

Bipolar IC

Type	Ordering code	Package
TDA 4944	Q67000-A2186	DIP 14

The integrated circuit TDA 4944 is comprised with a switchable matrix, CCIR VTR input and output, analog switches and an LED driver.

The L-R information is determined by the matrix switched with the tristate input. This switch input is controlled by the preceding pilot tone decoding circuit TDA 4940. By combining the stereo VTR input and output, a standard VTR recorder can be attached. The subsequent analog switch enables the selection of audio I or audio II during dual audio operation. The position of the analog switch and/or stereo or mono operation are indicated by the externally connected LEDs. During VTR playback both LEDs are switched on. All outputs are short-circuit resistant.

Features

- Switchable matrix
- VTR input and output according to CCIR standards
- All outputs are short-circuit resistant

Maximum ratings

Supply voltage	V_{S12}	16.5	V
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-40 to 125	°C
Thermal resistance (system-air)	$R_{th SA}$	90	K/W

Operating range

Supply voltage	V_{S12}	10 to 15.8	V
Frequency (-1 dB)	$f_{4, 6, 1, 13}$	20 to 20 000	Hz
Ambient temperature	T_A	0 to 70	°C

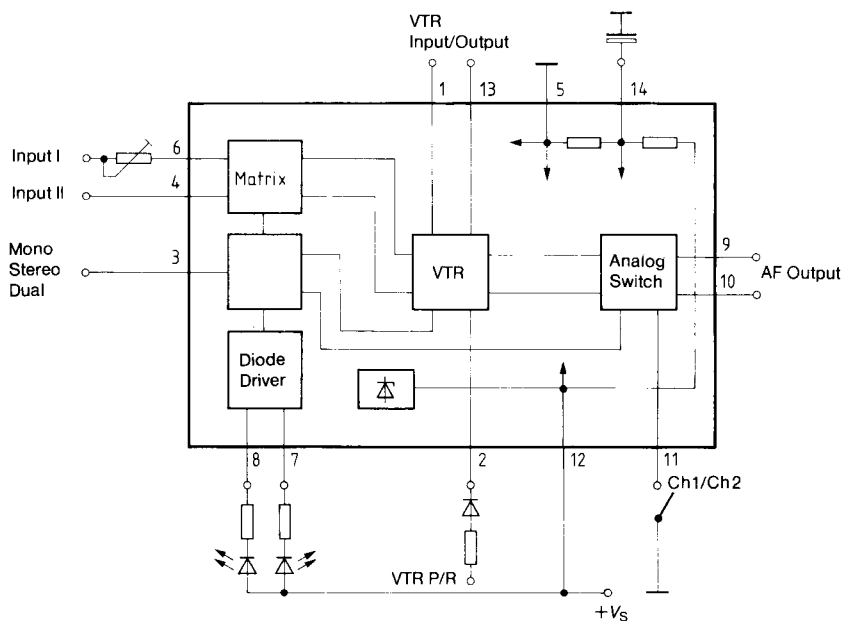
Characteristics $V_S = 12\text{ V}; T_A = 25^\circ\text{C}$

		min	typ	max	
Total current consumption (without LED)	I_{S12}		14		mA
LED driver current (each LED)	$I_{LED\ 7,8}$	10	15		mA
Input resistance audio I	R_{i6}		15		k Ω
Input resistance audio II	R_{i4}		30		k Ω
Input current of the VTR circuit	I_2			300	μA
Input voltage audio I $THD = 0.7\%$	$V_{i6\ rms}$		150	600	mV
Input voltage audio II $THD = 0.7\%$	$V_{i4\ rms}$		300	1200	mV
Input voltage VTR (playback)	$V_{i1,13\ rms}$		0.5	2	V
Output voltage VTR	$V_{q1,13\ rms}$		500		mV
$V_{i6\ rms} = 150\text{ mV}; V_{i4\ rms} = 300\text{ mV}$					
AF output voltage	$V_{q9,10\ rms}$		300		mV
$V_{i6\ rms} = 150\text{ mV}; V_{i4\ rms} = 300\text{ mV}$					
Output resistance AF output	$R_{q9,10\ rms}$		0.2		k Ω
Output resistance VTR output	$R_{q1,13}$		0.2		k Ω
Total harmonic distortion	THD			0.5	%
$V_{i4\ rms} = 1\text{ V}; V_{i6\ rms} = 0.5\text{ V}$					
Channel separation	$a_{L/R}$		60		dB
Disturbance voltage spacing	$a_{S+N/N}$		70		dB
$V_{i6\ rms} = 150\text{ mV}; V_{i4\ rms} = 300\text{ mV};$ $f_i = 20\text{ Hz to } 20\text{ kHz}$					
Noise voltage at the AF output	$V_{n\ AF\ 9,10}$		100		μV
Switch input audio I/audio II					
H input voltage = audio I = S1 open	$V_{H,11}$	4		V_S	V
L input voltage = audio II = S1 closed	$V_{L,11}$	0		2.8	V
Switch input VTR P/R					
H input voltage $\triangleq$ VTR-P S2 closed	V_{H2}	8		V_S	V
L input voltage $\triangleq$ VTR-R S2 open	V_{L2}	0		5	V
Switch voltage matrix					
dual audio	V_3	0		$1/6\ V_S$	V
mono	V_3	$1/3\ V_S$		$2/3\ V_S$	V
stereo	V_3	$5/6\ V_S$		V_S	V
Input current	I_{11}		20		μA

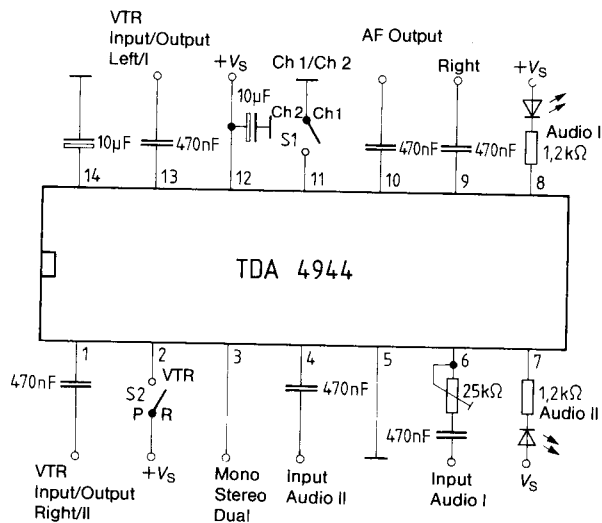
Pin description

Pin	Function
1	Combined VTR input/output, right channel II
2	VTR record/play mode switch
3	Mono, stereo or dual sound mode switch
4	Channel II demodulator input (5.75 MHz)
5	GND
6	Channel I demodulator input (5.5 MHz, NTSC 4.5 MHz)
7	LED driver for channel II indication
8	LED driver for channel I indication
9	AF output right channel
10	AF output left channel
11	Audio channel I/channel II mode switch
12	+V _S
13	Combined VTR input/output left/channel I
14	Decoupling capacitor

Block diagram



Application circuit



Truth table

Pin 2	Pin 3	Pin 11	Pin 7	Pin 8
VTR P/R	Tristate input	Audio I/II	LED II	LED I
V_S = Play	any	any	ON	ON
0 V = Rec	0 V = 2 tone	Open = Audio I	OFF	ON
0 V	0 V	GND = Audio II	ON	OFF
0 V	$1/2 V_S$ = Mono	any	OFF	OFF
0 V	V_S = Stereo	any	ON	ON