

HA11238

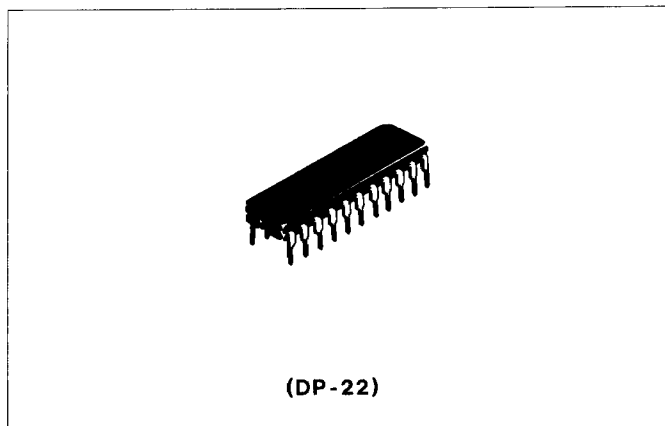
Color TV Picture IF Amplifier

FUNCTIONS

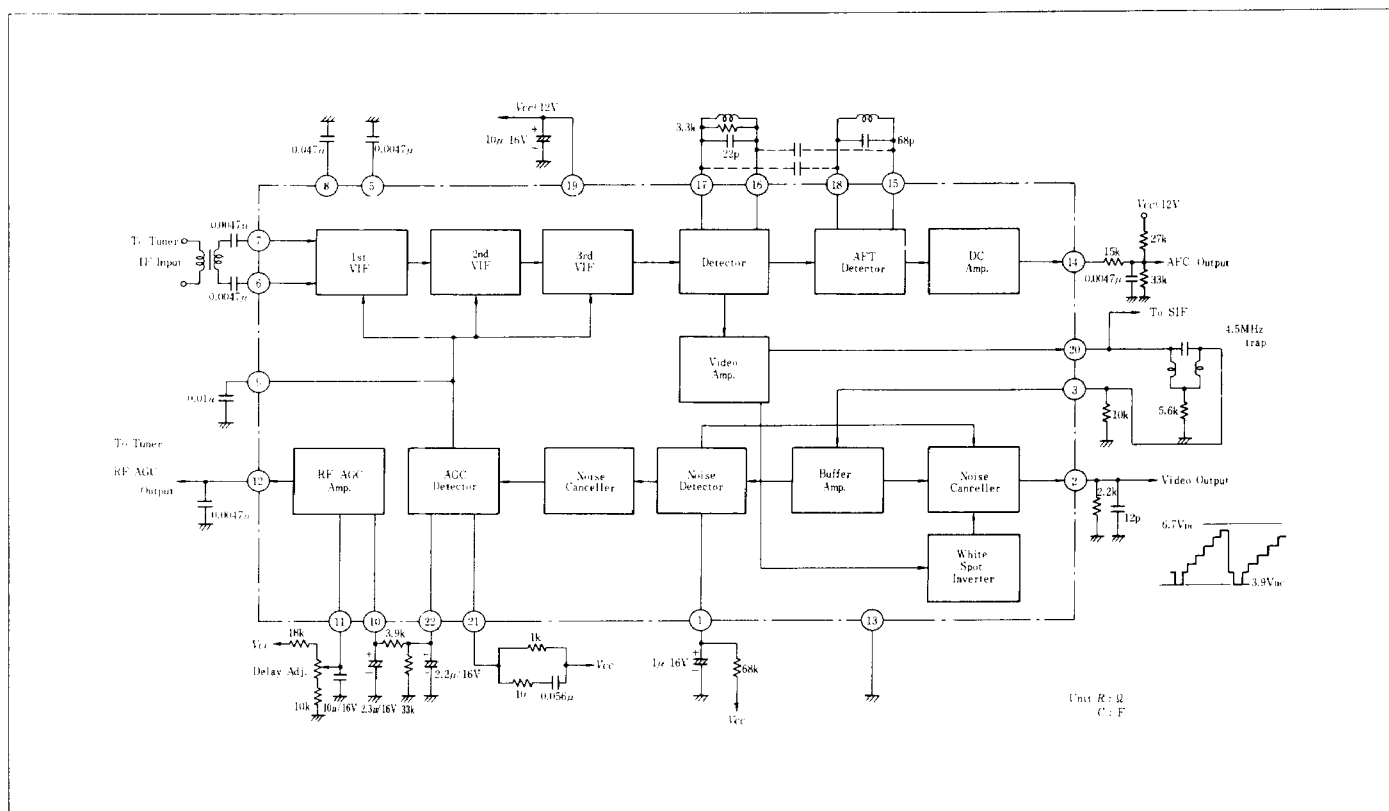
- 3 stage picture IF amplifier
- Quasi-synchronous video detector
- AFT
- Video amplifier
- AGC detector
- RF AGC amplifier
- Noise canceller
- White spot inverter

FEATURES

- Input sensitivity: $100\mu\text{V}$ typ. @58MHz
- Differential gain; 5% typ. @m=87.5%
- Differential phase; 5 degree typ. @m=87.5%
- Low noise figure; 8dB typ. @Gain reduction=30dB
- Peak AGC detection



BLOCK DIAGRAM



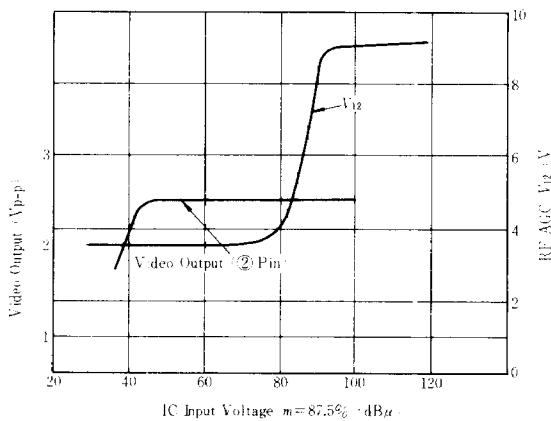
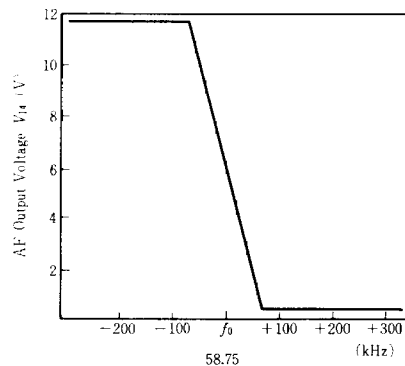
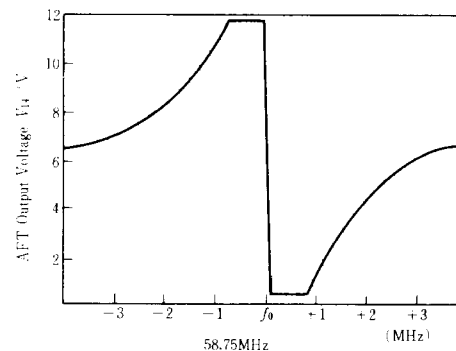
ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Rating	Unit
Supply Voltage	V_S	15	V
Power Dissipation	P_T^*	830	mW
Operating Temperature	T_{opr}	-15 to +65	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

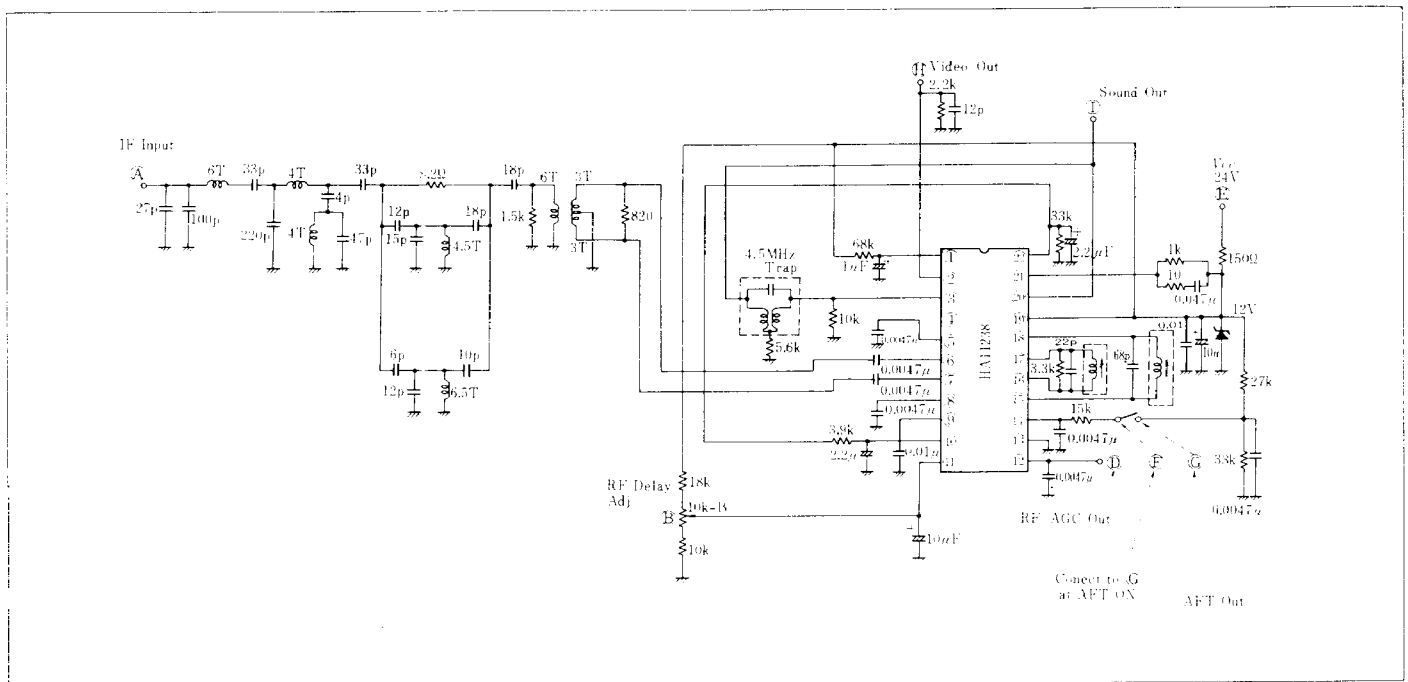
* Value at $T_a = 65^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_S = 12\text{V}$ unless otherwise specified)

Item	Symbol	Test Conditions	min.	typ.	max.	Unit
Supply Current	I_S		35	50	70	mA
Input Sensitivity	V_{in}	$f = 58.75\text{MHz}$, $m = 87.5\%$, $V_{out} = 2.45V_{p-p}$	—	100	—	μV
Maximum Video Output	V_{viden}	Carrier Zero to Sync. tip	2.08	2.45	2.82	V_{p-p}
Sync. Tip Voltage	V_{sync}	$f = 58.75\text{MHz}$, $V_i = 10\text{mV}$	3.4	3.9	4.4	V_{DC}
Maximum Input Voltage	$V_{in\text{ max.}}$	$DG = 1\text{dB}$, $f_d = 57\text{MHz}$, $f_a = 56\text{MHz}$	—	100	—	mVrms
Noise Figure	NF	$f_o = 57\text{MHz}$, $GR = 30\text{dB}$	—	8	—	dB
Differential Gain	DG	$f = 58.75\text{MHz}$, $m = 87.5\%$	—	5	—	%
Differential Phase	DP		—	5	—	degree
Carrier Rejection	CR	$f = 58.75\text{MHz}$, $V_o = 2.80V_{p-p}$	40	—	—	dB
Frequency Response	f_c	-3dB point	—	10	—	MHz
Minimum RF AGC Voltage	$V_{12\text{ min.}}$		3.0	3.5	4.0	V
Maximum RF AGC Voltage	$V_{12\text{ max.}}$		8.5	9.0	9.5	V
Minimum AFC Output Voltage	$V_{14\text{ min.}}$		—	—	1.0	V
Maximum AFC Output Voltage	$V_{14\text{ max.}}$		11.0	—	—	V
AFC Control Sensitivity	f_s	$V_{14} = 10V_{p-p}$, $f_o = 58.75\text{MHz}$	—	150	300	kHz
Frequency Range of Saturated Voltage	f_r	$V_{14} > 11.0\text{V}$ or $V_{14} < 1\text{V}$	0.5	—	—	MHz
D.C Output Voltage (pin 14)	V_{AFT}	$f = 52\text{MHz}$, $V_i = 10\text{mV}$	5.5	6.5	7.5	V

VIDEO OUTPUT & RF AGC
vs. IC INPUT VOLTAGE

AFT OUTPUT VOLTAGE
vs. FREQUENCY


CIRCUIT EXAMPLE



IF AGC VOLTAGE & RF AGC VOLTAGE vs. ANTENNA INPUT

