

Preliminary data

Bipolar IC

Type	Ordering code	Package
TDA 5510-2	Q67000-A8027	DIP 16

The TDA 5510-2 includes a controlled AM broadband amplifier equipped with a synchronous demodulator, a high gain controllable video IF amplifier and a VTR input/output. In addition, a generation circuit provides the control voltage for the IF amplifier and the PNP tuner.

Features

- Standard VTR connection
- Internal VTR switchover
- Gated control
- Positive and negative video output

Maximum ratings

Supply voltage	V_S	16.5	V
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-40 to 125	°C
Thermal resistance (system-air)	$R_{th SA}$	70	K/W

Operating voltage

Supply voltage range	V_S	10.5 to 15.8	V
IF frequency range	f_{IF}	15 to 60	MHz
Ambient temperature	T_A	0 to 70	°C

Characteristics $V_S = 13 \text{ V}; T_A = 25 \text{ }^\circ\text{C}$

		min	typ	max	
Current consumption	I_{11}		60		mA
Stabilized reference voltage	$V_{12/10}$		6.0		Vdc
Control current for tuner					
$V_{14} = 0.5 V_{11}$	I_{14}		4.0		mA
Tuner AGC threshold	$V_{13/10}$			4.0	Vdc
Gating pulse voltage					
pos. gating pulse	V_1		+3.0		V
neg. gating pulse	V_1		-3.0		V
Input voltage at G_{\max}					
$V_{3 \text{ pp}} = 3 \text{ V}$	$V_{15/16}$			100	μV
AGC range	ΔG		60		dB
IF control voltage					
G_{\max}	$V_{2/10}$	0			Vdc
G_{\min}	$V_{2/10}$			4.0	Vdc
VTR switchover	$V_{2/10}$	8.0		V_{11}	Vdc
Video output voltage (pos.)					
$R_L = \infty$	$V_{3 \text{ pp}}$		3.0		V
Sync pulse level	$V_{3/10}$		2.0		Vdc
DC voltage ($V_2 = 4 \text{ V}; V_{15/1} = 0$)	$V_{3/10}$		5.3		Vdc
Output current					
to ground through R	I_3		-5.0		mA
to plus $V_3 = 7 \text{ V}$	I_3		+2.0		mA
Video output voltage (neg.)					
$R_L = \infty$	$V_{4 \text{ pp}}$		3.0		V
Sync pulse level	$V_{4/10}$		$V_{11} - 2.0$		Vdc
DC voltage ($V_2 = 4 \text{ V}; V_{15/16} = 0$)	$V_{4/10}$		$V_{11} - 5.3$		Vdc
Output current					
to ground through R	I_4		-5.0		mA
to plus $V_4 = V_{11}$	I_4		+1.0		mA
VTR output voltage (neg.)					
VTR recording $R_L = \infty$	$V_{5 \text{ pp}}$		2.0		V
Sync pulse level					
VTR recording	$V_{5/10}$		$V_{11} - 1.6$		Vdc
DC voltage ($V_2 = 4 \text{ V}; V_{15/16} = 0$)					
VTR recording	$V_{5/10}$		$V_{11} - 3.8$		Vdc
DC voltage ($V_2 \geq 8 \text{ V}$)					
VTR playback	$V_{5/10}$		$V_{11} - 0.9$		Vdc
Output current					
to ground through R	I_{q5}		-5.0		mA
to plus $V_5 = V_{11}$	I_{q5}		+1.0		mA
Video amplifier					
VTR playback					
$V = V_3/V_6; V_{6 \text{ pp}} = 1 \text{ V}$	G_{video}		3.0		

Additional application data¹⁾

Input impedance	$Z_{15/16}$	1.8/2	k Ω pF
Output impedance	$Z_{8/9}$	6.6/2	k Ω /pF
Output resistance	R_3	150	Ω
Output resistance	R_4	150	Ω
Output resistance	R_5	150	Ω
Residual IF (basic frequency)	$V_{3; V_4}$	10	mV
Video bandwidth (-3 dB)			
VTR recording	B_{video}	6.0	MHz
VTR playback, $V_{6pp} = 1 \text{ V}$	B_{video}	10.0	MHz
Intermodulation ratio			
with reference to f_{CC}			
(sound color beat frequency)	a	45	dB

Circuit description

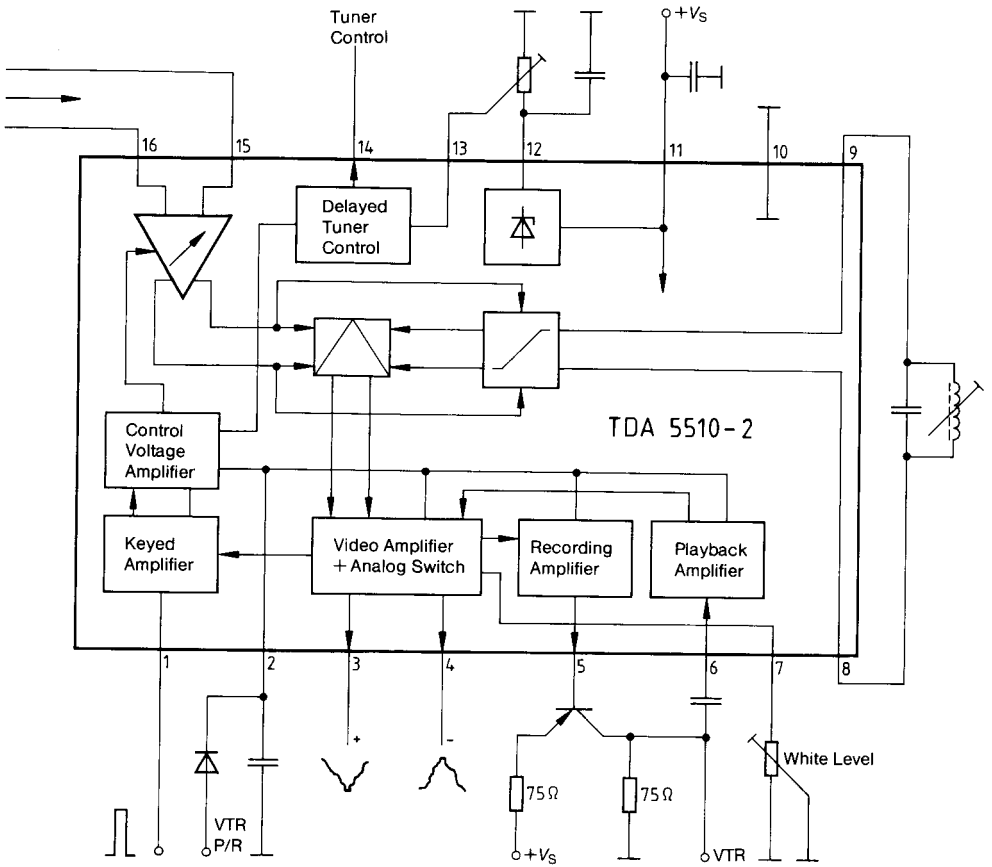
The integrated circuit is comprised of a 4-stage controllable AM amplifier, a limiter and mixer for synchronous demodulation of the video signals as well as an amplifier for both the positive and negative video output signal. The positive video signal as well as the positive flyback pulse are used for gated control. In addition, the component includes a standard VTR connection via an external transistor. The delayed tuner AGC is generated by a threshold amplifier driven by the control voltage.

Pin description

Pin	Function
1	Gating pulse
2	Time constant AGC; switchover
	VTR recording/playback
3	Positive video output
4	Negative video output
5	VTR output
6	VTR input
7	White level adjustment
8	Tank circuit
9	Tank circuit
10	GND
11	Supply voltage
12	Reference input
13	Tuner AGC
14	Delayed tuner AGC
15	Video IF input
16	Video IF input

¹⁾ not measured

Block diagram



Measurement circuit

