

**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	$\Delta G$	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		$\mu\text{V}$
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	$\Delta G_{LR}$	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 $\Omega$
Input resistance (CCIR playback)	$R_{i10}$	10			k $\Omega$
Input resistance (VTR playback)	$R_{i6,14}$	10			k $\Omega$
Output resistance (VTR record)	$R_{o4,6,11}$			200	$\Omega$
AF output resistance	$R_{o11}$			200	$\Omega$
AF output resistance	$R_{o4}$			200	$\Omega$

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	0	L				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							

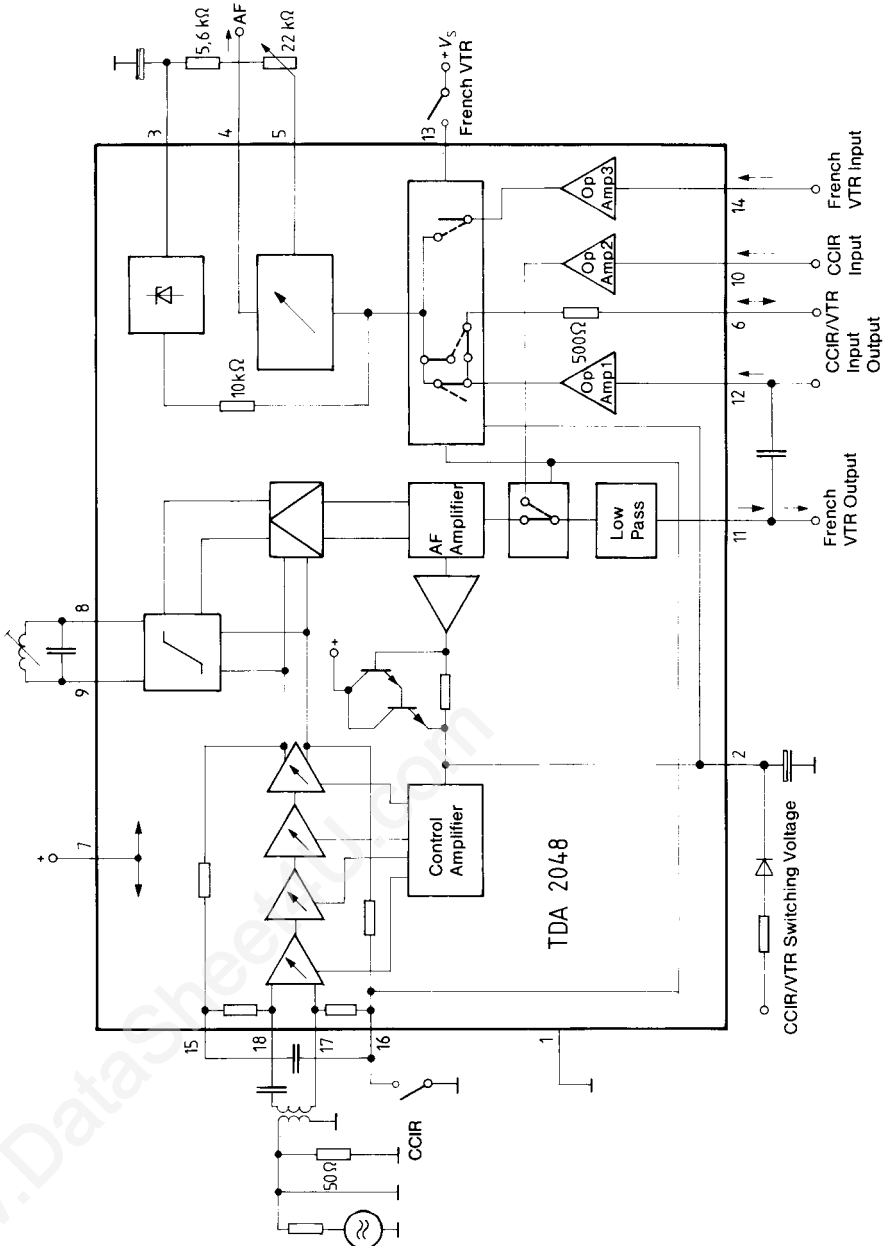
corresponds to operating mode

0  $\triangle$  open  
 L  $\triangle$  to GND  
 H  $\triangle$  to +V<sub>s</sub>  
 X  $\triangle$  any

not permissible

desired operation

Block diagram and measurement circuit



## Application circuit

