

**Bipolar IC
MOS Handling**

Type	Ordering code	Package
TDA 2048	Q67000-A1773	DIP 18

The TDA 2048 contains a 4-stage AM broadband amplifier, a limiter, and a mixer for the synchronous demodulation of AM signals. The AF section includes standard VTR connections for CCIR and French standards, a CCIR input which can be switched into the circuit, and a volume control.

Features

- High input sensitivity
- Low-distortion regulation
- Low-distortion demodulation
- DC volume control
- Internally stabilized supply voltage

Maximum ratings

Supply voltage	V_S	16.5	V
Switching voltage	V_2	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	V
Frequency	f	10 to 60	MHz
Control voltage	$V_{control}$	0 to 5	V
Ambient temperature	T_A	0 to 70	°C

Characteristics
 $V_S = 12\text{ V}$; $T_A = 25^\circ\text{C}$; $f_{iIF} = 39.2\text{ MHz}$; $f_{mod} = 1\text{ kHz}$

		min	typ	max	
Total current consumption	I_7		40	60	mA
Stabilized voltage	V_3	5.4	6	6.6	V
AGC range	ΔG	60			dB
IF control voltage (V_{max})	V_2	0		0.9	V
(V_{min})	V_2	3		5	V
Input voltage for AGC threshold	$V_{17,18}$		50		μV
Max. IF input voltage	$V_{17,18}$			150	mV
$THD \leq 5\%$; $m = 80\%$					
AF output voltage					
$V_{iIF\text{ rms}} = 10\text{ mV}$, $m = 30\%$					
(uncontrolled CCIR)	$V_{8\text{ rms}}$	400	600	800	mV
(uncontrolled French)	$V_{11\text{ rms}}$	66	100	133	mV
(controlled, $V_5 = 0.8 \times V_3$)	$V_{4\text{ rms}}$		300		mV
Total harmonic distortion					
$V_{iIF} = 10\text{ mV}$, $m = 30\%$	THD_{11}			1	%
$V_{iIF} = 10\text{ mV}$, $m = 80\%$	THD_{11}			4	%
Total harmonic distortion	THD_4			1	%
volume control and op amp 1					
$V_{i2} = 150\text{ mV}$, $V_5 = 0.8 V_3$					
Input voltage (playback CCIR)	$V_{8\text{ rms}}$		600		mV
(playback French)	$V_{14\text{ rms}}$		100		mV
(CCIR operation)	$V_{10\text{ rms}}$		100		mV
Range of volume control	ΔG_{LR}	80			dB
Voltage at volume control pin					
for max. volume	V_5			$0.8 \times V_3$	V
for min. volume	V_5	0			V
Switching thresholds					
VTR playback (CCIR, French)	$V_{2,13}$	8		15	V
Switching current					
VTR playback (CCIR, French)	$I_{2,13}$	0		0.3	mA
Switching threshold (CCIR operation)	V_{16}	0		1	V
Switching current (CCIR operation)	I_{16}	0		0.5	mA
Switching threshold	V_{13}	0		5	V
(VTR record, French)					
Cross-talk rejection at					
switched-off AF inputs	a_{CR}	60			dB
Gain pin 12, 14 to pin 6	G_{AF}		6		dB
pin 12, 14 to pin 4	G_{AF}		3		dB

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

(Data is not guaranteed by series measurement)

Input resistance	R_{i12}	10			k Ω
Input resistance (CCIR playback)	R_{i10}	10			k Ω
Input resistance (VTR playback)	$R_{i6,14}$	10			k Ω
Output resistance (VTR record)	$R_{o4,6,11}$			200	Ω
AF output resistance	R_{o11}			200	Ω
AF output resistance	R_{o4}			200	Ω

Truth table

	Switch inputs			Functions					Operating mode	
	CCIR Pin 16	CCIR VTR Pin 2	French VTR Pin 13	IF amplifier Pin 17/18	French VTR Pin 11	Op amp 1 Pin 12	Op amp 2 Pin 10	Op amp 3 Pin 14		CCIR VTR in-output Pin 6
I	0	0	0	ON	ON	OFF	OFF	OFF	Record IF	IF reception
II	L	0	0	OFF	ON	ON	ON	OFF	Record CCIR	CCIR playback
III	0	H	0	OFF	OFF	OFF	OFF	OFF	Playback VTR	Playback CCIR-VTR
IV	0	0	H	ON	ON	OFF	OFF	ON	Record French VTR	Playback French VTR + Teletext (Antiope)
V	L	0	H	OFF	ON	OFF	ON	ON	Record CCIR	Teletext (CCIR)
	0	0	L							
	0	L	0				I			
	0	L	L				I			
	0	L	H				I			
	0	H	L				IV			
	0	H	H				III			
	0	0	L				III			
	L	L	0				II			
	L	L	L				II			
	L	L	H				II			
	L	H	0				V			
	L	H	L				III			
	L	H	H				III			
	L	H	H				III			
	H	X	X							

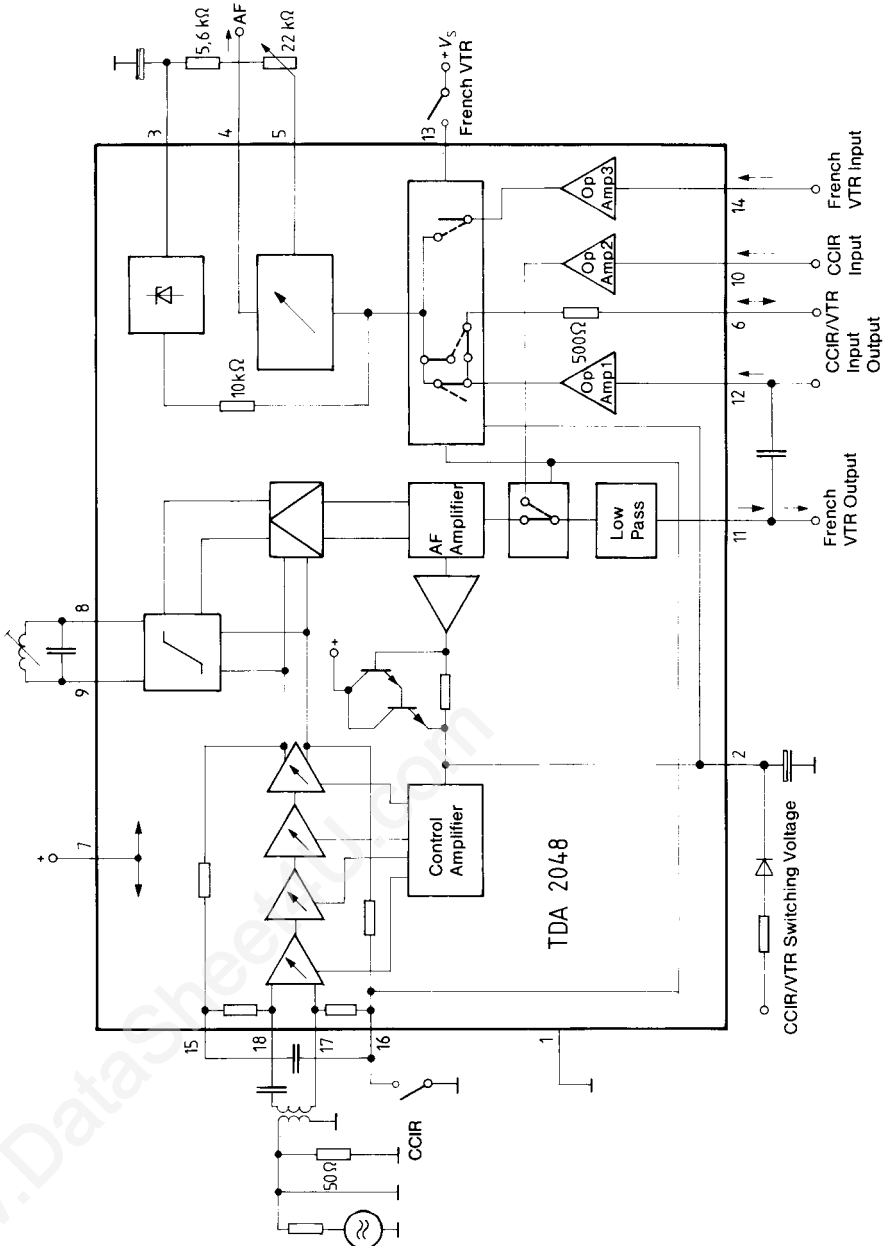
corresponds to operating mode

0 \triangle open
 L \triangle to GND
 H \triangle to +Vs
 X \triangle any

not permissible

desired operation

Block diagram and measurement circuit



Application circuit

