

Bipolar IC

Type	Ordering code	Package
TDA 5800	Q67000-A1777	DIP 22

The TDA 5800 contains a 4-stage broadband amplifier with controllable gain, a limiter, a synchronous demodulator for AM, an FM demodulator for generating the AFC voltage, and an AGC generator for the IF amplifier and tuner.

An external PNP transistor is required for a VTR connection according to the IEC standard.

Features

- Suitable for standard VTR connection
- Switchable AFC
- Fast 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_{thSA}	70	K/W

Operating range

Supply voltage	V_S	10 to 15.8	V
IF frequency	f_{IF}	15 to 75	MHz
Ambient temperature	T_A	0 to 70	°C

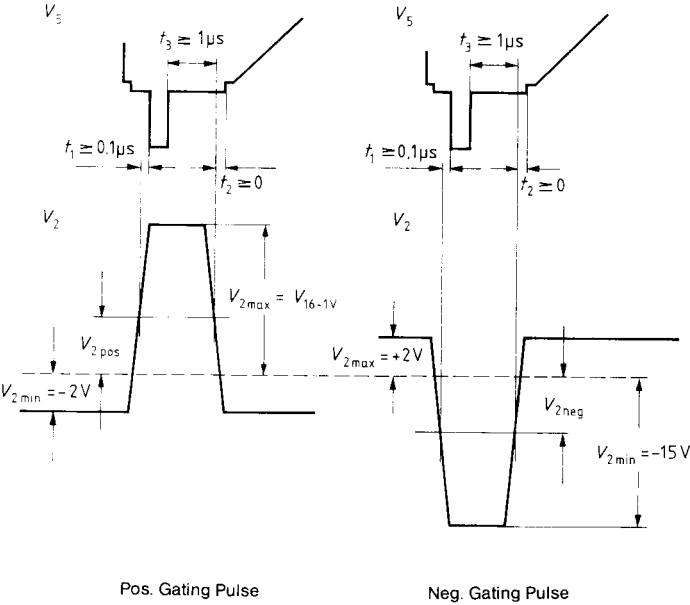
Characteristics $V_s = 13 \text{ V}$; $T_A = 25^\circ \text{C}$

	min	typ	max	
Current consumption	I_{16}	60		mA
Stab. reference voltage	$V_{14/1}$	6.0		Vdc
Tuner control current	I_{17}	4.0		mA
Tuner AGC threshold	$V_{18/1}$	0	5.0	Vdc
Gating pulse voltage	$V_{2 \text{ pos}}$	-2.0	$V_{16}-1$	V
	$V_{2 \text{ neg}}$	-15.0	2.0	V
Input voltage at $G_{\max}$ ($V_{5 \text{ pp}} = 3 \text{ V}$)	$V_{22/21}$		100	μV
AGC range	ΔG	60		dB
IF control voltage for $G_{\max}$	$V_{3/1}$	0		Vdc
IF control voltage for $G_{\min}$	$V_{3/1}$		5.0	Vdc
IF control voltage for VTR switchover	$V_{3/1}$	8.0	V_{16}	Vdc
AFC output current	I_9	± 1.0		mA
AFC switch OFF ($V_{11} = V_{12}$; $R = 10 \text{ k}\Omega$)	$V_{11/1}$	0	4.0	Vdc
AFC switch ON ($V_{11} = V_{12}$; $R = \infty$)	$V_{11/1}$	5.3		Vdc
AFC characteristics ($di/df > 0$)	$V_{15/1}$	3.0	V_{16}	Vdc
AFC characteristics ($di/df < 0$)	$V_{15/1}$	0	1.0	Vdc
Video output voltage pos. ($R_L = \infty$)	V_{q5}	3.0		Vdc
Sync pulse level	$V_{5/1}$	2.0		Vdc
DC voltage ($V_3 = 5 \text{ V}$; $V_{22/21} = 0$)	$V_{5/1}$	5.3		Vdc
Output current to ground across R	I_{q5}	-5.0		mA
Output current (to +)	I_{q5}	2.0		mA
Output resistance	R_{q5}	150		Ω
Video output voltage neg. ($R_L = \infty$)	$V_{q6 \text{ pp}}$	3.0		V
Sync pulse level	$V_{6/1 \text{ pp}}$	$V_{16}-2$		V
DC voltage ($V_3 = 5 \text{ V}$; $V_{22/21} = 0$)	$V_{6/1 \text{ pp}}$	$V_{16}-5.3$		V
Output current to ground across R	I_{q6}	-5.0		mA
Output current (to +)	I_{q6}	1.0		mA
VTR output voltage neg.	$V_{q7 \text{ pp}}$	1.0		V
$R_L = \infty$; VTR recording				
Sync pulse level	$V_{7/1}$	$V_{16}-1.2$		Vdc
$R_L = \infty$; VTR recording				
DC voltage	$V_{7/1}$	$V_{16}-2.3$		Vdc
$V_3 = 5 \text{ V}$; $V_{22/21} = 0$				
DC voltage	$V_{7/1}$	$V_{16}-0.9$		Vdc
$V_3 \geq 8 \text{ V}$; VTR playback				
Output current	I_{q7}	-5.0		mA
to ground across R				
Output current (to +)	I_{q7}	1.0		mA
Video amplifier VTR playback	V	3.0		
$V = V_5/V_6$; $V_3 = 1 \text{ V}_{\text{pp}}$				

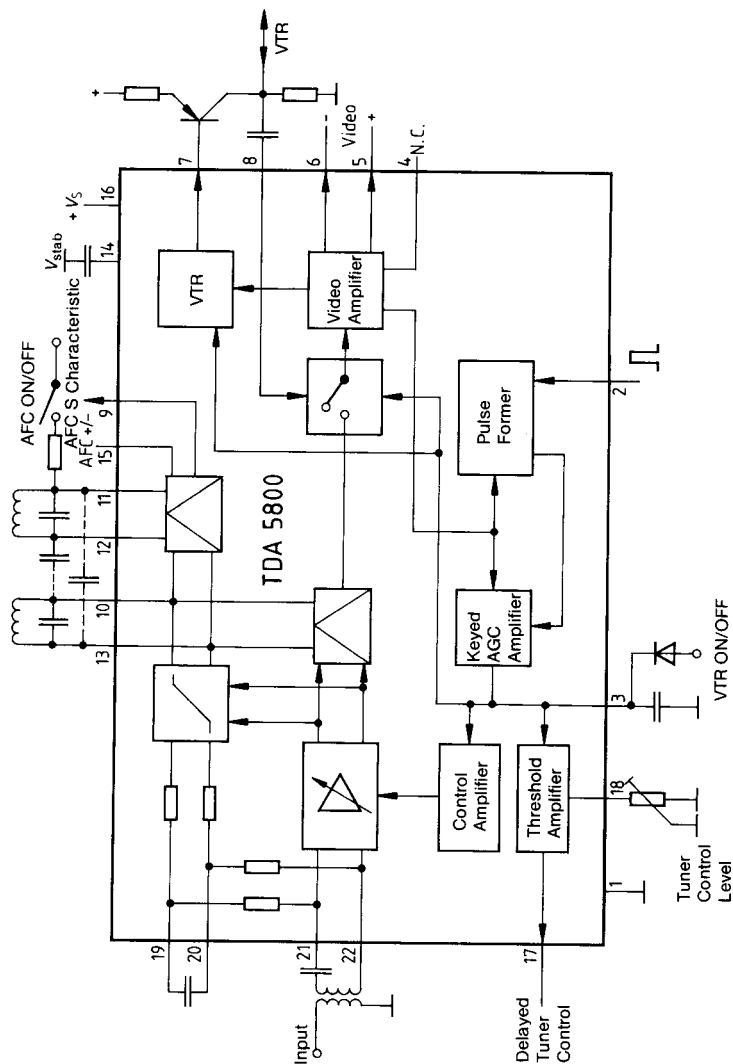
Additional application data
(not measured)

	min	typ	max	
Input impedance	$Z_{i\ 22/21}$	1.8/2		k Ω /pF
Output impedance	$Z_{q\ 10/13}$	6.6/2		k Ω /pF
AFC input impedance	$Z_{i\ 11/12}$	20		k Ω
Output resistance	$R_{q\ 6}$	150		Ω
Output resistance	$R_{q\ 7}$	150		Ω
Residual IF (basic frequency)	$V_5; V_6$	10		mV
Video bandwidth (-3 dB) VTR recording	B_{video}	6.0		MHz
Video bandwidth	B_{video}	10.0		MHz
(VTR recording $V_{8\ pp} = 1\ V$)				
Intermodulation ratio with reference to f_{CC}	a	45		dB
(sound-color-beat frequency)				

Pulse diagram



Block diagram and measurement circuit



Application circuit

