

FM-IF Limiter Amplifier and Detector for HiFi & Car Radios

Technology: Bipolar

Features

- 7 stage limiter amplifier
- Multi-path signal detector
- Controllable limiting sense and stop pulse threshold
- Controllable mute function
- High (S + N)/N ratio and low signal distortion
- Signal strength output

Case: 18 pin dual inline plastic

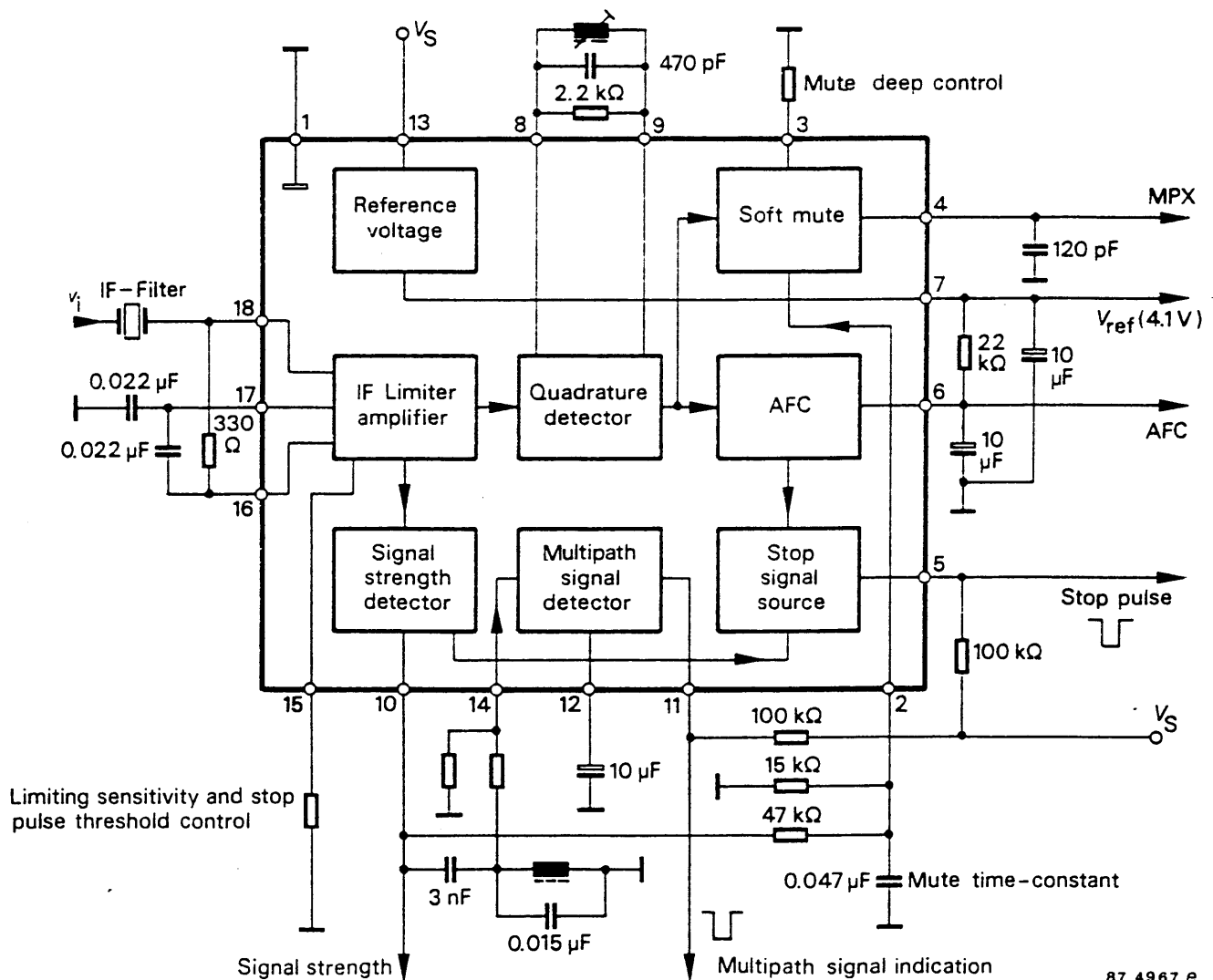


Figure 1 Block diagram and application circuit

Absolute maximum ratings

Reference point pin 1, unless otherwise specified.

Parameters	Symbol	Value	Unit
Supply voltage Pin 13	V_S	18	V
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-40...+150	°C
Ambient temperature range	T_{amb}	-25...+85	°C

Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient	R_{thJA}	100	K/W

Electrical Characteristics

$V_S = 8.5$ V, reference point Pin 1, $f_i = 10.7$ MHz, $V_i = 10$ mV, FM = ± 75 kHz, $f_{mod} = 1$ kHz, $Q_0 \approx 20$, $T_{amb} = 25$ °C, unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min	Typ	Max	Unit
Supply voltage range	Pin 13		7.5		15	V
Supply current	Pin 13			24	29	mA
IF-limiter amplifier Limiting threshold (-3dB), Pin 15 connected to V_{Ref} Pin 15 connected to ground	Pin 18	V_i V_i		15 2.4	40	μ V mV
Audio signal	Pin 4					
Audio output voltage level		V_0	270	380	520	mV
Frequency response (-1dB)		f_r		0.02...150		kHz
Distortion		d		0.7	1.5	%
(S+N)/N ratio		$\frac{S+N}{N}$	70	78		dB
AFC current signal	$\Delta f_i = \pm 50$ kHz Pin 6	$\pm \Delta I_0$		110		μ A
Stop signal generation	Pin 5					
"Low" voltage, $I_5 \leq 0.5$ mA	Pin 5	$V_{5\ Low}$			1.3	V
"High" voltage	Pin 5	$V_{5\ High}$	7			V
Input voltage threshold, $V_5 = Low$						
Pin15 connected to V_{Ref}	FM Pin 18 AM Pin 18	V_{imax} V_{imax}			70 500	μ V μ V
Frequency window, $V_5 = Low$	$R_{6-7} = 22$ k Ω Pin 5	Δf_{st}			± 18	kHz
AM rejection, $m = 0.3$	Pin 4	AMR	60			dB
Signal strength output	$V_i = 0$ μ V $V_i = 50$ mV Pin 10	V_0 V_0	3.0	3.8	0.1	V V
Mute function						
Mute "off" voltage,	Pin 2	V_{off}		0.5	0.75	V
Minimum mute range	$R_{3-1} = \infty$		4	7	10	dB
Maximum mute range	$R_{3-1} = 0$		32	39	46	dB

Parameters	Test Conditions / Pin	Symbol	Min	Typ	Max	Unit
Multi-path signal detector	Pin 11					
Input voltage for full output swing	f = 20 kHz Pin 14	V_i		5		mV
Charge current Pin 14 connected to ground	Pin 12	I		3		mA
Discharge current Pin 14 open circuit or $V_{12} < 1$ V	Pin 12	I		10		μ A
Saturation voltage, $I_{11} = 0.5$ mA	Pin 11	V_{sat}			1	V
Reference voltage supply						
Reference voltage	$I_0 = 500 \mu$ A Pin 7	V_{ref}	3.6	4.1	4.6	V
Load current	Pin 7	I_{load}		3	5	mA
Electrical characteristics for switching operation						
Noise voltage	Pin 9,10	$V_{on}^{4)}$		30	80	μ V
Total harmonic distortion	$f_{AF} = 1$ kHz Pin 9,10	THD ^{1) 6)}			0.5	%
Channel balance	Pin 9,10	$B_{al}^{2)}$			0.5	dB
Switching noise mono/stereo	S1 closed-open Pin 9,10	ΔV_0			60	mV

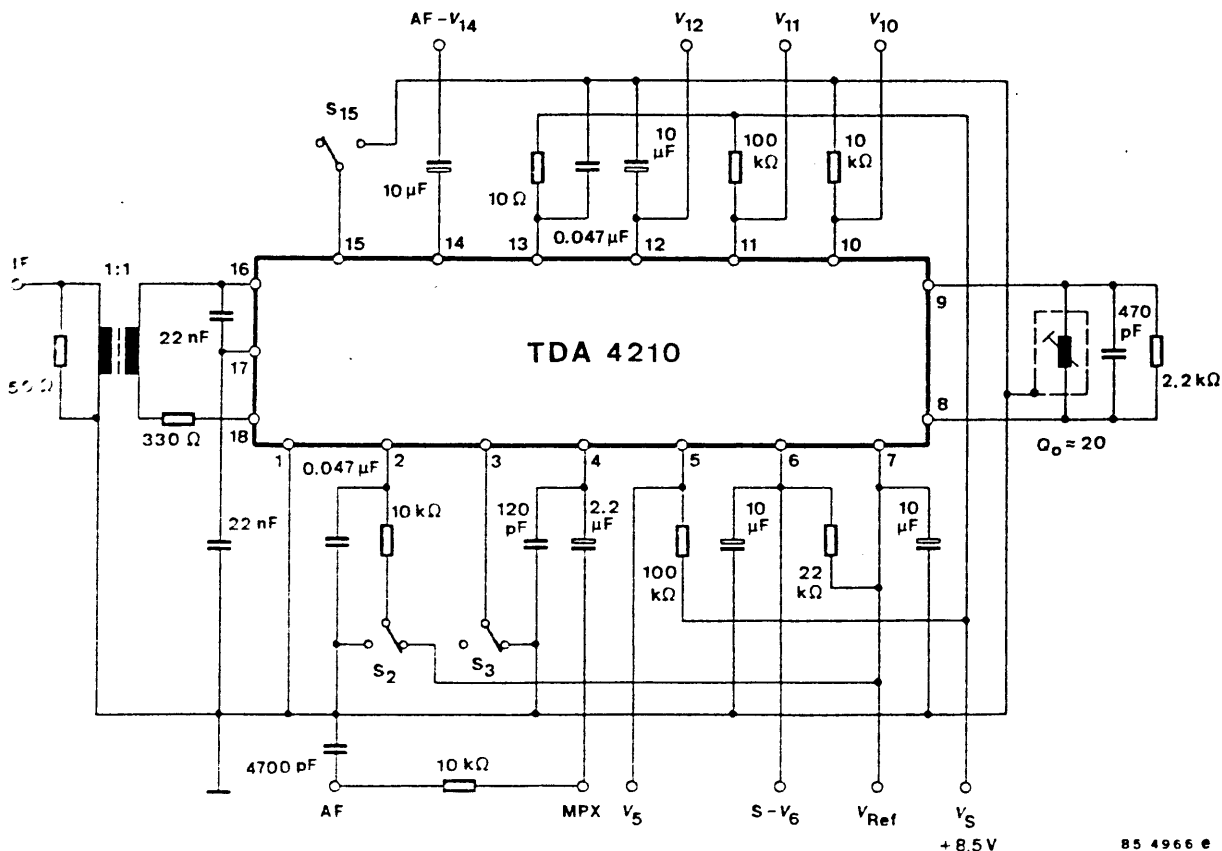


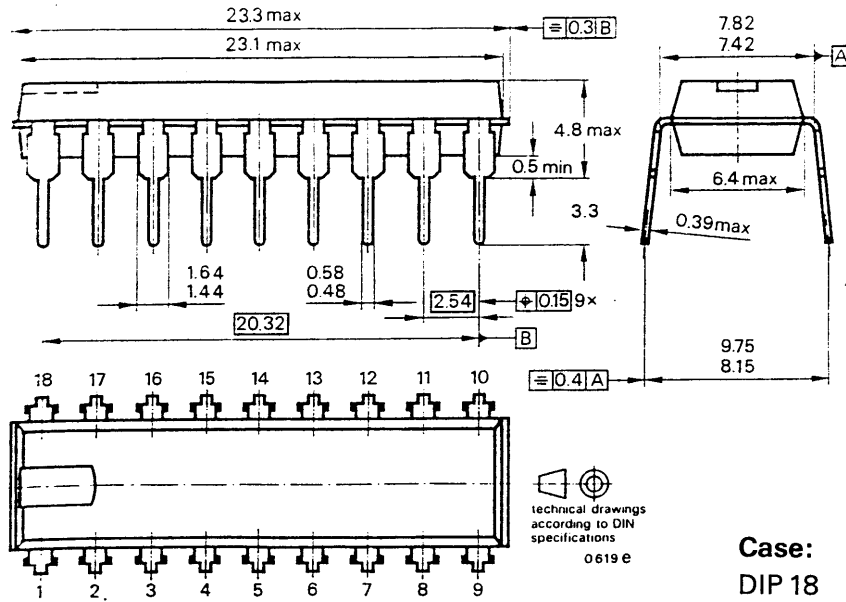
Figure 2 Test circuit

TDA 4210

TEMIC

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Dimensions in mm



Case:
DIP 18

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1. Meet all present and future national and international statutory requirements and
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

Of particular concern is the control or elimination of releases into the atmosphere of those substances which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) will soon severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

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1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA and
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

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