

HA11215A

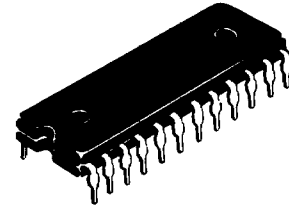
Color TV Picture IF System

FUNCTIONS

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

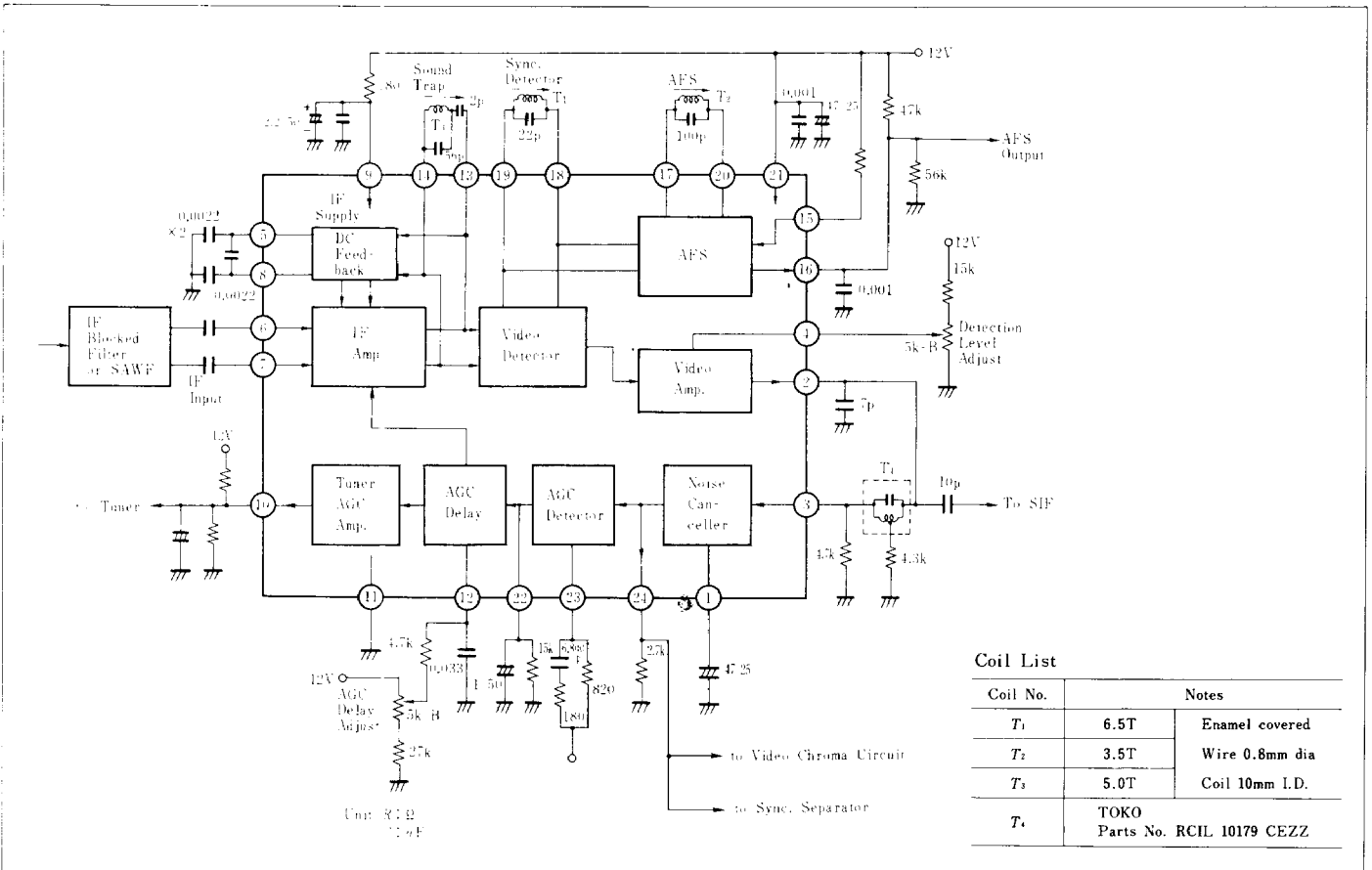
FEATURES

- 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.



(DP-24)

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	°C
Storage Temperature	T_{stg}	-40 to +125	°C

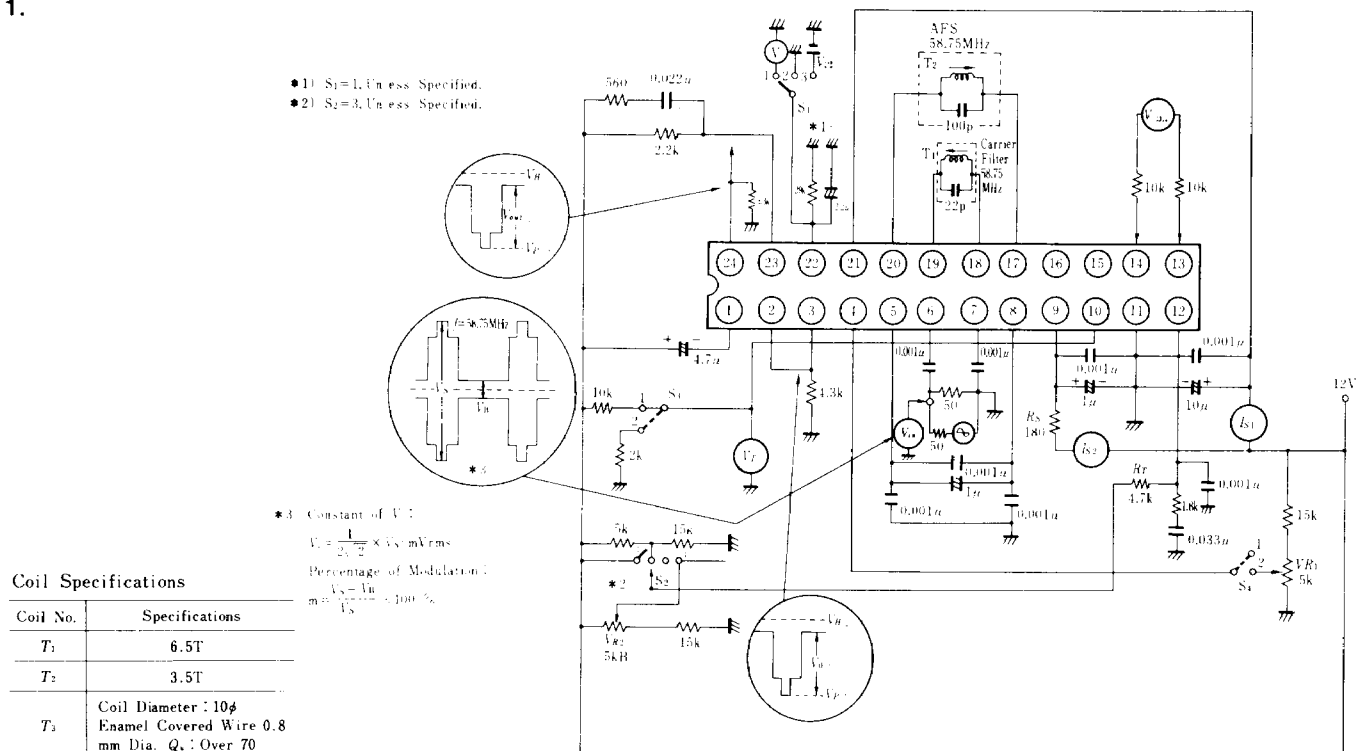
* Value at $T_a = 75^\circ C$

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
				9 pin	22.0	25.5	28.4
Input Sensitivity	V_{in}	1	$V_{out}=1.35V_{p-p}$ (24 pin)		25	50	100
AFC Output Voltage at No Signal Input	V_{16}	5	$V_{C(AFC)}=0$, $V_{15}=1V$		5.4	6.5	7.7
			$V_{in(AFC)}=0$, $V_{15}=0$		—	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	—
Max. Input Voltage	$V_{in\ max}$	1	$V_{13-14}=80mV_{rms}$, $DG=1dB$		—	12	—
Output Carrier-zero DC Voltage	V_W	1	$V_{in}=0$, $V_{22}=1.8V$		4.5	5.8	7.0
Sync. Tip Voltage	V_P	1	$V_{in}=3mV_{rms}$, $m=75\%$	2 pin	3.9	4.1	4.3
				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
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
Video Frequency Response	f_B	1	V_{in} : modulation of video sweep, $3mV_{rms}$. Standardizing the output voltage at 100kHz. (2 pin)	2MHz	—	0	—
				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
				$V_{in}=3mV_{rms}$	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
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
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	—	—
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
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
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
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	—	—
				$f_o+1.5MHz$	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	—
IF Input Impedance	Z_{in}	1	Either 6 or 7 pin grounded. 12 pin : 8.0V	C_{in}	30	40	50
				R_{in}	70	100	140

■ TEST CIRCUITS

1.



Coil Specifications

Coil No.	Specifications
T ₁	6.5T
T ₂	3.5T
T ₃	Coil Diameter : 10 ϕ Enamel Covered Wire 0.8 mm Dia. Q _s : Over 70

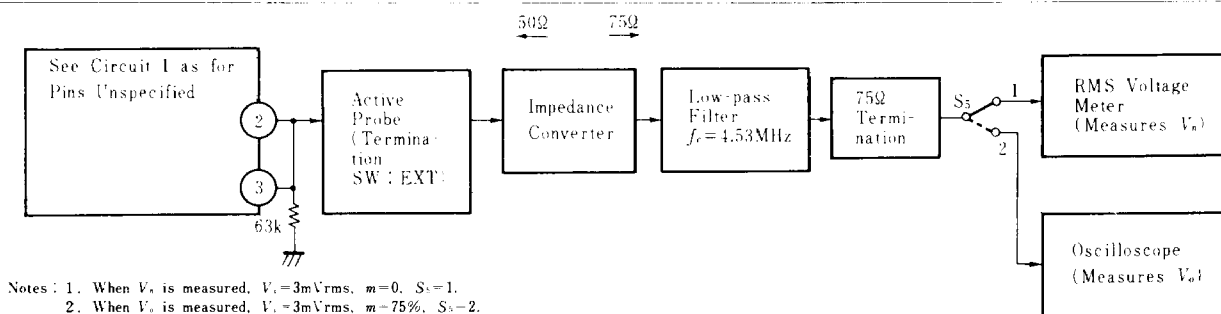
*3 Constant of V :

$$V_s = \frac{1}{\beta_{\text{eff}}} \times V_N \text{ mVrms}$$

Percentage of Modulation:

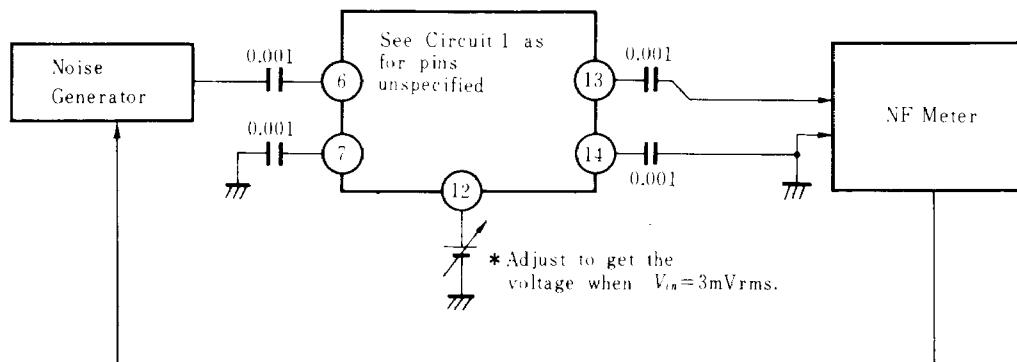
$$m = \frac{V_s - V_n}{V_s} \times 100 \%$$

2.



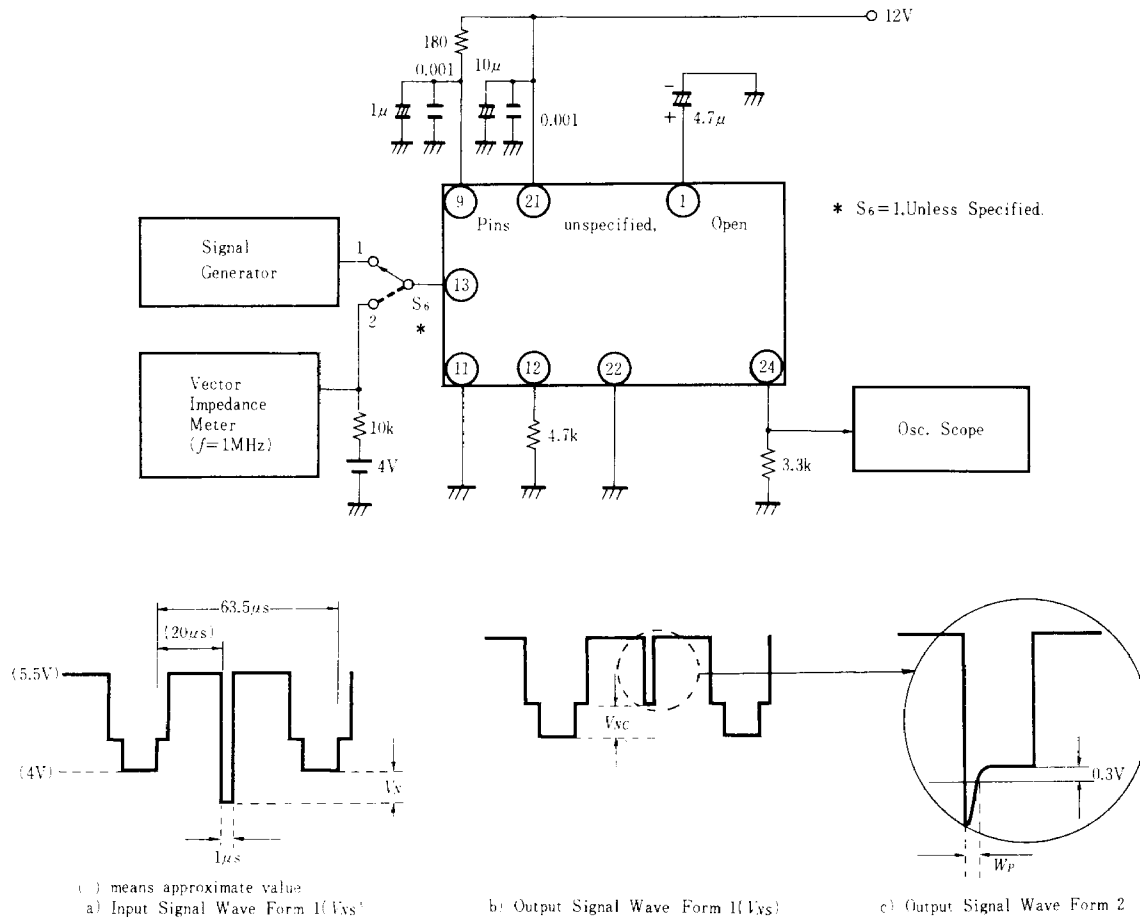
Notes : 1. When V_s is measured, $V_s = 3mV_{rms}$, $m=0$, $S_N=1$.
2. When V_o is measured, $V_s = 3mV_{rms}$, $m=75\%$, $S_N=2$.
 $S/N=20 \log \{V_o/V_s\}$

3.



Unit C : F

4.



5.

