

Preliminary data

Bipolar IC

Type	Ordering code	Package
TDA 2450-2	Q67000-A8022	DIP 16

High gain-controlled video IF amplifier with controlled demodulator for positive and negative modulation with low impedance and positive video output, disconnectable gated control or peak control and delayed tuner control. The control direction as well as the polarity of the video output can be programmed depending on the modulation standard (PAL/SECAM).

Features

- Suitable for standards B/G and L. Polarity switch for video output to generate equal polarity for positive or negative modulated signals.
- Fast regulation on peak white level including controlled discharge with program changes.
- Switching between gated and peak control (VTR operation) at B/G standard
- Gating with positive and negative gating pulse for B/G standard
- High degree of integration
- Extensive control range
- Extremely high input sensitivity
- Minimal beat frequency (920 kHz for US standards)
- Improved control voltage characteristics with L standard data signals (Antiope)
- Superior tuning properties

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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_{thSA}	70	K/W

Operating range

Supply voltage	V_S	10.5 to 15.8	V
IF frequency	f_{IF}	15 to 75	MHz
Ambient temperature	T_A	0 to 70	°C

Characteristics $V_S = 12\text{ V}; T_A = 25\text{ }^\circ\text{C}$

		min	typ	max	
Current consumption	I_{11}		55		mA
Stab. reference voltage	V_{12}		6.0		Vdc
Control current for tuner $V_{14} = 0.5 V_{11}$	I_{14}		4.0		mA
Tuner AGC threshold	$V_{13/10}$	0		4.0	Vdc
Gated pulse voltage					
pos. gated pulse	V_1	4.0		V_S	V
neg. gated pulse	V_1	-10		-4.0	V
Input voltage at V_{max} $V_{3pp} = 3\text{ V}$	$V_{15/16}$		30	60	μV
AGC range	ΔG		66		dB
Video output voltage (pos.) $R_L = \infty$	V_{3pp}		3.0		V
Sync pulse level	V_3		2.0		Vdc
DC voltage $V_2 = 4\text{ V}; V_{15/16} = 0$					
neg. modulation	$V_{3/10}$		5.3		Vdc
pos. modulation	$V_{3/10}$		2.0		Vdc
Output current					
to ground through R	I_3		-5.0		mA
to plus $V_3 = 7\text{ V}$	I_3		2.0		mA
IF control voltage					
V_{max}	$V_{2/10}$	0			Vdc
V_{min}	$V_{2/10}$			4	Vdc
Switching threshold voltage (H) \triangleq L standard	V_4	3.0		V_S	V
Switching threshold voltage (L) \triangleq B/G standard or open	V_4	0		0.9	V
Switching voltage H \triangleq peak control	V_6	3.0		V_S	V
Switching voltage L \triangleq gated control or open	V_6	0		0.9	V
Additional application data*)					
Input impedance (int. low-pass filter)	Z_7		4.7/30		k Ω /pF
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
Residual IF (basic frequency)	V_3		10		mV
Video bandwidth (-3 dB)	B_{video}		6		MHz
Intermodulation ratio with reference to f_{cc} (sound-color-beat frequency)	α		50		dB

*) Data is not guaranteed by series measurement

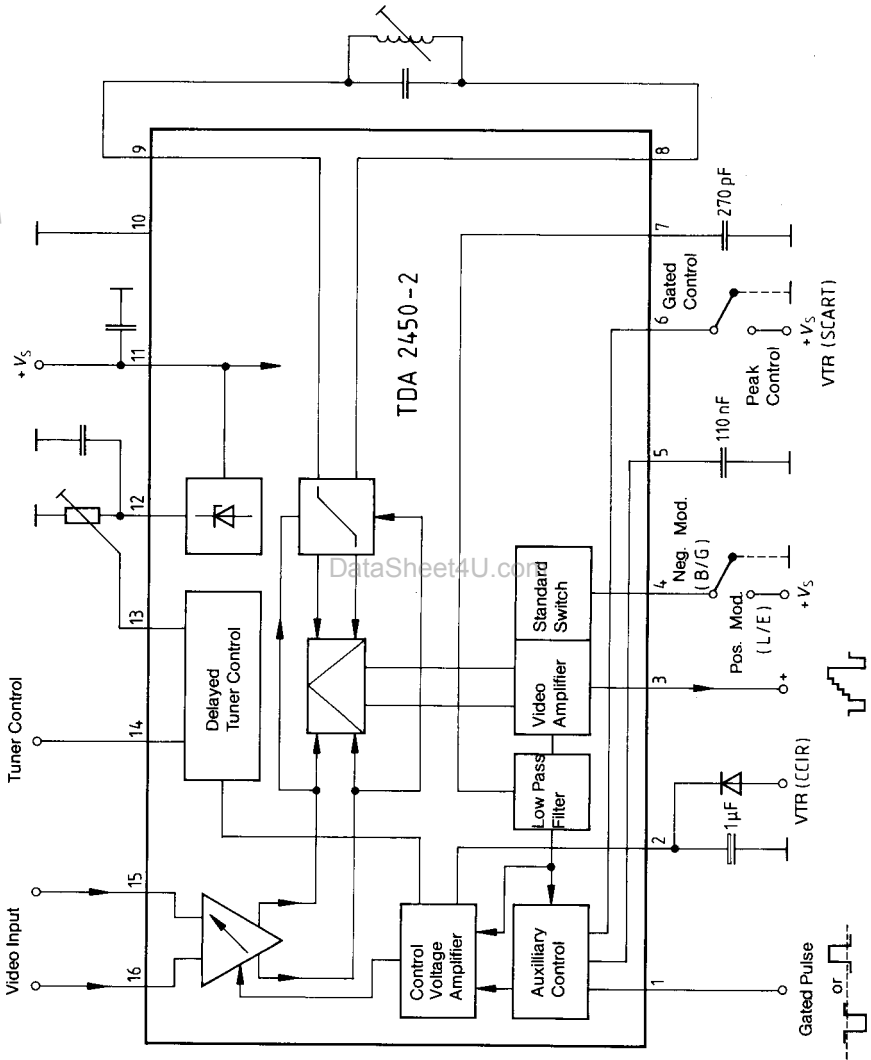
Circuit description

The integrated circuit is comprised of a 4-stage controlled AM amplifier, a limiter and a mixer for synchronous demodulation of positive and negative modulated IF signals as well as an amplifier for the video output signal. The positive video signal is used for control. This regulation can be used as a peak or gated control. 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 (main control)
3	Positive video output
4	Change-over G/L
5	Time constant AGC (auxiliary control)
6	Switch-over peak control/gated control (G standard)
7	Low-pass filter capacitor ($b = 100$ kHz)
8	Tank circuit
9	Tank circuit
10	GND
11	Supply voltage
12	Reference voltage
13	AGC threshold
14	Tuner control
15	Video IF input
16	Video IF input

Block diagram



Measurement circuit

