



INTEGRATED CIRCUIT

TECHNICAL DATA

TA7607AP, TA7611AP

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

VIDEO IF AMPLIFIER FOR COLOR AND
MONOCHROME TELEVISION RECEIVERS

TA7607AP FOR FET TUNER

TA7611AP FOR NPN TUNER

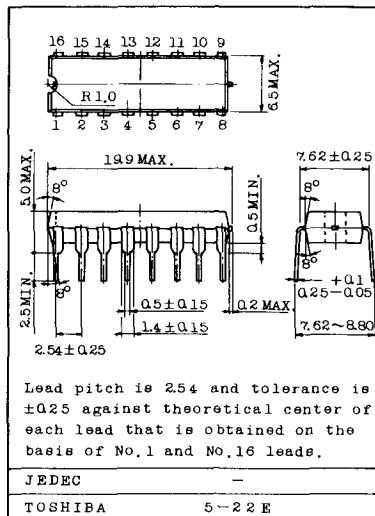
FUNCTIONS

- . Three Controlled IF Amplifier Stages
- . Video Demodulator Controlled by Picture Carrier
- . Black Noise and White Noise Inverter
- . Peak AGC
- . DC Amplifier for RF AGC Out
- . Quadrature Detector for AFT
- . DC Amplifier for AFT

FEATURES

- . High Gain, wide band IF amplifier
:50dB Typ. at 58MHz
- . Gain reduction with excellent stability : 55dB Typ. at 58MHz
- . Excellent DG/DP characteristics : DG 7% Typ. DP 3.5 deg Typ.
- . Excellent S/N characteristics due to delayed 3 stages AGC action
- . Negative video output signal
- . Fast AGC action due to noise inverter and peak AGC
- . Switch off the video part with VTR SW
- . Dual differential AFT output

Unit in mm





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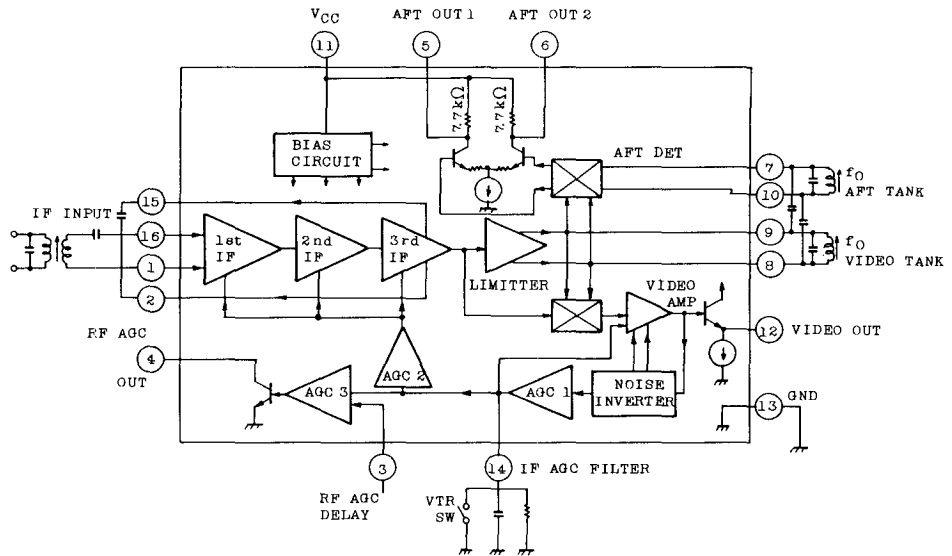
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MAXIMUM RATINGS ($T_a=25^\circ$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	15	V
Open Loop Voltage	V_4	15	V
Video DC Output Current	I_{12}	6	mA
Power Dissipation (Note)	P_D	1.4	W
Operating Temperature	T_{opr}	$-20 \sim 65$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ\text{C}$

(Note) Derated above $T_a=25^\circ\text{C}$ in the proportion of $11.2\text{mW}/^\circ\text{C}$.

BLOCK DIAGRAM





ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recommended Supply Voltage	V _{CC} (V ₁₁)	-	-	10.8	12.0	13.2	V
Supply Current	I _{CC} (I ₁₁)	1	V _{CC} =12V	42	51	63	mA
Video DC Output Voltage	V ₁₂	1	V _{CC} =12V	5.2	5.5	5.8	V
AFT DC Output Voltage	V ₅	1	V _{CC} =12V, SW ₁ :ON, SW ₂ :ON	5.3	6.8	8.3	V
AFT DC Output Voltage	V ₆	1	V _{CC} =12V, SW ₁ :ON, SW ₂ :ON	5.3	6.8	8.3	V
AFT Output Offset Voltage	V ₅ -V ₆	1	V _{CC} =12V, SW ₁ :ON, SW ₂ :ON	-1.5	0	1.5	V
RF AGC Residual Output Voltage	V ₄ SAT	1	V _{CC} =12V, SW ₃ :2, SW ₄ :1...TA7607AP SW ₄ :2...TA7611AP	-	-	0.5	V
RF AGC Leak Current	I ₄ LEAK	1	V _{CC} =12V, SW ₃ :1, SW ₄ :1...TA7611AP SW ₄ :2...TA7607AP	-	-	1	μA
Video Sensitivity	v _i PIN1-16	2	V _{CC} =12V, V ₁₂ =0.8V _{p-p} f _p =58.75MHz. AM:30%	100	200	300	μV _{rms}
AGC Range	4A (IF)	2	V _{CC} =12V, f _p =58.75MHz V ₁₄ =11.5V → 4.0V	60	64	-	dB
Sync Tip Level Voltage	V _{SYNC} (V ₁₂)	2	V _{CC} =12V, f _p =58.75MHz	2.3	2.5	2.7	V
Maximum IF Input Voltage	v _{IN} MAX	2	V _{CC} =12V, f _p =58.75MHz	100	120	-	mV _{rms}
White Noise Threshold	V _W TH (V ₁₂)	2	V _{CC} =12V, f _p =58.75MHz	5.8	6.2	6.6	V
White Noise Clamp Level	V _W CL (V ₁₂)	2	V _{CC} =12V, f _p =58.75MHz	3.7	4.1	4.5	V



INTEGRATED CIRCUIT

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TA7607AP TA7611AP

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Black Noise Threshold	$V_{B TH}$ (V_{12})	2	$V_{CC}=12V$, $f_p=58.75MHz$	1.4	1.6	1.8	V
Black Noise Clamp Level	$V_{B CL}$ (V_{12})	2	$V_{CC}=12V$, $f_p=58.75MHz$	2.9	3.3	3.7	V
Video Frequency Response	f_{BW}	2	INPUT 58.75MHz +SWEEP GENERATOR	4.5	5.5	-	MHz
Suppression of Carrier	-	4	$SG_1=100mV_{rms}$ SG_2, SG_3 OFF	40	50	-	dB
Suppression of 2nd Carrier	I_{2nd}	4	$SG_1=100mV_{rms}$ SG_2, SG_3 OFF	40	50	-	dB
Suppression of Sound Carrier Color Subcarrier	I_{920}	4	$SG_1=100mV_{rms}$ $SG_2=32mV_{rms}$ $SG_3=32mV_{rms}$	33	38	-	dB
Differential Phase	DP	3	-	-	3.5	5	deg.
Differential Gain	DG	3	-	-	7	10	%
Input Impedance	R_{IN}	-	$f=58.75MHz$ BETWEEN PIN16-1	3.0	4.5	6.0	k Ω
	C_{IN}			-	2.0	5.0	pF
AFT Sensitivity	$\frac{\Delta F}{\Delta V_{5-6}}$	2	$f=58.75MHz$	-	16	-	kHz/V
AFT Output Upper Voltage	$V_{5, V6}$ U	2	$f=58.75MHz$	11.7	11.9	12.0	V
AFT Output Lower Voltage	$V_{5, V6}$ L	2	$f=58.75MHz$	1.8	2.3	2.8	V
Max Available Current	I_4 MAX	-	TA7607AP	0.3	-	-	mA
			TA7611AP	7	-	-	mA
RF ACC Delay Point Range	V_{IN} DELAY	-	$f=58.75MHz$	-	-	-	-



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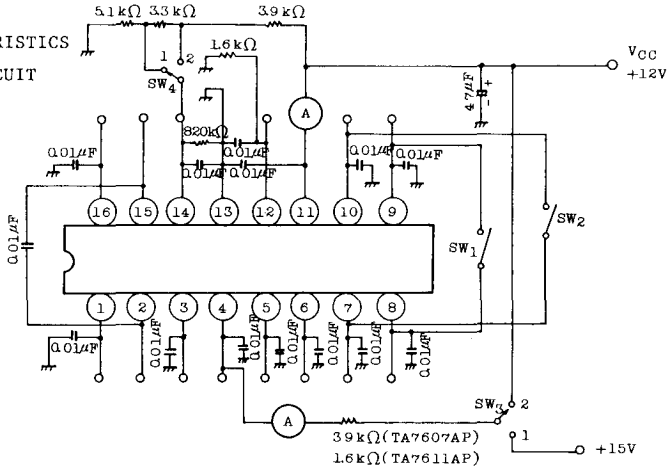
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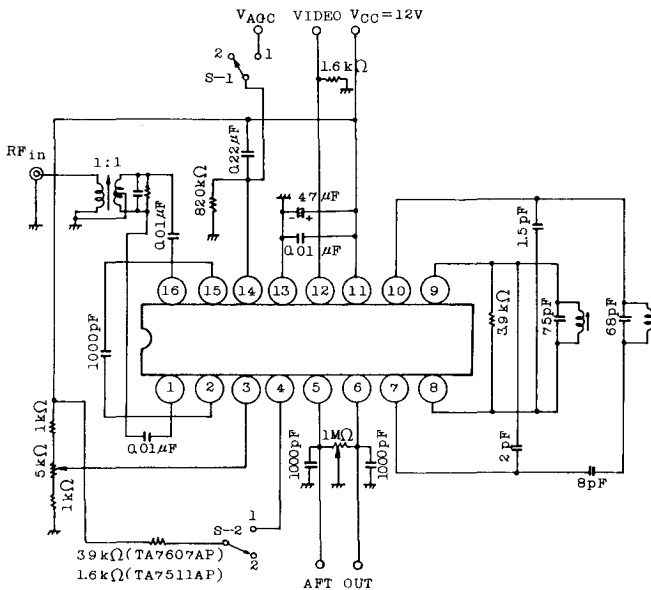
TEST CIRCUIT

1. DC

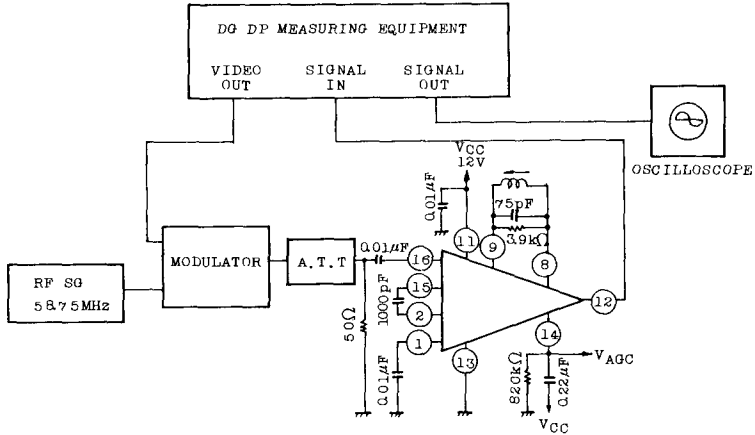
CHARACTERISTICS
TEST CIRCUIT



2. DYNAMIC CHARACTERISTICS TEST CIRCUIT



3. DG DP TEST CIRCUIT

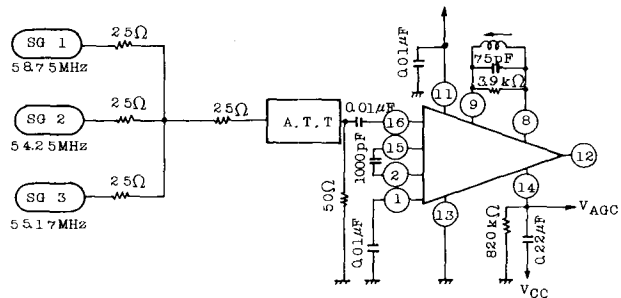


V_{AGC} : GAIN REDUCTION 40dB ADJUST

A.T.T. : SYNC TIP LEVEL DC 2.5V ADJUST

A.P.L. : 50%

4. INTER MODULATION TEST CIRCUIT





AFT OUTPUT VOLTAGE AS A FUNCTION OF FREQUENCY
FOR THE TA7607AP/TA7611AP

