dB |
| AFT Center Voltage | V11CRNT | — | No input, $V_{50}$ = 3V,<br>Measure the voltage of $V_{11}$ | 3.0 | 4.5 | 6.0 | V |
| AFT Mute-offset Voltage | $V_{11OFFS}$ | — | (Note 7) | −2.0 | 0 | 2.0 | V |
| AFT Voltage | $V_{11MAX}$ | — | $f_m$ = 15.75kHz, m = 30% AM<br>Measure the voltage of pin 11. | 8.3 | 8.6 | — | V |
| | $V_{11MIN}$ | | | — | 0.3 | 0.7 | |
| AFT Sensitivity | $\mu_{AFT}$ | — | Center : f = 58.75MHz | — | 20 | 25 | kHz / V |
| VCO Control Sensitivity | $\beta_{IFVCO}$ | — | — | 1.0 | 1.5 | — | MHz / V |
| VCO Pull-in Range | $f_{ph}$ | — | Center : f = 58.75MHz | 0.5 | 0.7 | — | MHz |
| | $f_{pl}$ | | Center : f = 58.75MHz | 0.5 | 1.0 | — | |

SIF stage (Typical SIF input level : f = 4.5MHz, $f_m$ = 400Hz, FM 25kHz / devi, 100dB$\mu$V)

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| 1st SIF Output Level | $V_{S1}$ | — | PIF input 58.75MHz, 75dB$\mu$V<br>SIF input 54.25MHz, 75dB$\mu$V<br>$V_{S1}$ : 4.5MHz level of SIF output | 90 | 100 | 110 | dB$\mu$V |
| SIF AGC Voltage | $V_{1\ AGC}$ | | $V_{1\ AGC}$ :<br>Pin 1 voltage in this condition | 3.2 | 3.5 | 3.8 | V |
| 1st SIF Gain | $G_{S\ MAX}$ | — | Note 8 | 9 | 13 | 17 | dB |
| | $G_{S\ MIN}$ | | | − 11 | − 15 | − 19 | |
| 1st SIF Input Impedance | $R_{iSIF}$ | — | — | — | 1 | — | k$\Omega$ |
| 1st SIF Input Capacitance | $C_{iSIF}$ | — | — | — | 2 | — | pF |
| Audio Output Level | $V_{AAC}$ | — | Limiter input :<br>4.5MHz, fm = 400Hz<br>FM 25kHz / devi, 100dB$\mu$V<br>75$\mu$s De-emphasis output | 350 | 450 | 600 | $mV_{rms}$ |
| | $V_{ADC}$ | | | 4.2 | 4.5 | 4.8 | V |
| AD Distortion | $K_{AUDIO}$ | — | Limiter input :<br>4.5MHz, fm = 400Hz<br>FM 25kHz / devi, 100dB$\mu$V<br>75$\mu$s De-emphasis output<br>distortion | — | 0.3 | 1.0 | % |
| AMR | AMR | — | FM OFF<br>30% AM $V_{56AC} / V_{AAC}$ | 48 | 58 | — | dB |
| Limiting Sensitivity | $V_{LIM}$ | — | Input Level − 3dB point | — | 35 | 45 | dB$\mu$V |
| AF Bandwidth | $f_{AUDIOH}$ | — | Input frequency − 3dB point | 70 | 110 | — | kHz |
| | $f_{AUDIOL}$ | | | − 70 | − 110 | — | |

Video stage

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Input Impedance | $R_{i41}$ | — | — | 100 | — | — | kΩ |
| Input Dynamic Range | $V_{di41}$ | — | Concerning video signal | 0.9 | 1.0 | 1.2 | V |
| Video Gain | G-Y | — | Contrast : Max.<br>Black Expander : OFF | 4.7 | 5.5 | 6.0 | |
| Video Frequency Characteristic | f-Y | — | – 3dB Point | 7.0 | 8.0 | — | MHz |
| Output Min. Voltage | $V_{do1}$ | — | Input $1V_{p-p}$ Brightness and contrast : Max. | — | 1.2 | 1.5 | V |
| Black Peak Level | $R_{BOUT}$ | — | (Note 9) | 2 | 5 | 8 | IRE |
| Black Expander Start Point | $R_{BSTP}$ | | | 40 | 55 | 68 | |
| DC Restoration Ratio | $T_{DC}$ | — | (Note 10) | 98 | 103 | 106 | % |
| Sharpness Control Characteristics | $G_{SHcent}$ | — | $V_{42}$ = 1.5V<br>Sharpness shoot ratio | – 5 | 0 | 5 | % |
| | $G_{SHmax}$ | | $V_{42}$ = 4V Sharpness shoot ratio | 25 | 40 | 55 | |
| | $G_{SHmin}$ | | $V_{42}$ = 1V Sharpness shoot ratio | – 15 | – 12 | – 8 | |
| Sharpness Delay Time | $t_{SHDLY}$ | — | Sharpness shoot width | — | 160 | — | ns |
| Contrast Control Characteristics | $\Delta G_{CNT}$ | — | Y total gain variable range | 18 | 20 | — | dB |
| Brightness Control Characteristics | $V_{BRTCEN}$ | — | $V_{37}$ = 2.5V<br>Pedestal level of – Y output | 4.4 | 4.7 | 5.0 | V |
| | $\Delta V_{BRT}$ | — | Brightness variable range | ± 2.5 | ± 2.8 | — | |
| H, V-BLK Output Level | $V_{BLK}$ | — | — | 8.5 | 8.9 | 9.0 | V |
| V-BLK Width | $T_{VBLK}$ | — | — | — | 16 | — | H |
| Chroma Trap Gain | $G_{trap}$ | — | — | — | – 18 | – 15 | dB |

OSD stage

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| OSD Switching Threshold | $V_{thOSD}$ | — | R, G, B fast blacking | 0.7 | 1.0 | 1.3 | V |
| OSD Delay Time | $t_{OSDDLY}$ | — | OSD brightness control : center -Y output width | — | 15 | 40 | ns |
| OSD Delay Time Tracking | $\Delta t_{OSDD}$ | — | | — | 15 | 30 | ns |
| OSD Rising Time | $\tau_R$ | — | | — | 15 | 40 | ns |
| OSD Falling Time | $\tau_F$ | — | | — | 18 | 40 | ns |
| OSD Color Difference Output Level | $V_{OSDDIF}$ | — | OSD color difference output level | 6.4 | 6.7 | 7.0 | V |
| | $V_{OSDCLP}$ | | Output clamp level of other colors. | 4.0 | 4.3 | 4.6 | |
| OSD Brightness Control Characteristics | $V_{OSDCEN}$ | — | $V_{36}$ = 4.5V OSD-Y output level | 3.2 | 3.9 | 4.6 | V |
| | $\Delta V_{OSDY}$ | | OSD-Y output variable range | 6.0 | 6.5 | 7.0 | |

Chroma stage (Typical chroma input level 0dB : 286mV$_{p-p}$, $f_{SC}$ = 3.579545MHz)

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Input Impedance | $R_{i43}$ | — | SW43 : OPEN | — | 3.0 | — | kΩ |
| Input Dynamic Range | $V_{di43}$ | — | Include sync. and video signal | 1.0 | 1.5 | 1.7 | V |
| ACC Characteristics | ea | — | (Note 11) | −23 | −20 | −17 | dB |
| | eb | | | 3 | 6 | 9 | |
| | A | | | 0.9 | 1.00 | 1.1 | |
| Color Killer Point | $E_K$ | — | Killer OFF→ON | −46 | −43 | −37 | dB |
| Color Control Characteristics | $V_{CLRCEN}$ | — | Pin 17 voltage at which color gain is center. | 2.2 | 2.5 | 2.8 | V |
| | $\Delta G_{CLR}$ | — | Color gain variable range | 40 | 43 | — | dB |
| Uni-color Control Characteristics | $V_{UNICEN}$ | — | Pin 39 voltage at which Uni-color gain is center | 2.2 | 2.5 | 2.8 | V |
| | $\Delta G_{UNI}$ | — | Chroma Uni-color variable range | 18 | 20 | — | dB |
| TINT Control Characteristics | $V_{TNTCEN}$ | — | (Note 12) | 2.2 | 2.5 | 2.8 | V |
| | $\Delta\theta_{TINT}$ | — | Tint variable range | 75 | 85 | 100 | ° |
| VCXO Control Range | $\Delta f_{VCXO}$ | — | — | ±500 | ±650 | — | Hz |
| VCXO Control Sensitivity | $\beta_{VCXO}$ | — | — | — | 1.0 | — | Hz / mV |
| VCXO Pull-in Range | $f_{VCXOPL}$ | — | — | ±400 | ±550 | ±750 | Hz |
| | $V_{DM}$ | — | — | 4.8 | 5.4 | 6.0 | V |
| Color Difference Output DC Level | $\Delta V_{DM}$ | — | — | — | ±0.1 | ±0.3 | V |
| Color Difference Output Amplitude | $E_{Bmax}$ | — | (B-Y) Maximum amplitude | 4.2 | 4.5 | — | $V_{p-p}$ |
| Relative Amplitude | R / B | — | (R-Y) / (B-Y) | 0.80 | 0.84 | 0.90 | |
| | G / B | | (G-Y) / (B-Y) | 0.25 | 0.28 | 0.31 | |
| Relative Phase | R-B | — | — | 97 | 105 | 113 | ° |
| | G-B | | — | 241 | 249 | 257 | |
| Color Differential Output Residual Levels | $E_{CR}$ | — | Color, Uni-Color : Center | — | 20 | 30 | $mV_{p-p}$ |
| | $E_{CB}$ | | | — | 20 | 30 | |
| | $E_{CG}$ | | | — | 20 | 30 | |
| Video-chroma Delay Time | $t_{V-C}$ | — | (Video delay time) − (Chroma delay time) | — | 40 | 75 | ns |

Deflection stage

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Horizontal Oscillation | $f_H$ | — | (Free run frequency) – (15.734kHz) | – 100 | 100 | 300 | Hz |
| H. Output pulse Duty | $T_H$ | — | — | 35 | 37 | 40 | % |
| H. Output Level | $V_{HL}$ | — | H. Output low level voltage | — | 0.2 | 0.3 | V |
| | $V_{HH}$ | — | H. Output high level voltage | 4.2 | 4.6 | — | |
| H. VCO Start Voltage | $V_{OSCmin}$ | — | H.$V_{CC}$ voltage at which 32$f_H$ VCO starts to oscillate | 3.4 | 3.6 | 4.0 | V |
| H. Output Start Voltage | $V_{HST}$ | — | H.$V_{CC}$ | 4.1 | 4.3 | 4.5 | V |
| H. Frequency Control Range | $\Delta f_H$ | — | Center : $f_H$ = 15.734kHz | ± 500 | ± 650 | — | Hz |
| H. VCO Control Sensitivity | $\beta_H$ | — | — | — | 350 | — | Hz / V |
| H. AFC Pull-in Range | $\Delta f_{HPUL}$ | — | Center : $f_H$ = 15.734kHz | ± 450 | ± 500 | — | Hz |
| X-ray Protect Detection Voltage | $V_{XDET}$ | — | (Note 13) | 3.2 | 3.5 | 3.8 | V |
| X-ray Protect Holding Voltage | $V_{XHLD}$ | | | 3.9 | 4.2 | 4.5 | |
| X-ray Protect Holding Current | $I_{XHLD}$ | | | 80 | 100 | 120 | μA |
| Vertical Frequency | $f_V$ | — | Free run frequency | — | 262.5 | — | H |
| V. OSC Pull-in Range | $T_{VST}$ | — | V. Pull-in starting time | — | + 32 | — | H |
| | $T_{VEND}$ | | V. Pull-in stopping time | — | – 32 | — | |
| V. OSC Pulse Width | $T_V$ | — | — | — | 10 | — | H |
| V. Output Pulse Level | $V_{VL}$ | — | V. Output low level voltage | — | 0.2 | 0.3 | V |
| | $V_{VH}$ | | V. Output High level voltage | 4.8 | 5.3 | — | |
| H. Sync. Sepa. Level | $R_{sepa}$ | — | (Note 14) | 10 | 16 | 25 | % |

**TEST CONDITION**

(Note 1) PIF output frequency characteristic

(1) PIF input $f = 58.75MHz$, $84dB\mu V$, CW

(2) Fix the voltage of 2nd AGC on this condition

(3) PIF input $f_0 = 58.75MHz$, $84dB\mu V$
$f_1 = 58.65 \sim 45MHz$, $74dB\mu V$

(4) Measure $f_1$ at which PIF output turns to $-3dB$

(5) $f_c = f_0 - f_1$

(Note 2) Suppression carrier, suppression 2nd harmonic Carrier

(1) PIF input $f = 58.75MHz$, $f_m = 15.75kHz$, $84dB\mu V$, 78%AM

(2) Apply external voltage to get 2Vp-p PIF output

(3) Measure the carrier leakage in PIF output with spectrum analyzer. (no modulation)

(4)

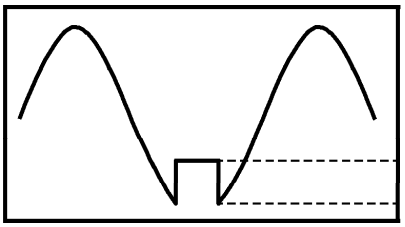
$$CR = 20\log\frac{2\,(V_{p\text{-}p})}{\text{Carrier leak }(mV_{rms})} \quad [dB]$$

(5) Measure the suppression 2nd harmonic carrier in same way.

(Note 3) Black noise inverter level, black noise clamp level

(1) PIF input $f = 58.75MHz$, $f_m = 15.75kHz$, $84dB\mu V$, 30%AM

(2) Raise the 2nd AGC voltage up to a level to get following wave form, and measure A, B voltage.

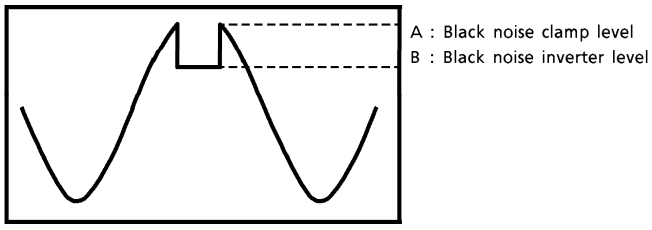



PIF output wave form

(Note 4) White noise inverter level, White noise clamp level

(1) PIF input f = 58.75MHz, 95dB$\mu$V, CW

(2) Detune the VCO tank, monitor the PIF output and measure A, B voltage.




PIF output wave form

(Note 5) S / N

(1) PIF input f = 58.75MHz, 95dB$\mu$V
A : $f_m$ = 15.75kHz, 30%AM
B : CW

(2) Measure the voltage of PIF output

(3)

$$SN = 20\ell og\left(\frac{V_A}{V_B} \times 6\right) \quad [dB]$$

(Note 6) 920kHz beat

(1) PIF input $f_0$ = 58.75MHz, 84dB$\mu$V
$f_C$ = 55.17MHz, 74dB$\mu$V
$f_S$ = 54.25MHz, 74dB$\mu$V
input with Mix. pad.

(2) Apply external voltage to get same level PIF output low level and $V_{SYNC}$.

(3) Measure the ratio of "$f_C$ components VS 920kHz beat components" with spectrum analyzer.

(Note 7) AFT Mute-offset voltage

(1) PIF input No input, $V_{50}$ = 3V

(2) Measure $V_{11}$ at AFT mute SW on : $V_{11MUTE}$

(3) $V_{11OFFS} = V_{11CENT} - V_{11MUTE}$

(Note 8) 1st SIF gain

(1) PIF input $f_0$ = 58.75MHz, 75dB$\mu$V
SIF input $f_S$ = 54.25MHz, 75dB$\mu$V

(2) Measure the level of the 4.5MHz component from the 1st SIF output pin. $V_8$

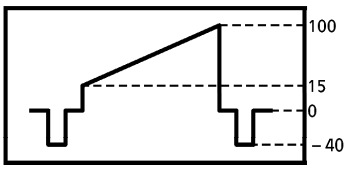
(3) When the SIF input level is varied under the following conditions, relative to V8
Input level difference at −3 dB : $G_{S\ MAX}$ However, $V_1$ = 4.5V
Input level difference at +3dB : $G_{S\ MIN}$ However, $V_1$ = 3.0V

(Note 9) Black peak level and black expander start point

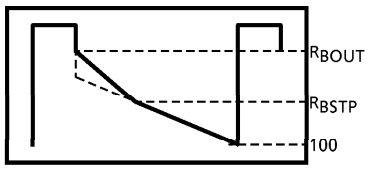
(1) Input the $1V_{p-p}$ video signal shown below to the video input.

(2) Disable the black-stretch function by setting $V_{45}$ = 5V

(3) Measure the blacker-than-black blanking level $R_{BOUT}$ at the -Y output and the black-stretch start level.




Input signal : Blacker-than-black blanking level 15 IRE




-Y output

(Note 10) DC restoration

(1) Disable the black-stretch function by setting $V_{45}$ = 5V. With pin 44 left open.

(2) Vary the video input APL 10~90%.

(3) Adjust the video signal amp. litude at the -Y output to become 1.25V.

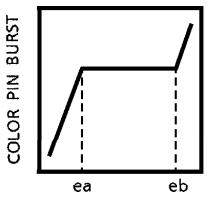
(4) Assuming that the pedestal level change due to APL changes is $\Delta V_{pede}$, then
$T_{CD} = (1V - \Delta V_{pede}) \times 100\ [\%]$

(Note 11) ACC characteristic

(1) Connect the color control pin to $V_{CC}$ with 2.2 k$\Omega$.

(2) $V_{39}$ = 1V

(3) While varying the burst level of the chroma input, measure the burst level appearing at the color pin.




INPUT SIGNAL BURST LEVEL
0dB = 286m$V_{p-p}$

(4)

$$A = \frac{V_{B\ (3dB)}}{V_{B\ (-17dB)}}$$

(Note 12) Tint control characteristics

(1) Input the rainbow color bar.

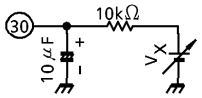
(2) Adjust the voltage of $V_{16}$ until the No.6 color bar becomes maximum at the (B-Y) output.

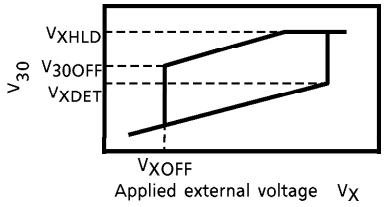
(Note 13) X-ray protect detection voltage, X-ray protect holding voltage, X-ray protect holding current.

(1) While varying external voltage source VX, measure $V_{XDET}$ and $V_{XHLD}$.

(2) Measure $V_{30OFF}$, $V_{XOFF}$

$$I_{XHLD} = \frac{V_{30OFF} - V_{XOFF}}{10k\Omega}$$

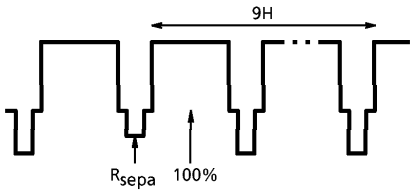


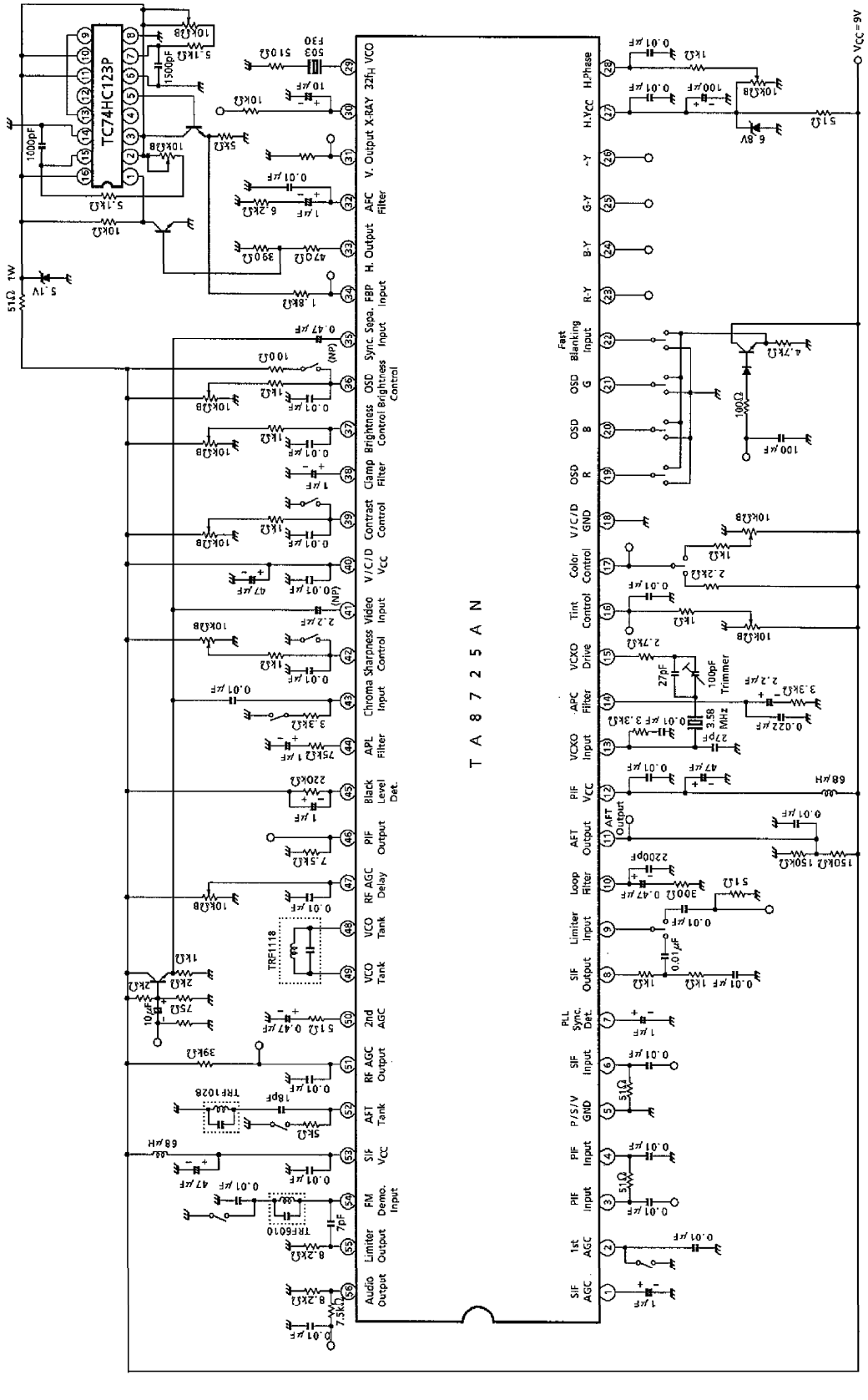

(Note 14) H. Sync. sepa. level

(1) Input a white-100 % signal (Where the sync. signal level is small every 10H) to the sync. separation pin.

(2) While observing the sync. signal appearing at the FBP input pin, measure the $R_{sepa}$ level at which the sync. signal does no longer appear.




Sync. separation input




TEST CIRCUIT

TA8725AN – 29

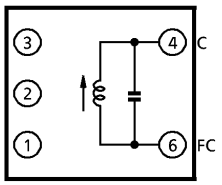
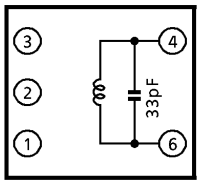
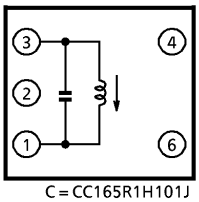
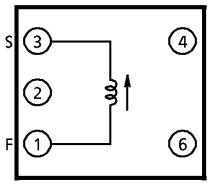
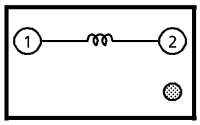
**ADJUSTING MEASUREMENT CIRCUIT**

1. PIF VCO tank coil
   (1) Make sure that nothing is fed to the PIF input, then fix the 2nd AGC pin to 3V.
   (2) Measure the voltage on the loop filter pin. $V_A$
   (3) Release the voltage on the 2nd AGC pin fixed to 3V.
   (4) PIF input f = 58.75MHz, 84dB$\mu$V
   (5) Adjusting the VCO tank coil until the voltage on the loop filter pin equals $V_A$.
2. AFT tank coil
   (1) Make sure that noting is fed to the PIF input, then fix the 2nd AGC pin to 3V.
   (2) Measure the voltage on the AFT output pin. $V_{11CENT}$
   (3) Release the voltage on the 2nd AGC pin fixed to 3V.
   (4) PIF input f = 58.75MHz, $f_m$ = 15.75kHz, 84dB$\mu$V, 30%AM
   (5) Adjust the AFT tank coil until the voltage on the AFT output pin equals $V_{11CENT}$.
3. FM demodulation coil
   (1) Make sure that noting is fed to the limiter input.
   (2) Measure the voltage on the audio output pin. $V_{ADC}$
   (3) Limiter input f = 4.5MHz, 100dB$\mu$V, non-modulated
   (4) Adjust the AFT tank coil until the voltage on the audio output pin equals $V_{ADC}$.
4. VCXO oscillation frequency
   (1) Make sure that noting is fed to the chroma input, and connect the OSD brightness control pin to $V_{CC}$ with 100$\Omega$.
   (2) Measure the voltage on the APC filter terminal. $V_{APC}$
   (3) Chroma input f = 3.579545MHz, 280m$V_{p-p}$, CW
   (4) Adjust the trimmer capacitor at the VCXO drive terminal until the voltage on the APC filter terminal equals $V_{APC}$.

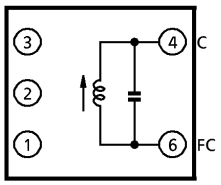
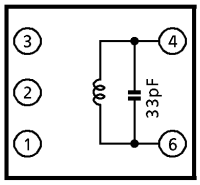
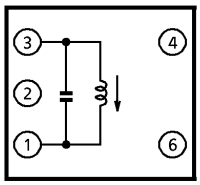
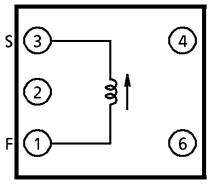
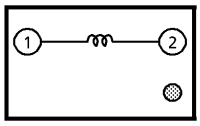
**PRECAUTIONS TO BE TAKEN WHEN MEASURING ELECTRICAL CHARACTERISTICS**

1. When measuring the PIF VCO oscillation frequency, measure the leakage component from the PIF output pin with spectrum analyzer.
2. When measuring the VCXO oscillation frequency, measure the leakage component from the color difference output pin with a spectrum analyzer.

**DETAILS OF TANK COILS USED**

| TANK NAME | PRODUCT NAME | CONNECTION DIAGRAM | ELECTRICAL CHARACTERISTICS | |
|---|---|---|---|---|
| AFT Coil | TRF-1028 |  C = PH1H620J | $f_0$ MAX | 71.0MHz −8% or more (Auxiliary coil 30~100MHz) |
| | | | $f_0$ MIN | 55.0MHz +8% or more (Auxiliary coil 30~100MHz) |
| | | | Non-load Q | Within 48 ± 25% ($f_0$ MIN) |
| VCO Tank | TRF-1118K |  | $f_0$ variable range | 64MHz ± 3% (actual 58~70MHz) |
| | | | Non-load Q | 110 ± 30% |
| SIF Tank | TRF-6010 |  C = CC165R1H101J | Center frequency | 4.5MHz (nominal) |
| | | | Demodulation output | 77mV ± 10mV |
| | | | Tuning frequency | 4.467MHz ± 11kHz |
| SAW-P Coil | TRF-1058 |  | Fixed L | 0.52μH ± 10% (f = 25.5MHz) |
| | | | Non-load Q | Within 50 ± 20% (f = 25.5MHz) |
| SAW-S Coil | TRF-1090 |  | Fixed L | 0.65μH ± 10% |
| | | | Non-load Q | 85 ± 15% (f = 25.2MHz) |
| | | | Temperature coefficient | 0 ± 60ppm |

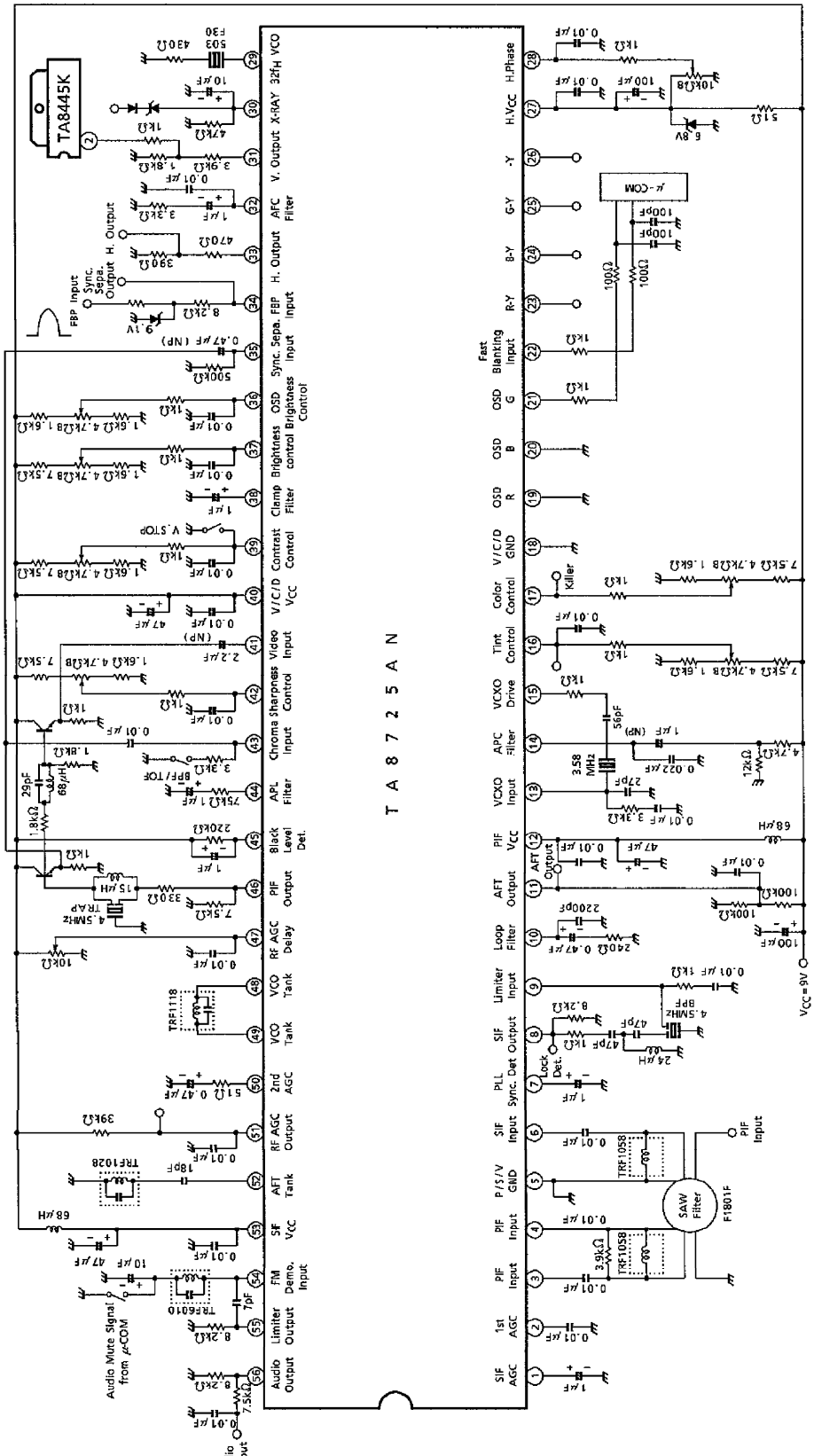
TA8725AN (for use in Japan)

| TANK NAME | PRODUCT NAME | CONNECTION DIAGRAM | ELECTRICAL CHARACTERISTICS | |
|---|---|---|---|---|
| AFT Coil | TRF-1223 |  C = PH1H750J | $f_0$ MAX | 55.5MHz −8% 以上 (Auxiliary coil 30~100MHz) |
| | | | $f_0$ MIN | 42.8MHz +8% 以上 (Auxiliary coil 30~100MHz) |
| | | | Non-load Q | Within 65 ± 25% ($f_0$ MIN) |
| VCO Coil | TRF-1130D |  | $f_0$ variable range | 53.0MHz ± 3% (actual 50~70MHz) |
| | | | Non-load Q | 128 ± 30% |
| SIF Tank | TRF-6010 |  C = CC165R1H101J | Center frequency | 4.5MHz (nominal) |
| | | | Demodulation output | 77mV ± 10mV |
| | | | Tuning frequency | 4.467MHz ± 11kHz |
| SAW-P Coil | TRF-1058 |  | Fixed L | 0.52μH ± 10% (f = 25.5MHz) |
| | | | Non-load Q | Within 50 ± 20% (f = 25.5MHz) |
| SAW-S Coil | TRF-1090 |  | Fixed L | 0.65μH ± 10% |
| | | | Non-load Q | 85 ± 15% (f = 25.2MHz) |
| | | | Temperature coefficient | 0 ± 60ppm |

TA8725AN (For use in U. S.)

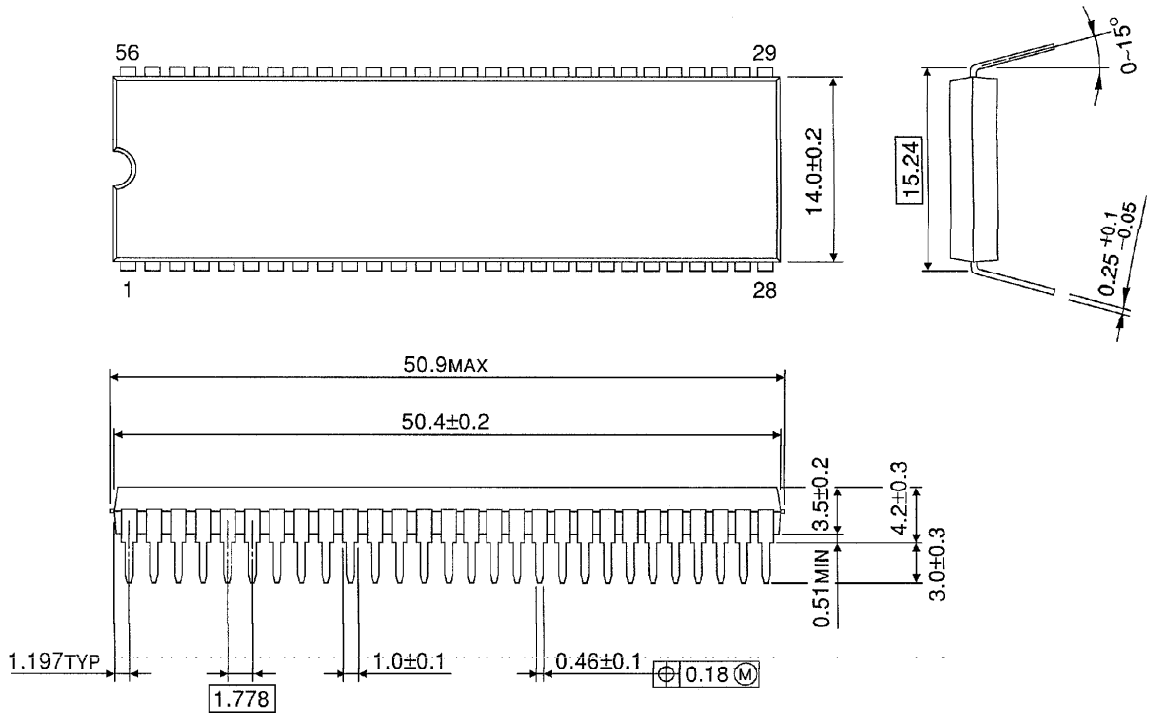
APPLICATION CIRCUIT

(For Japan)



**OUTLINE DRAWING**

SDIP56-P-600-1.78 Unit : mm




Weight : 5.55g (Typ.)