



INTEGRATED CIRCUIT

TECHNICAL DATA

TA7660P TA7661P

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

PIF SUBSYSTEM FOR A TV RECEIVER

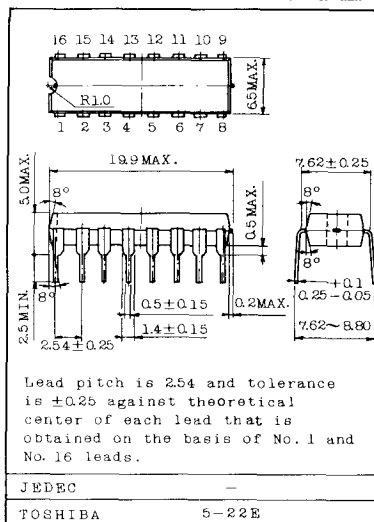
The TA7660P/TA7661P is a picture IF subsystem that provides 3-stage IF amplifier, Video Detector, Black and white noise inverting circuits and AFT detector for a TV receiver.

The TA7660P/TA7661P also provides internal fast response AGC with dual time constants for the IF amplifier stages and delayed AGC for an external RF amplifier stage. The TA7660P is designed for FET top front-end (reverse AGC), and TA7661P is for Bipolar top front-end (forward AGC).

The TA7660P/TA7661P is an AGC response time improved version of the TA7607AP/TA7611AP, and also utilizes a 16 leads dual-in-line plastic package.

- . High Input Sensitivity 3-stage IF Amplifier: 58.75MHz 100 μ V_{rms} Typ.
- . Gain Reduction with Excellent Stability; Reduction Range 65dB Typ.
- . Video Detector with Linear Characteristics
- . Black and White Noise Inverting Circuits
- . Balanced AFT Output
- . Improved Fast AGC Response
- . Delayed AGC Output for a Front-end FET Top Front-end; TA7660P
Bipolar Top Front-end; TA7661P
- . Minimal External Components and Adjustments Required

Unit in mm

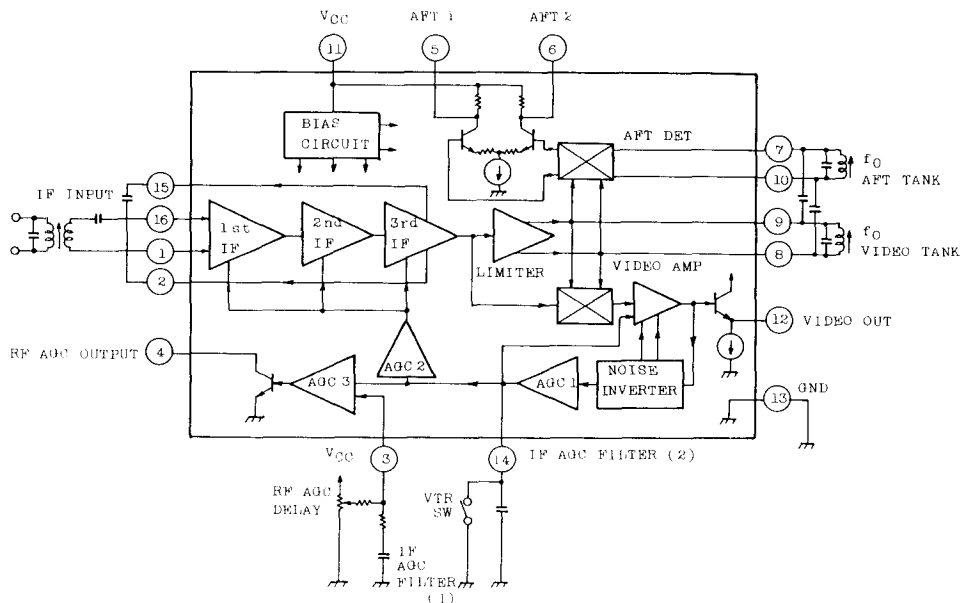


MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Pin 11 Supply Voltage	VCC	15	V
Pin 4 Open Loop Voltage	V14	15	V
Pin 12 Video DC Output Current	I12	6	mA
Power Dissipation (Note)	P _D	1.4	W
Storage Temperature	T _{opr}	-20 ~ 65	$^{\circ}\text{C}$
Operating Temperature	T _{stg}	-55 ~ 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





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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	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
	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.....TA7660P SW ₄ :2.....TA7661P	-	-	0.5	V
RF AGC Leakage Current	I ₄ LEAK	1	V _{CC} =12V, SW ₃ :1, SW ₄ :1.....TA7661P SW ₄ :2.....TA7660P	-	-	1	μA
Video Sensitivity	v _i PIN1-16	2	V _{CC} =12V, V ₁₂ =0.8V _{p-p} f _p =58.75MHz, AM: 30%	50	100	220	μV _{rms}
AGC Range	ΔA (IF)	2	V _{CC} =12V, f _p =58.75MHz V ₁₄ =11.5V → 4.0V	60	65	-	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 Input Voltage	v _{IN} MAX	2	V _{CC} =12V, f _p =58.75MHz	100	120	-	mV _{rms}



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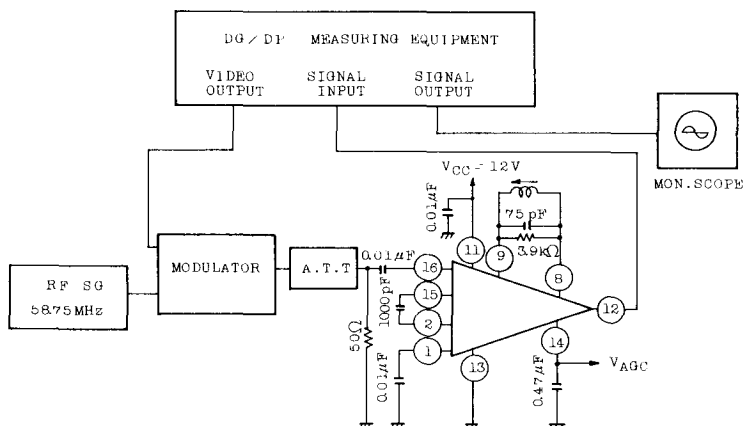
TECHNICAL DATA

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
White Noise	Threshold Level	$V_{W TH}$ (V ₁₂)	2	V _{CC} =12V, f _p =58.75MHz	6.0	6.4	6.8	V
	Clamp Level	$V_{W CL}$ (V ₁₂)	2	V _{CC} =12V, f _p =58.75MHz	3.7	4.1	4.5	V
Black Noise	Threshold Level	$V_{B TH}$ (V ₁₂)	2	V _{CC} =12V, f _p =58.75MHz	1.4	1.6	1.8	V
	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	f=58.75MHz, Sweep Generator	4.5	5.5	-	MHz
Carrier Suppression		CL	4	SG ₁ =100mV _{rms} , SG ₂ , SG ₃ OFF	40	50	-	dB
2nd Carrier Suppression		I _{2nd}	4	SG ₁ =100mV _{rms} , SG ₂ , SG ₃ OFF	40	50	-	dB
920kHz Carrier Beat Suppression		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 Pin 1 and Pin 16	3.0	4.5	6.0	kΩ
		C _{IN}			-	2.0	5.0	pF
AFT Sensitivity		ΔF/ΔV ₅₋₆	2	f=58.75MHz	-	16	-	kHz/v
AFT Output Upper Voltage		V ₅ , V ₆ U	2	f=58.75MHz	11.7	11.9	12.0	V
AFT Output Lower Voltage		V ₅ , V ₆ L	2	f=58.75MHz	1.8	2.3	2.8	V
Maximum Available Current		I ₄ MAX	-	TA7660P	0.3	-	-	mA
				TA7661P	7	-	-	mA
RF Delay		V _{IN} DELAY	-	f=58.75MHz	-	-	-	-

3. DG/DP

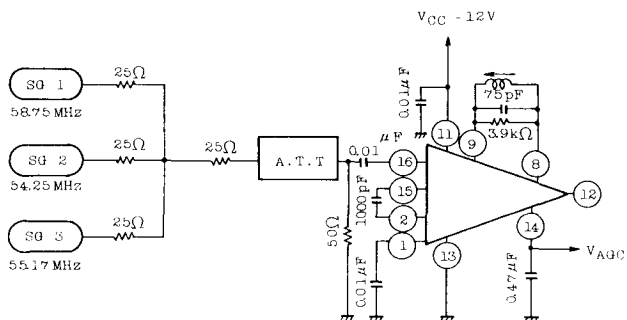


V_{AGC} : Adjust gain reduction to 40dB

A.T.T : Adjust sync tip level to DC 2.5V

A.P.L : 50%

4. INTER MODULATION





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