SIEMENS

TDA 4282 T
Quasi-Parallel Sound IC with FM IF, Sym. Input and Volume Control

The TDA 4282 T is a controlled AM amplifier with FM demodulator (to produce an intercarrier) and subsequent sound-IF limiting amplifier with coincidence demodulator, standard VCR connection and separate AF-output with volume control.

- Outstanding limiting qualities
- Connection for video recorder
- Little external circuitry

Maximum ratings

Supply voltage	V_S	15	V
$t \leq 1$ min	V_S	16.5	V
Thermal resistance (system-ambient air)	$R_{th\,SA}$	65	K/W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−40 to 125	°C

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Operational range

Supply voltage	V_S	11 to 15	V
Frequency range AM part	f_{AM}	10 to 60	MHz
FM part	f_{FM}	0.01 to 12	MHz
Control voltage AM part	V_2	0 to 5	V
Switch current FM part	I_8	0.3 to 1	mA
Ambient temperature in operation	T_{amb}	0 to 60	°C

Characteristics (V_S = 15 V, T_{amb} = 25°C)

		min	typ	max	
Current consumption	I_5		60	80	mA
AM-part:					
AGC-range	ΔG		55		dB
AGC-voltage	V_2	0		5	V
Input resistance	$R_{i\,3\text{-}4}$		10		kΩ
Input impedance at max. gain	$Z_{i\,20\text{-}21}$		1.8/2		kΩ/pF
at min. gain	$Z_{i\,20\text{-}21}$		1.9/0		kΩ/pF
Output resistance	$R_{q\,6}$		500		Ω
	$R_{q\,7}$		500		Ω
FM-part: (f_Z = 5.5 MHz; f_{mod} = 1 kHz)					
Input impedance	$Z_{i\,9\text{-}10}$		800		Ω
AM-suppression	a_{AM}		42		dB
($V_{i\,9\text{-}10}$ = 1 mV; f = 12.5 MHz; m = 30%)					
Signal-to-noise ratio ($V_{i\,9\text{-}10}$ = 10 mV)	$a_{S/N}$		85		dB
Input voltage for limiting	$V_{i\,lim.}$		60		μV
(Δf = 30 kHz)					
Demodulator output resistance	$R_{q\,15\text{-}16}$		5.4		kΩ
Output resistance for VCR-recording	$R_{q\,12}$			500	Ω
Input resistance for VCR-playback	$R_{i\,12}$	10			kΩ
Integrated resistor for deemphasis	R_{17}		10		kΩ
AF-output voltage	$V_{q\,12}$		600		mV_{rms}
(V_i = 10 mV; with CDA 5.5 MC 10, $R_{q\,11}$ = 2.9 Ω)	$V_{q\,11}$	260	300		mV_{rms}
(Δf = 12.5 kHz)					
AF-gain during VCR-playback	$V_{12\text{-}11}$		0.5		
Total harmonic distortion	THD_{12}		1		%
Cross talk (V_i = 1 mV)					
V_{12} = 2 V_{rms}	$C_{12\text{-}11}$	50	52		dB
V_{12} = 0.3 V_{rms}	$C_{12\text{-}11}$	60	65		dB
Range of volume control	$\frac{V_{AF\,max}}{V_{AF\,min}}$	70	85		dB

Circuit description

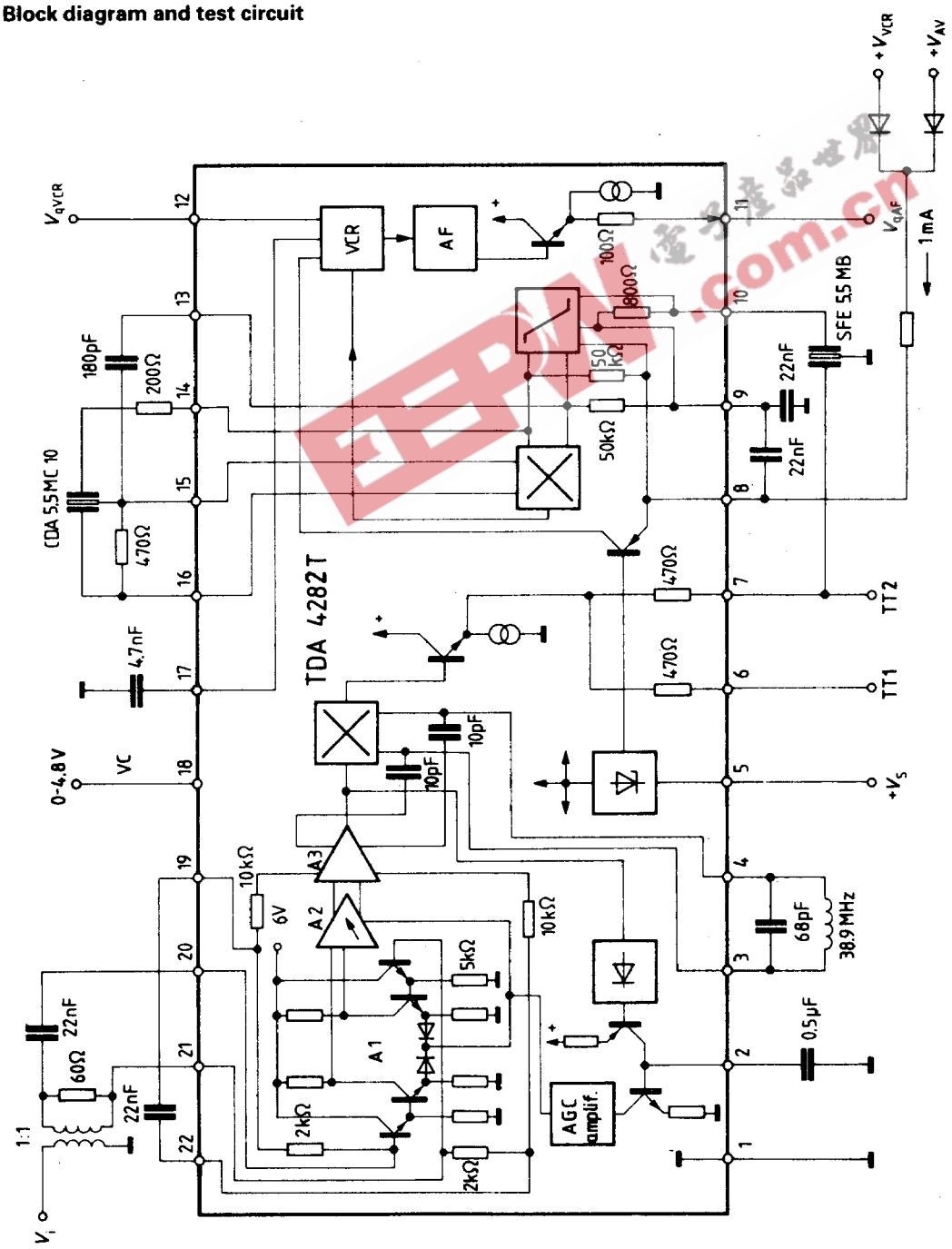
The TDA 4282 T contains essentially two functional blocks:

1. A regulated AM amplifier with a peak rectifier to generate the AGC voltage. The AM amplifier drives an FM demodulator, at the output of which the differential sound carrier (38.9 MHz−33.4 MHz = 5.5 MHz) is available. The double sideband portions close to the carrier are suppressed. The 5.5 MHz carrier reaches the functional block via an external selection.
2. An FM limiter amplifier with coincidence demodulator, a standard VCR connector and a separate AF output with volume control.

Pin assignment

Pin No.	Pin designation
1	Ground
2	AM-IF control
3	AM amplifier demodulator
4	AM amplifier demodulator
5	Supply voltage (plus)
6	AM amplifier sound carrier output TT 1
7	AM amplifier sound carrier output TT 2
8	AM-IF amplifier negative feedback for working point
9	AM-IF amplifier negative feedback for working point
10	FM-IF amplifier IF input
11	AF output
12	VCR connection
13	FM-IF amplifier emitter follower output
14	FM-IF amplifier emitter follower output
15	FM amplifier demodulator
16	FM amplifier demodulator
17	Deemphasis condensator
18	Volume control
19	AM-IF negative feedback for working point
20	AM-IF amplifier IF input
21	AM-IF amplifier IF input
22	AM-IF negative feedback amplifier for working point

Block diagram and test circuit



Application circuit