

LINEAR INTEGRATED CIRCUIT

FM IF AMPLIFIER-LIMITER AND DETECTOR

- HIGH GAIN
- FREQUENCY RANGE 5 kHz to 60 MHz
- THRESHOLD LIMITING VOLTAGE 100 μ V (5.5 MHz)
- COINCIDENCE GATE DETECTOR
- AUDIO OUTPUT VOLTAGE 1.4 Vrms ($d = 1\%$)

The TAA 661 is a monolithic integrated circuit in a 14-lead quad in-line plastic package or in a Jeduc TO-100 metal case. Particularly designed for use in TV sound IF or FM IF amplifiers, it includes: a limiter amplifier, a coincidence detector and a voltage regulator. By using the TAA 661 the ratio detector transformer is eliminated and the audio signal is capable of driving an output amplifier directly. Detector alignment is obtained by adjusting a single coil which provides the quadrature signal to the coincidence gate detector.

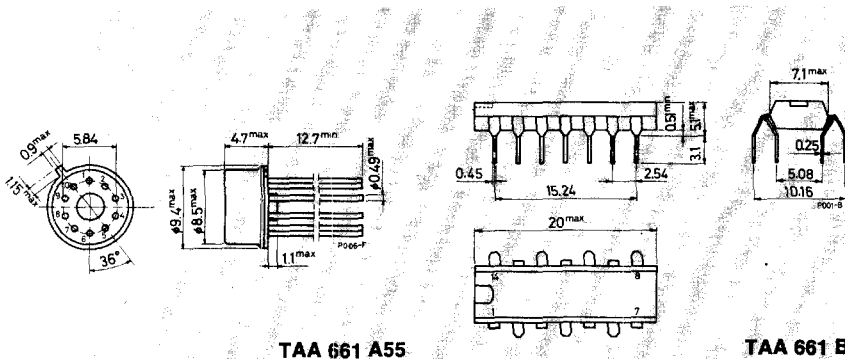
ABSOLUTE MAXIMUM RATINGS

V_s	Supply voltage	15 V
P_{tot}	Power dissipation at $T_{amb} \leq 70^\circ\text{C}$	350 mW
	for TAA 661 A55	500 mW
	for TAA 661 BX2	
T_{stg}	Storage temperature	-25 to 125 $^\circ\text{C}$
T_{op}	Operating temperature	0 to 70 $^\circ\text{C}$

ORDERING NUMBERS: TAA 661 A55 (for TO-100 metal case)
TAA 661 BX2 (for 14-lead quad in-line plastic package)

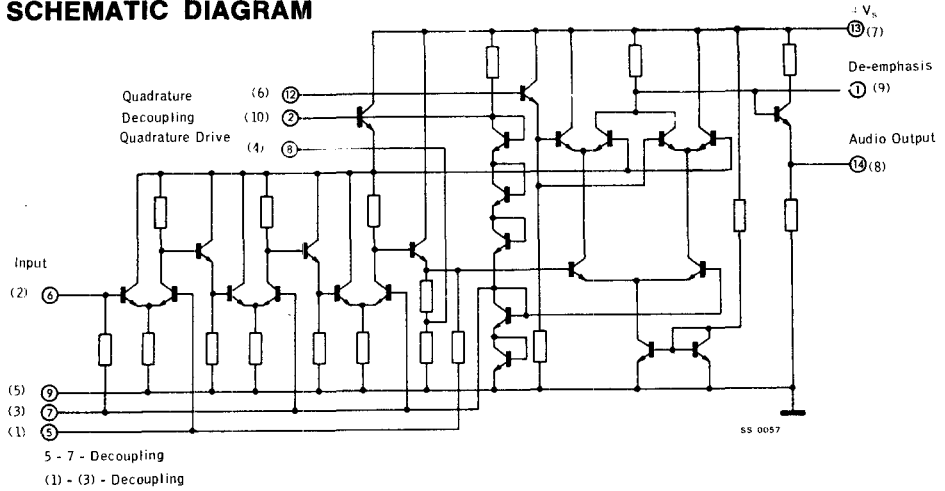
MECHANICAL DATA

Dimensions in mm



TAA 661

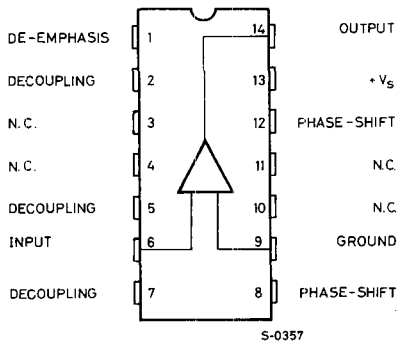
SCHEMATIC DIAGRAM



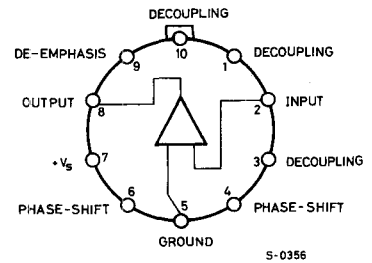
NOTE: the number in brackets refers to the TO-100 package

CONNECTION DIAGRAMS

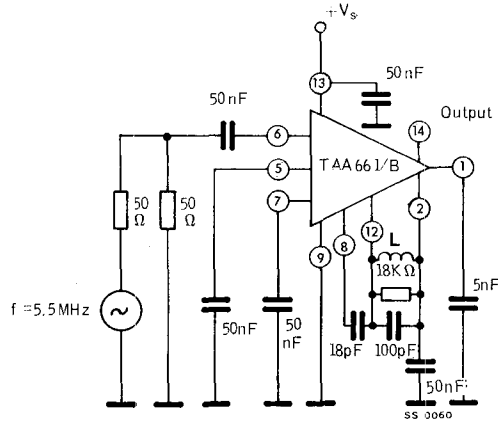
For TAA 661 BX2



For TAA 661 A55



TEST CIRCUIT



L = 35 turns of 0.16 mm nylon covered copper wire

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_d Quiescent drain current	$V_s = 6\text{ V}$ $V_s = 9\text{ V}$ $V_s = 12\text{ V}$	9		14	mA
$V_{i(\text{threshold})}$ Input limiting voltage	$f = 5.5\text{ MHz}$ $f = 10.7\text{ MHz}$		100	230	μV μV
V_o Recovered output voltage	$V_i = 10\text{ mV}$ $f = 5.5\text{ MHz}$ $f_m = 1\text{ kHz}$ $\Delta f = \pm 50\text{ kHz}$ $V_s = 6\text{ V}$ $V_s = 9\text{ V}$ $V_s = 12\text{ V}$		0.5 0.75 1.4		V_{rms} V_{rms} V_{rms}
d Distortion	$V_s = 12\text{ V}$ $V_i = 10\text{ mV}$ $f = 5.5\text{ MHz}$ $f_m = 1\text{ kHz}$ $\Delta f = \pm 25\text{ kHz}$		1		%

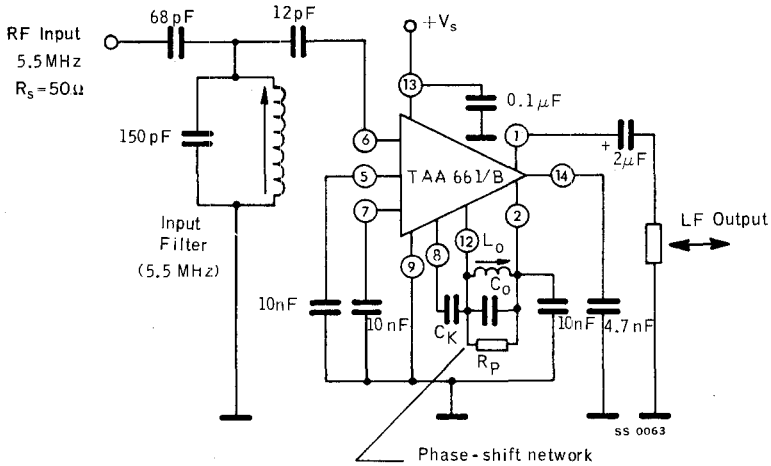
TAA 661

ELECTRICAL CHARACTERISTICS (continued)

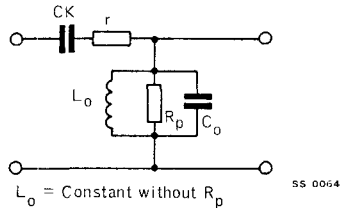
Parameter		Test conditions	Min. Typ. Max.	Unit
AMR	Amplitude modulation rejection	$V_s = 12\text{ V}$ $V_i = 10\text{ mV}$ $f = 5.5\text{ MHz}$ $f_m = 1\text{ kHz}$ $\Delta f = \pm 50\text{ kHz}$ $m = 0.3$	45	dB
R_i	Input resistance	$f = 5.5\text{ MHz}$ $f = 10.7\text{ MHz}$	2.5 2	$k\Omega$ $k\Omega$
C_i	Input capacitance	$V_s = 9\text{ V}$ $f = 5.5\text{ MHz}$	2.5	pF
Z_o	Output impedance	$V_s = 6\text{ V}$ $V_s = 9\text{ V}$ $V_s = 12\text{ V}$	200 150 100	Ω Ω Ω
R_L	Min. load impedance without clipping	$V_s = 6\text{ V}$ $V_s = 9\text{ V}$ $V_s = 12\text{ V}$	10 4 2	$k\Omega$ $k\Omega$ $k\Omega$
R_{5-6}	Resistance between pins 5 and 6 of the TAA 661 A55	$f = 5.5\text{ MHz}$ $V_s = 6\text{ V}$ $V_s = 9\text{ V}$ $V_s = 12\text{ V}$	50 50 50	$k\Omega$ $k\Omega$ $k\Omega$
C_{5-6}	Capacitance between pins 5 and 6 of the TAA 661 A55	$f = 5.5\text{ MHz}$	3	pF

TAA 661

TAA 661 AS TV SOUND IF AMPLIFIER (outputs referred to the TAA 661 BX2)



PHASE SHIFT NETWORK



	a	b	c	d	e	f
Co/pF	120	100	56	33	15	—

TAA 661

Fig. 1 - Typical distortion

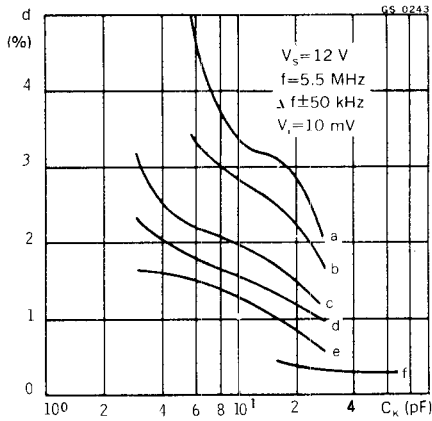


Fig. 2 - Typical amplitude modulation rejection

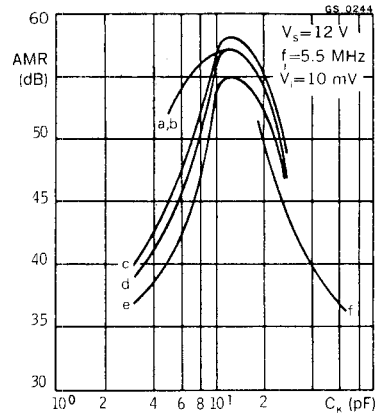
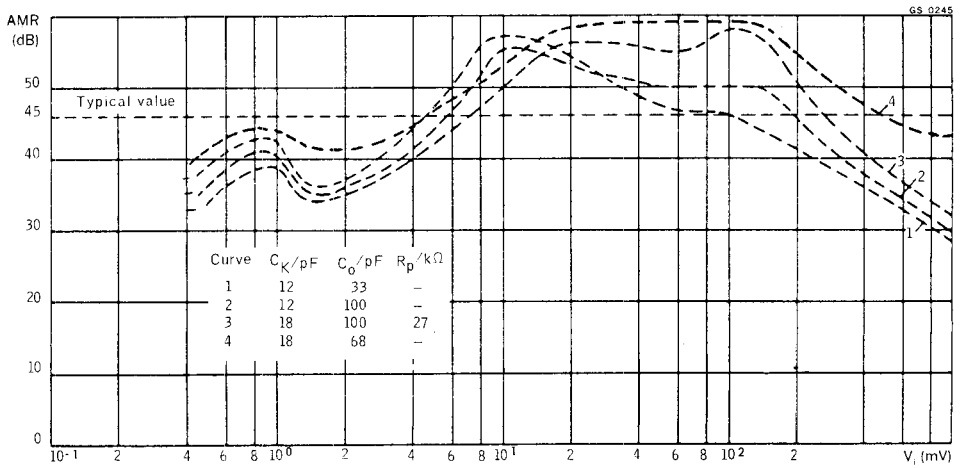


Fig. 3 - Typical amplitude modulation rejection vs input voltage



TAA 661

Fig. 4 - Typical recovered output voltage

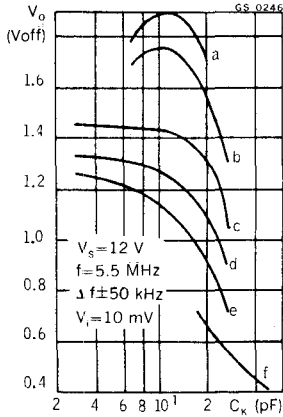
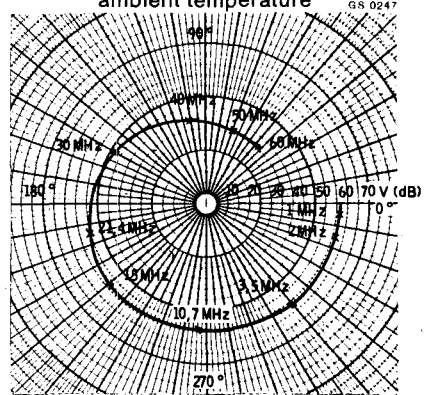
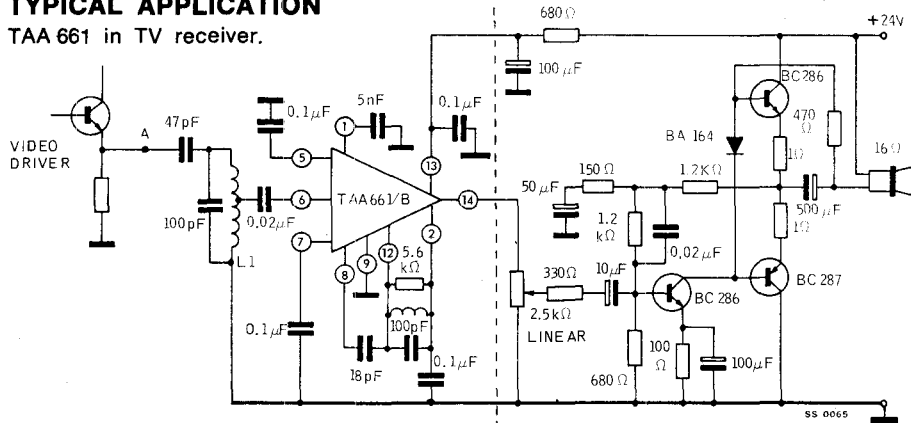


Fig. 5 - Phase response of the TAA 661 wide band amplifier measured at 25 °C ambient temperature



TYPICAL APPLICATION

TAA 661 in TV receiver.



Notes:

- Pin numbers shown are for the TAA 661 BX2.
- $L_1 = 24$ turns of 0.16 mm nylon covered copper wired with tapping at turn 12 from ground.
- $L_2 = 35$ turns of 0.16 mm nylon covered copper wired.
- Neosid former K4/21.5/0.5 - Neosid core GW4 x 0.5 x 10FE10 ($Q_o = 80$).