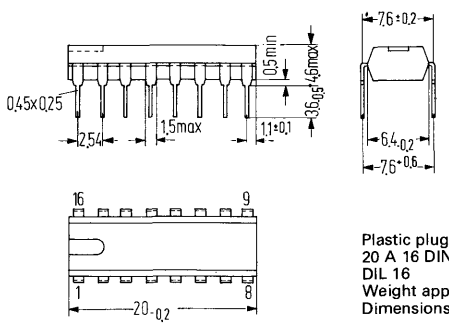
Not for new development

This circuit comprises a high-gain controlled video IF amplifier, a controlled demodulator and two low-resistance video outputs with positive and negative going signal as well as the complete key control and delayed tuner control.
P and N are differentiated only in the polarity of the control voltage for the tuner prestage: TBA 440 P is suitable for tuner prestages with PNP transistors and TBA 440 N for NPN prestages. P and N types are able to control the PIN diode attenuators common today without additional transistors.

- Complete video IF in **one** integrated circuit
- Wide range of control with low noise and high levels of control
- High sensitivity
- Controlled demodulator – therefore minimum 1.07 MHz interference
- Low-resistance video outputs of positive and negative video signals
- Internal temperature stabilization
- White levels of video signals at outputs 11 and 12 are independent of battery voltage
- White **and** black levels are adjustable separately

Type	Ordering codes
TBA 440 P	Q67000-A911
TBA 440 N	Q67000-A910

Package outlines TBA 440 P/N



Plastic plug-in package
20 A 16 DIN 41866
DIL 16
Weight approx. 1.2 g
Dimensions in mm

Absolute maximum ratings

Supply voltage	V_{13}	15[1])	V
Voltage at pin 5	V_5	20	V
Voltage at pin 4	V_4	5	V
Voltage at pin 14	V_{14}	5	V
Junction temperature	T_j	150	°C
Thermal resistance (system-air)	R_{thsa}	100	K/W
Ohmic resistance between pins 8 and 9	R_{8-9}	20	ohms
Storage temperature	T_s	–40 to +125	°C

Operation range

Supply voltage	V_{13}	10.5 to 15	V
Ambient temperature in operation	T_{amb}	–25 to +60	°C

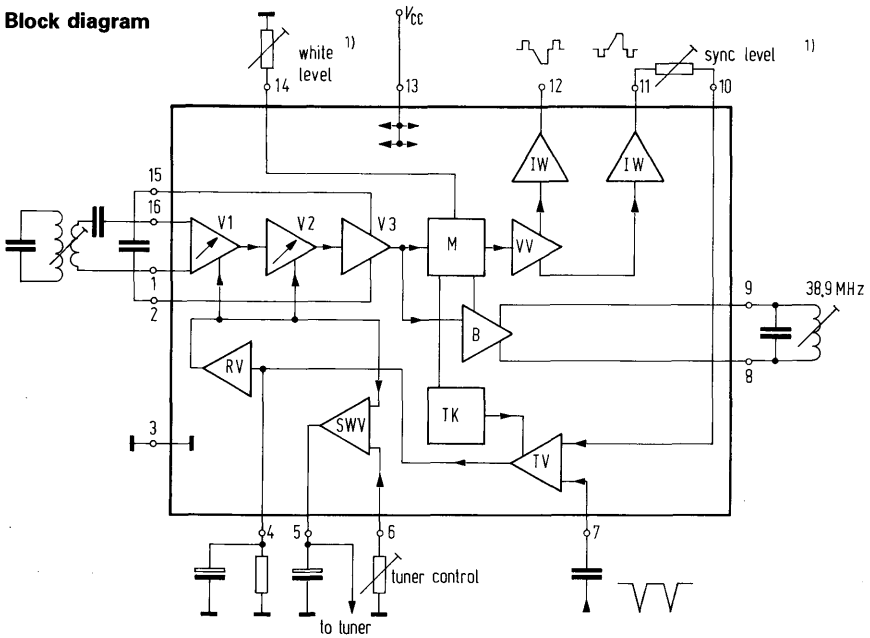
[1]) briefly 16,5 V

Electrical characteristics
(T_{amb} = 25 °C; V_{13} = 13 V; all data with reference to ground unless otherwise stated)

			min	typ	max	
Current consumption (V_{13} = 15 V)		I_{13}	28	40	52	mA
Dc output voltage	$R_{14} = \infty$	V_{11}	4.1	5.1	6.1	V
(V_i = 0)	$R_{14} = 0$	V_{11}	6.6	8.4	10.2	V
DC output voltage	$R_{14} = \infty$	V_{12}	.5	1.1	1.8	V
(V_i = 0)	$R_{14} = 0$	V_{12}	1.2	2.4	3.5	V
White level deviation		$\Delta V_{11}/\Delta V_{13}$		.15		
		$\Delta V_{12}/\Delta V_{13}$		.05		
Resistance for ΔV_{11} = 1 V		R_{14-3}		1		kΩ
AGC threshold V_{10} = sync pulse level for R_{10-11} = 0		$V_{10} = V_{11}$		1.2		V
Control slope		R_{10-11}/V_{11}		4.5		kΩ/V
Sync pulse level with async or without gating pulses		V_{sync}		.2		V
Control current for tuner prestage (V_5 >2 V) (TBA 440 P: 10 dB following AGC TBA 440 N: 10 dB previous to AGC)		I_5	11	18	27	mA
IF control voltage for	max gain	V_4	0		.5	V
	min gain	V_4	2.5		5	V
Gating pulse voltage		$-V_7$	2		3	V
Residual IF voltage (basic frequency)		V_{11}; V_{12}		50		mV
Output current to ground		I_{11}; I_{12}			5	mA
Output current to V_{13}		I_{11}; I_{12}			−1	mA
Input impedance at	max gain	Z_{1-16}		1.8/2		kΩ/pF
	min gain	Z_{1-16}		1.9/0		kΩ/pF
Input voltage[1]) for V_{11} = 3 V_{pp}		V_i	70	100	200	μV
Video bandwidth		B_{video}		7		MHz
AGC range		ΔG_v	52	58		dB
Intermodulation with reference color carrier (1.07 MHz)		a[2])		55		dB

[1]) V_{in} effective sync pulse level at 60 Ohms via transformer 3:5.
[2]) measured with demodulator capacitance 22 pF at any position of the control.
V_{11} = 0.3 to 1.5 V_{pp} (yellow). IF carrier level d_{cc} = −2 dB; sound carrier level −24 dB with reference to the video carrier.

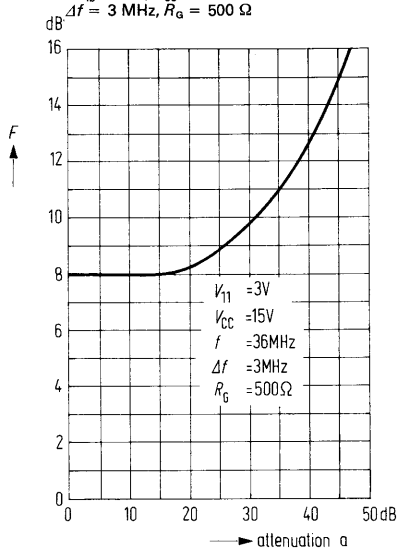
Block diagram



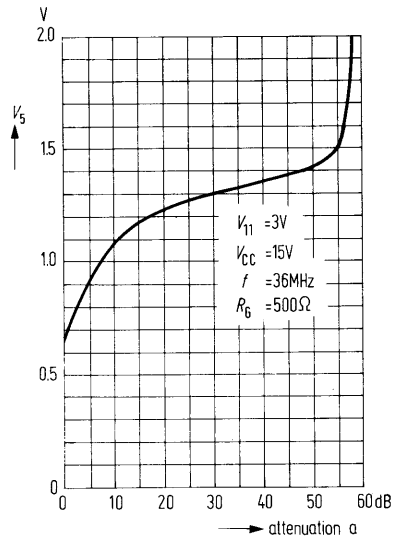
1) potentiometer only if necessary; otherwise normal resistor

V1, V2 IF AGC stages
V3 IF amplifier stage
M Mixer
VV Video amplifier
IW Impedance buffer
B Limiter amplifier
RV Control voltage amplifier
SWV Threshold amplifier
TK Temperature compensation
TV Key amplifier

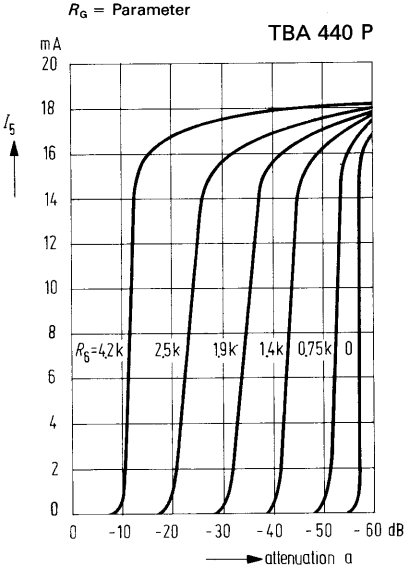
Noise figure v. attenuation
(measured at video frequency)
$-V_{fb}$ = 3 V, V_{cc} = 15 V, f = 36 MHz,
Δf = 3 MHz, R_G = 500 Ω



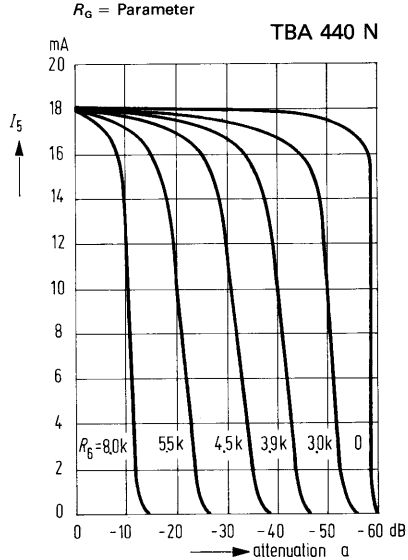
Control voltage v. attenuation
$-V_{fb}$ = 3 V, V_{cc} = 15 V, f = 36 MHz,
R_G = 500 Ω



Tuner control current versus attenuation
R_G = Parameter



Tuner control current versus attenuation
R_G = Parameter



IF application with TBA 440 P or TBA 440 N