

TDA2546A

Quasi-Split-Sound IF With Sound Demodulator

Product Specification

Linear Products

DESCRIPTION

The TDA2546A is a monolithic integrated circuit for quasi-split-sound processing, including 5.5MHz demodulation, in television receivers.

FEATURES

First IF (VC: vision carrier plus SC: sound carrier)

- 3-stage, gain-controlled IF amplifier
- AGC circuit
- Reference amplifier and limiter amplifier for vision carrier (VC) processing
- Linear multiplier for quadrature demodulation

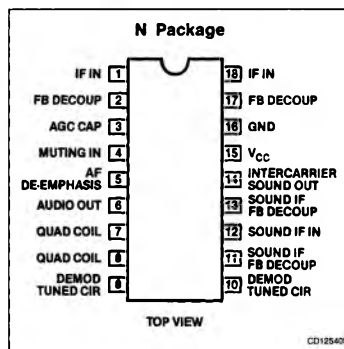
Second IF (5.5MHz signal)

- 8-stage limiter amplifier
- Quadrature demodulator
- AF amplifier with de-emphasis
- AV switch

APPLICATIONS

- Television stereo MTS receiver
- Video cassette recorder with MTS stereo

PIN CONFIGURATION



ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
18-Pin Plastic DIP (SOT-102CS)	0 to +70°C	TDA2546AN

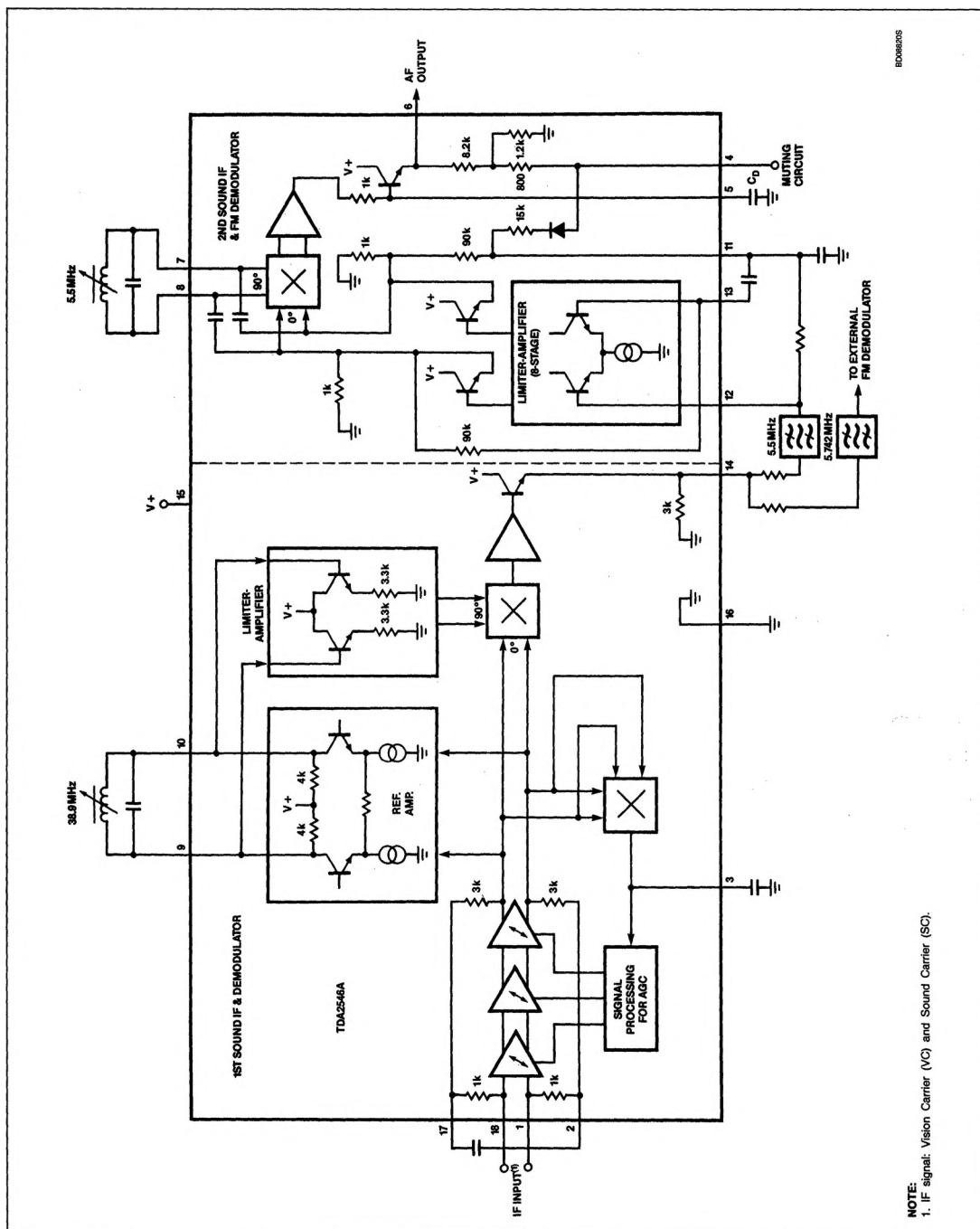
ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V _{CC}	Supply voltage (Pin 15)	13.2	V
I _{IN}	Input current (Pin 4)	5	mA
T _{STG}	Storage temperature range	-25 to +150	°C
T _A	Operating ambient temperature range	0 to +70	°C

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BLOCK DIAGRAM



NOTE:
1. IF signal: Vision Carrier (VO) and Sound Carrier (SC).

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DC ELECTRICAL CHARACTERISTICS $V_{CC} = V_{15-16} = 12V$; $T_A = 25^\circ C$; measured at $f_{VC} = 38.9MHz$, $f_{SC1} = 33.4MHz$, $f_{SC2} = 33.158MHz$:

Vision carrier (VC) modulated with 2T/20T pulses, line-for-line alternating with white bars; modulation depth 100% (proportional to 10% residual carrier).

Sound carriers (SC1, SC2) modulated with $f = 1kHz$ and $\Delta f = \pm 30kHz$.

Vision-to-sound carrier ratios are $VC/SC1 = 13dB$ and $VC/SC2 = 20dB$.

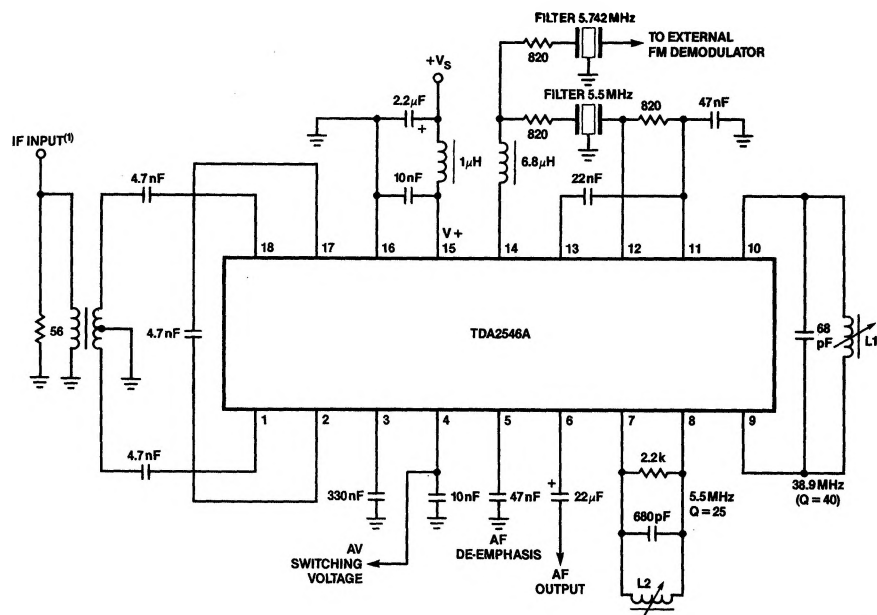
Vision carrier amplitude (RMS value) is $V_{VC} = 10mV$.

For measuring circuit see Figure 1, unless otherwise specified.

SYMBOL	PARAMETER	LIMITS			UNIT
		Min	Typ	Max	
Supply (Pin 15)					
$V_{CC} = V_{15-16}$	Supply voltage	10.8	12	13.2	V
$I_{CC} = I_{15}$	Supply current		54		mA
IF amplifier					
$V_{VC1-18(RMS)}$	Minimum input voltage (RMS value) (intercarrier signals -3dB)		50		μV
$V_{VC1-18(RMS)}$	Maximum input voltage (RMS value) (intercarrier signals +1dB)		100		mV
ΔG_V	IF control range	66			dB
V_{3-16}	Control voltage range	4		9	V
R_{1-18}	Input resistance		2		k Ω
C_{1-18}	Input capacitance		2		pF
Intercarrier generation					
$V_{14-16(RMS)}$	Output voltage; 5.5MHz (RMS value)		100		mV
$V_{14-16(RMS)}$	Output voltage; 5.742MHz (RMS value)		45		mV
V_{14-16}	DC output voltage		5.9		V
R_{14-16}	Allowable load resistance at the output	7			k Ω
$-I_{14}$	Allowable output current			1	mA
Frequency demodulator (measured at f = 5.5MHz)					
$V_{12-16(RMS)}$	Input voltage for start of limiting (RMS value)			100	μV
$V_{12-16(RMS)}$	Maximum input voltage (RMS value)		200		mV
$V_{11, 12, 13-16}$	DC output voltage		2.2		V
$V_{6-16(RMS)}$	AF output voltage (RMS value)		600		mV
V_{6-16}	DC output voltage		4		V
R_{6-16}	Allowable load resistance at the output	27			k Ω
THD	Total harmonic distortion			1	%
R_{15-16}	Internal de-emphasis resistance		1		k Ω
V_{4-16} V_{4-16}	Switching voltage (Pin 4) for mute for AF on	9		2.5	V V
Intercarrier signal-to-noise (measured behind the FM demodulators)					
S + W/W S + W/W	Signal-to-weighted-noise ratio according to CCIR 468-2, quasi-peak at 5.5MHz at 5.742MHz with black level (vision carrier modulated with sync pulses only)	53 51			dB dB
S + W/W S + W/W	at 5.5MHz at 5.742MHz	60 58			dB dB

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NOTE:

1. IF signal: Vision Carrier (VC) and Sound Carrier (SC).

Figure 1. Measuring Circuit for TDA2546A