

HA11215A

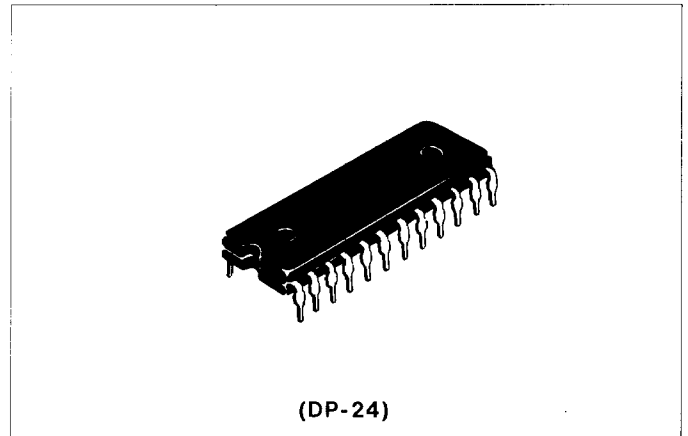
Color TV Picture IF System

FUNCTIONS

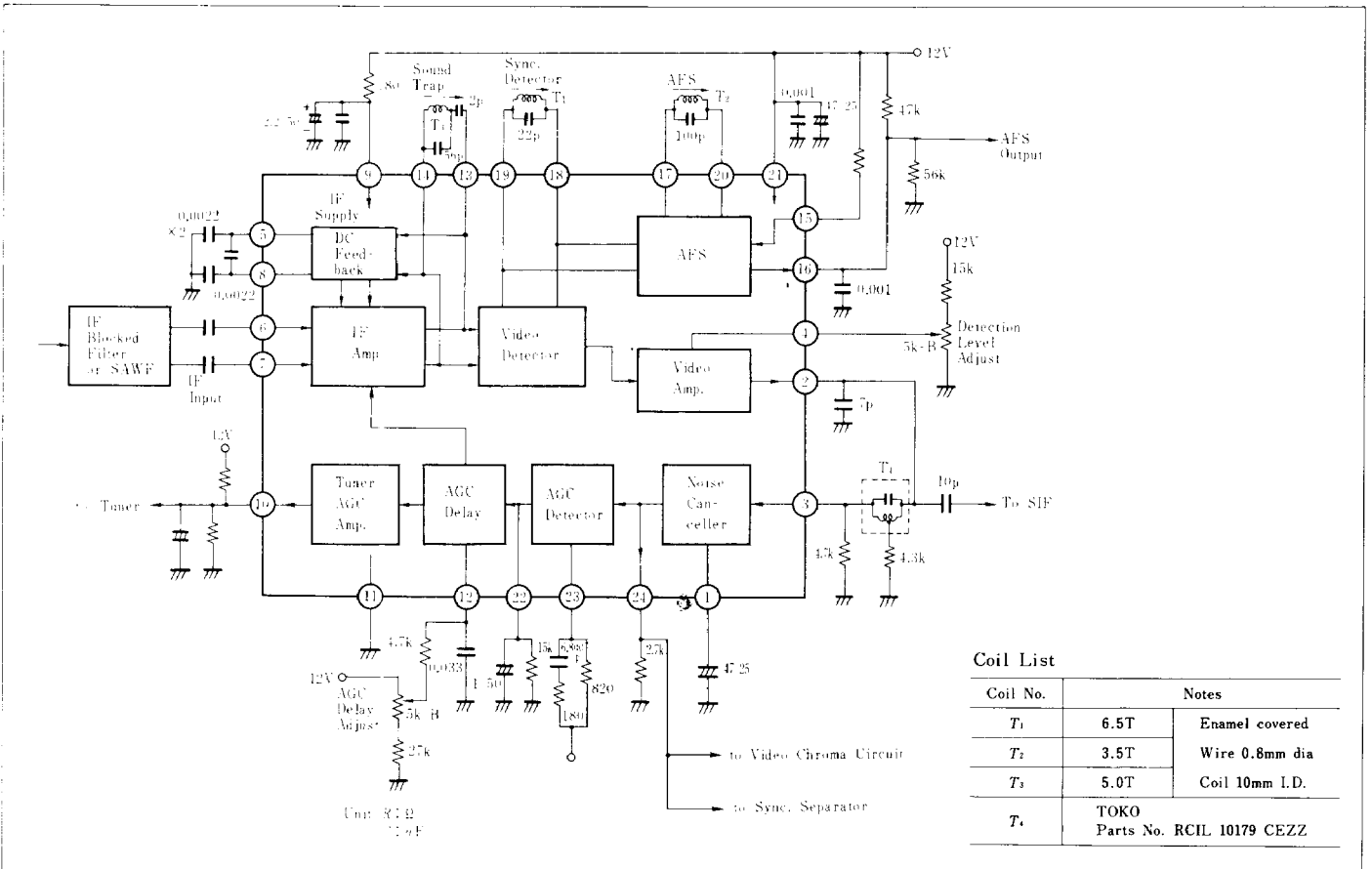
- PIF Amplifier
- Video Detector
- AFC with Defeat
- Noise Canceller
- Forward AGC

FEATURES

- SAW filter connectable without pre-amp.
- Input sensitivity: $V_{in} = 50\mu V_{rms}$ typ.
- Output peak-to-peak voltage at video detector adjustable externally.
- High S/N under weak-input signal.



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$ unless otherwise specified)

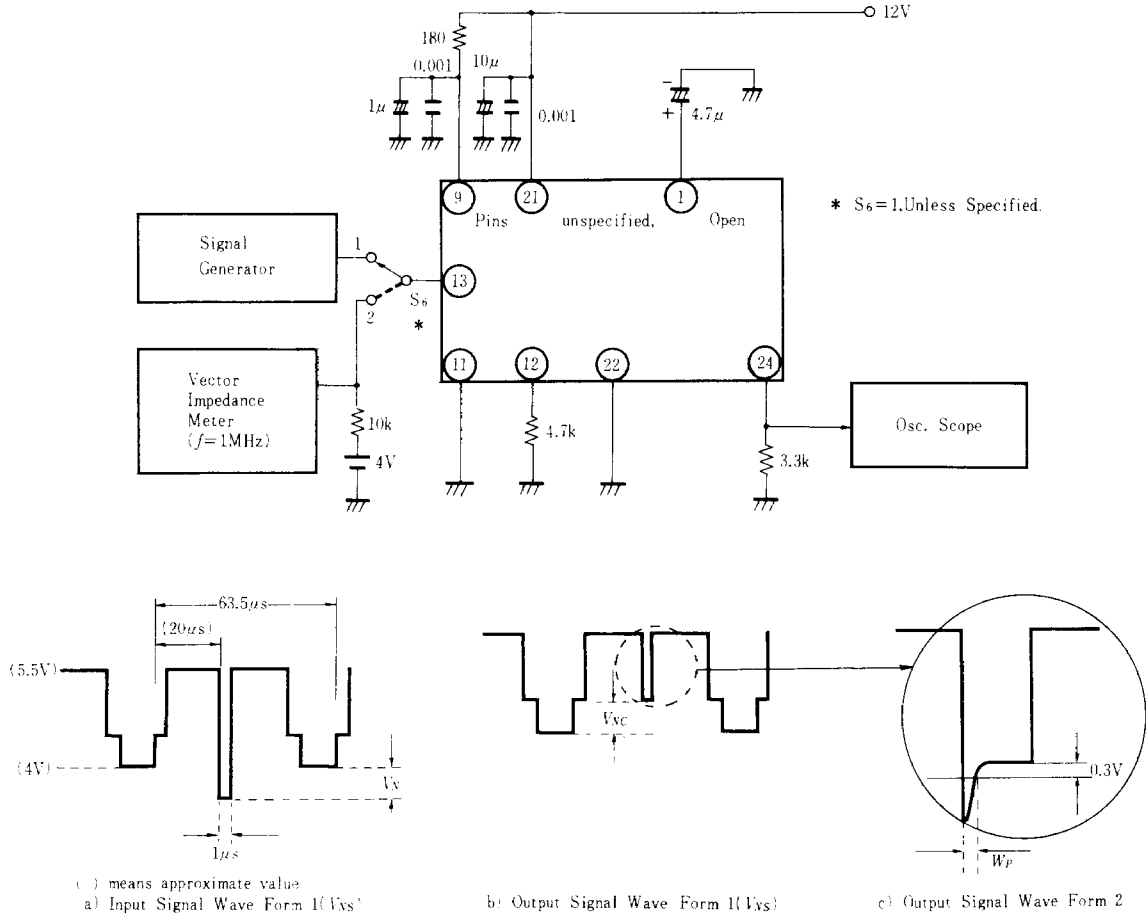
| Item | Symbol | Ratings | Unit |
|-----------------------|-----------|-------------|------------------|
| Supply Voltage | V_{CC} | 15 | V |
| Input Voltage | V_{in} | 5 | V _{p-p} |
| Power Dissipation | P_T | 625* | mW |
| Operating Temperature | T_{opr} | -20 to +75 | $^\circ C$ |
| Storage Temperature | T_{stg} | -40 to +125 | $^\circ C$ |

* Value at $T_a = 75^\circ C$

ELECTRICAL CHARACTERISTICS ($V_{CC}=12V$, $T_a=25^\circ C$)

| Item | Symbol | Test Circuit | Test Condition | min. | typ. | max. | Unit | |
|---|---------------|--------------|---|--------------------|------|------|-------------------|----------|
| Supply Current | I_{CC} | 1 | No signal input | 21 pin | 21.0 | 27.0 | 34.5 | mA |
| | | | | 9 pin | 22.0 | 25.5 | 28.4 | |
| Input Sensitivity | V_{in} | 1 | $V_{out}=1.35V_{p-p}$ (24 pin) | 25 | 50 | 100 | μV_{rms} | |
| AFC Output Voltage at No Signal Input | V_{16} | 5 | $V_{C(AFC)}=0$, $V_{15}=1V$ | 5.4 | 6.5 | 7.7 | V | |
| | | | $V_{in(AFC)}=0$, $V_{15}=0$ | — | 4.5 | — | | |
| Signal-to-noise Ratio | S/N | 2 | $V_{in}=3mV_{rms}$ (no demodulation) $S/N=20 \log V_{out}/V_n$ (2 pin) | — | 53 | — | dB | |
| Max. Input Voltage | $V_{in\ max}$ | 1 | $V_{13-14}=80mV_{rms}$, DG=1dB | — | 12 | — | mVrms | |
| Output Carrier-zero DC Voltage | V_W | 1 | $V_{in}=0$, $V_{22}=1.8V$ | 4.5 | 5.8 | 7.0 | V | |
| Sync. Tip Voltage | V_P | 1 | $V_{in}=3mV_{rms}$, $m=75\%$ | 2 pin | 3.9 | 4.1 | 4.3 | V |
| | | | | 24 pin | 7.35 | 7.7 | 8.05 | |
| Differential Voltage between 14 and 13 pin | $V_{14, 13}$ | 1 | Input volt. = $80\mu V_{rms}$ to $16mV_{rms}$ C.W. DC voltage between 14 and 13 pin. Measure $V_{14, 13}$. | -10 | 0 | +10 | mV | |
| Max. Video Output Voltage | V_{2M} | 1 | Voltage between 14 and 13 pin : $300mV_{rms}$ C.W. $V_{22}=1.8V$. Measure DC voltage at 2 pin. | — | — | 2.5 | V | |
| Video Frequency Response | f_B | 1 | V_{in} : modulation of video sweep, $3mV_{rms}$. Standardizing the output voltage at 100kHz. (2 pin) | 2MHz | — | 0 | — | dB |
| | | | | 4MHz | — | 0 | — | |
| | | | | 6MHz | — | +1.5 | — | |
| Supply Voltage for IF Block | V_9 | 1 | $V_{CC}=12V$, $R_S=180\Omega$, DC voltage at 9 pin connecting V_{CC} through 180Ω . | $V_{in}=0$ | 6.4 | 7.4 | 7.9 | V |
| | | | | $V_{in}=3mV_{rms}$ | 5.8 | 6.4 | 7.0 | |
| Small Signal Video Amp. Gain | A_{AC} | 4 | Input signal at 3 pin : 10kHz, 0.1 Vp-p plus 4.5V bias, Measure AC gain to 24 pin | -1.5 | -0.7 | 0 | dB | |
| Video Amp. DC Transfer Ratio | A_{DC} | 4 | Input voltage at 3 pin : 4V, DC voltage at 24 pin | 7.25 | 7.6 | 7.95 | V | |
| Video Amp. Bandwidth | B_V | 4 | Input signal at 3 pin : 0 to 20MHz. Sweep : 0.1 Vp-p+4.5V, Frequency when voltage at 24 pin goes down by 3dB | 8 | — | — | MHz | |
| Noise Canceller Threshold Voltage | V_{NS1} | 4 | Input signal wave from 1 is applied into 3 pin. V_{NS} means V_N at 3 pin when the pulse peak at 24 pin begins to rise up | 0.3 | 0.5 | 0.7 | V | |
| Noise Canceller Clamp Voltage | V_{NC} | 4 | Input signal wave forms 1 is applied into 3 pin. V_{NC} at output signal wave form 1 of 24 pin when $V_N=1V$. | 0.45 | 0.7 | 0.95 | V | |
| AFC Detector Sensitivity | μ_{AFC} | 5 | $f_o=58.75MHz$, $V_{in(AFC)}=14mV_{rms}$, $V_{CC}=12V$, $\Delta V=10V$ (1 to 11V) | — | — | 200 | $\frac{kHz}{10V}$ | |
| AFC Output Voltage for Deviation of Input Frequency | V_{AFC} | 5 | $V_{CC}=12V$, $f_o=58.75MHz$, $V_{in(AFC)}=5mV_{rms}$ | $f_o+2.0MHz$ | 2.0 | — | — | V |
| | | | | $f_o+1.5MHz$ | 1.0 | — | — | |
| | | | | $f_o+0.7MHz$ | — | — | 1.0 | |
| | | | | f_o+0MHz | — | 6.0 | — | |
| | | | | $f_o-0.7MHz$ | 11.0 | — | — | |
| | | | | $f_o-1.5MHz$ | — | — | 11.0 | |
| $f_o-2.0MHz$ | — | — | 10.0 | | | | | |
| Noise Figure | F_I | 3 | Voltage at 12 pin is fixed. $V_{in}=3mV_{rms}$ | — | 6.0 | — | dB | |
| IF Input Impedance | Z_{in} | 1 | Either 6 or 7 pin grounded. 12 pin : 8.0V | C_{in} | 30 | 40 | 50 | pF |
| | | | | R_{in} | 70 | 100 | 140 | Ω |

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