

# HA11215A

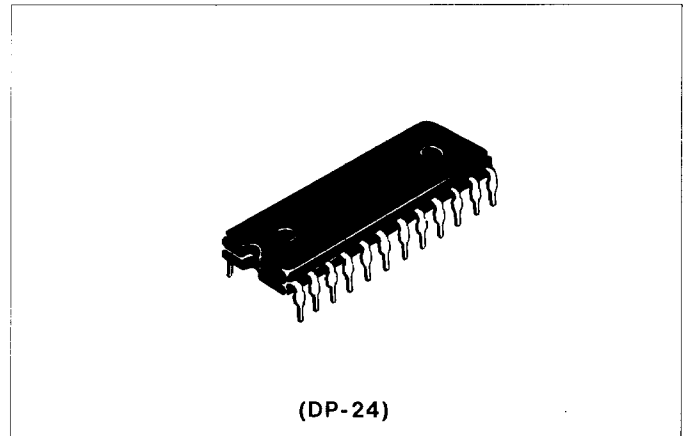
## Color TV Picture IF System

### FUNCTIONS

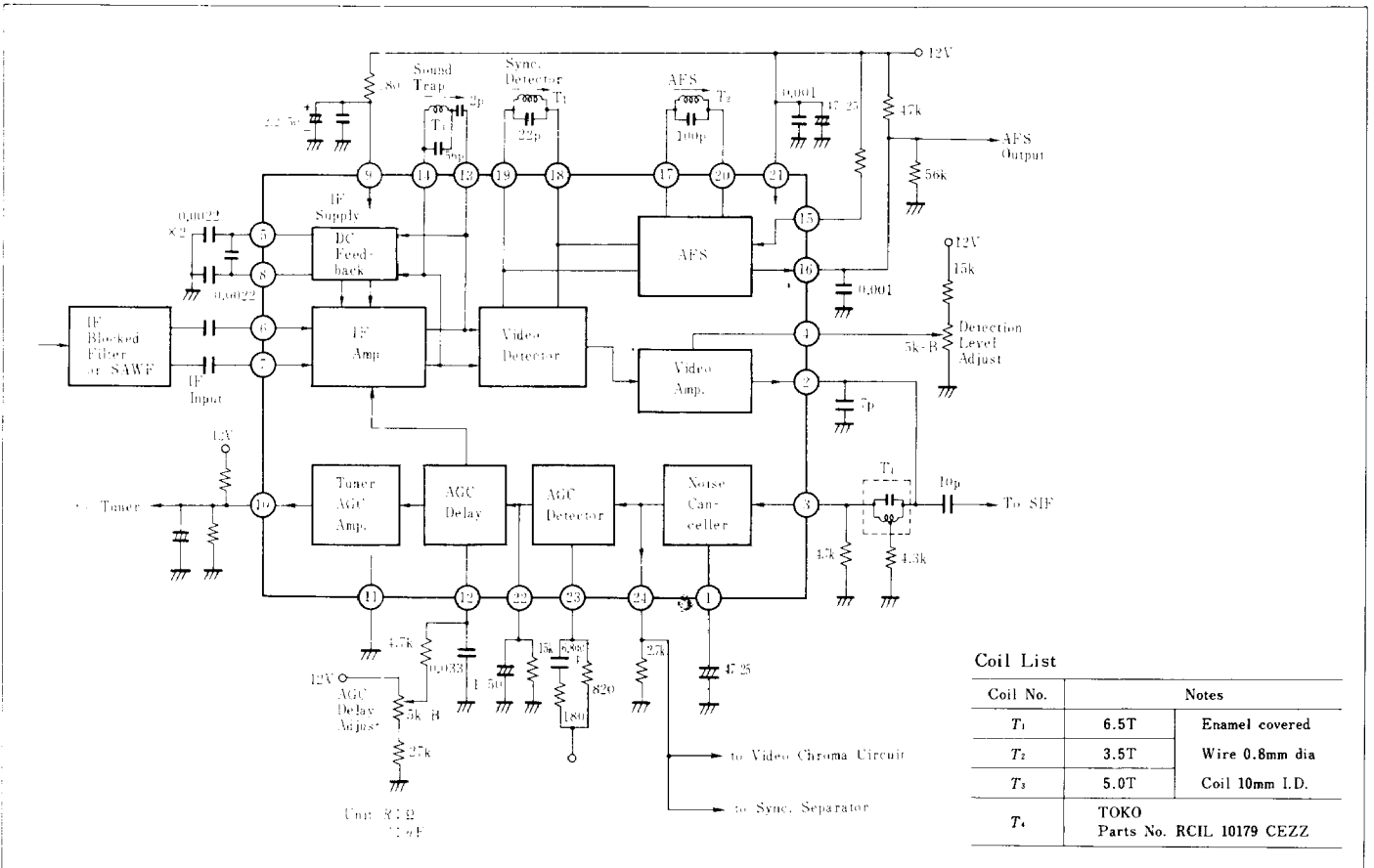
- PIF Amplifier
- Video Detector
- AFC with Defeat
- Noise Canceller
- Forward AGC

### 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)

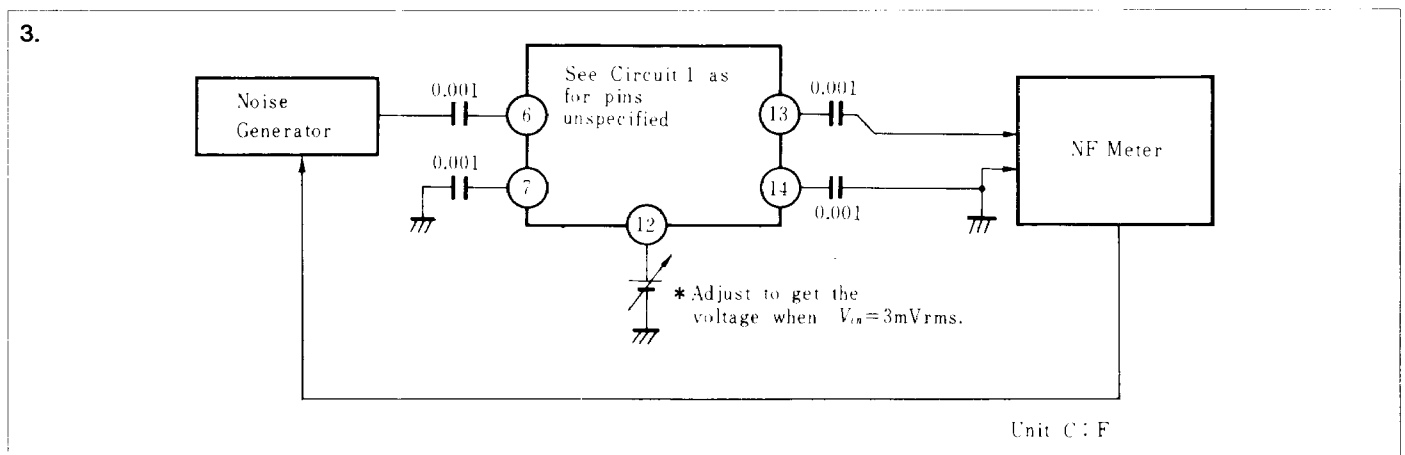
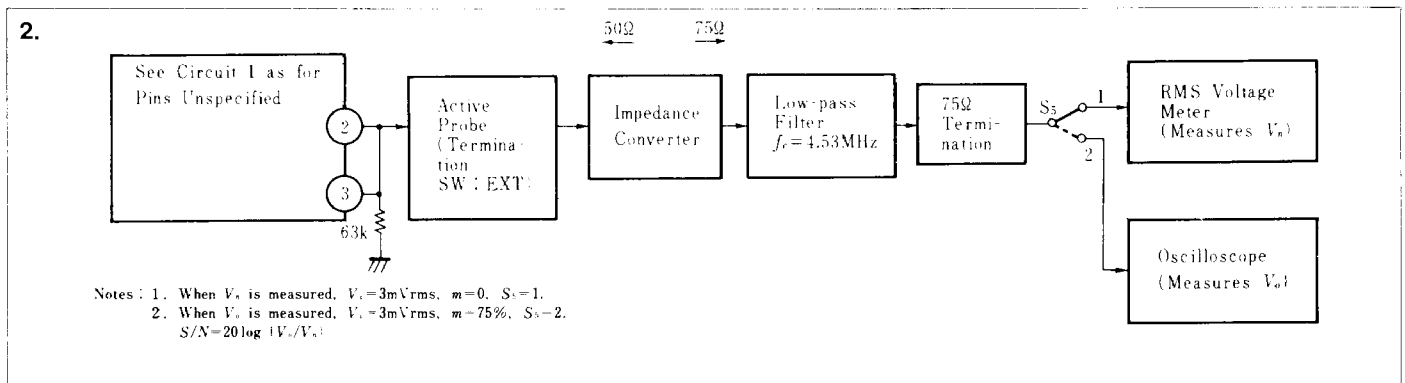
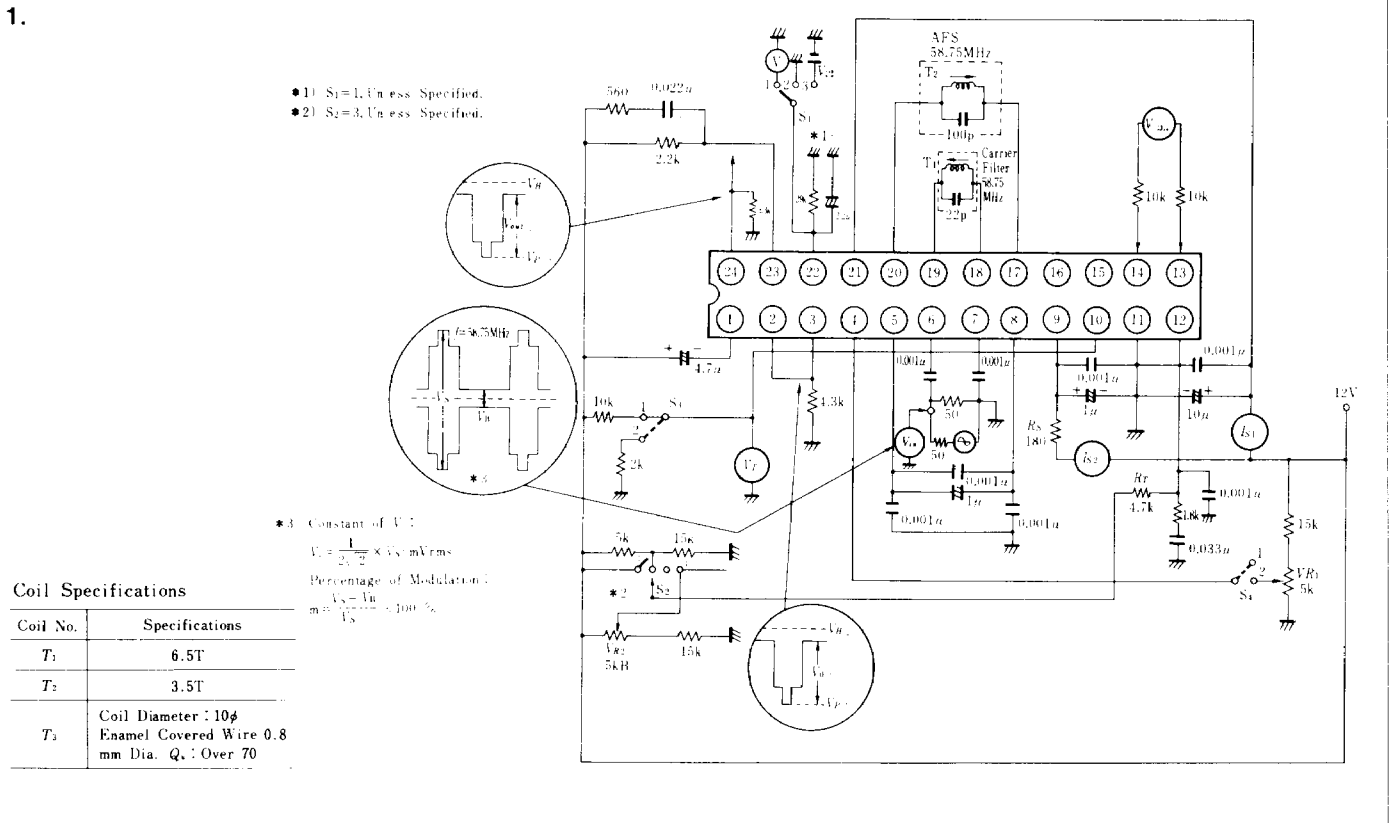
Item	Symbol	Ratings	Unit
Supply Voltage	$V_{cc}$	15	V
Input Voltage	$V_{in}$	5	V <sub>p-p</sub>
Power Dissipation	$P_T$	625*	mW
Operating Temperature	$T_{opr}$	-20 to +75	°C
Storage Temperature	$T_{stg}$	-40 to +125	°C

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

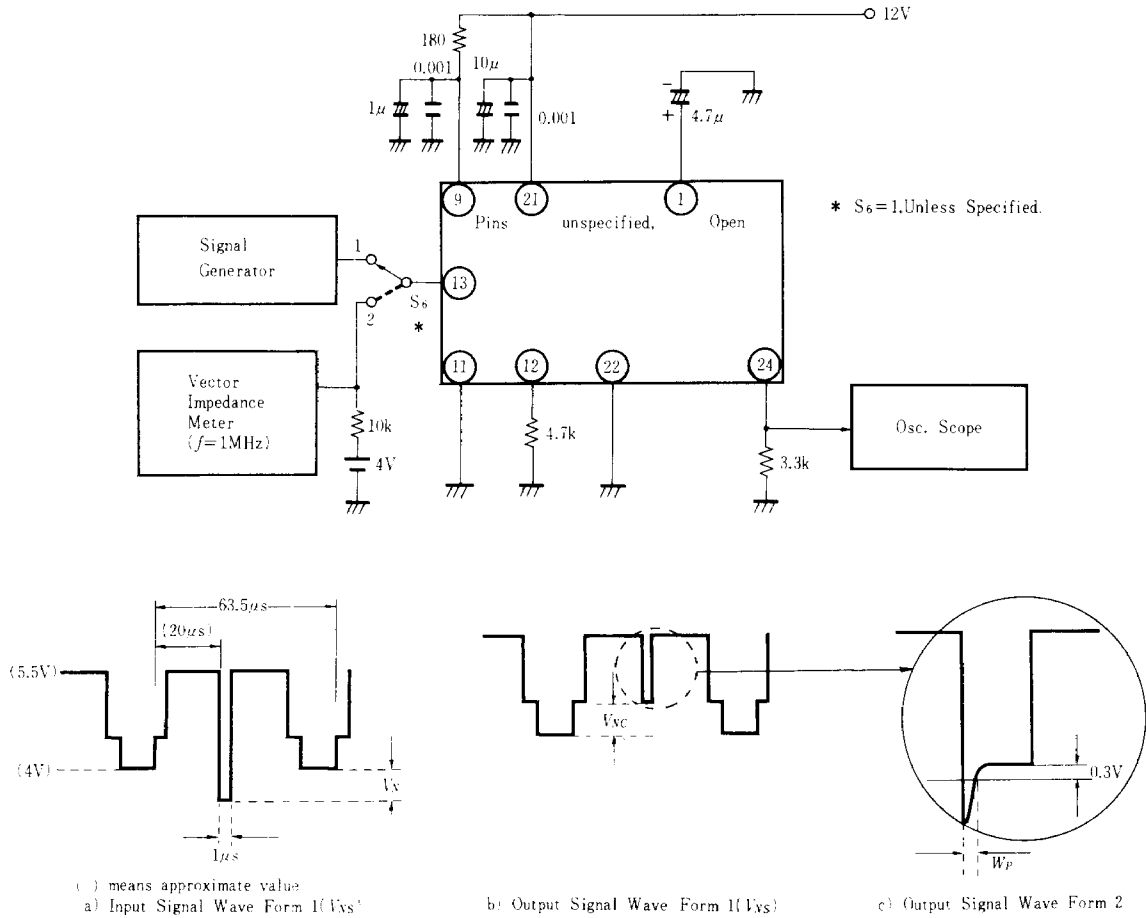
**ELECTRICAL CHARACTERISTICS** ( $V_{CC}=12V$ ,  $T_a=25^\circ C$ )

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	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	$\mu V_{rms}$	
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 $180\Omega$ .	$V_{in}=0$	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	$\mu_{AFC}$	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	
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	$\Omega$

TEST CIRCUITS



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