LINEAR INTEGRATED CIRCUIT

TDA1220L

LOW VOLTAGE AM-FM RADIO

The TDA 1220L is a monolithic integrated circuit in a 16-lead dual in-line plastic package designed for use in 3V-4.5V-6V portable AM-FM radio receivers.
The functions incorporated are:

AM SECTION

- Preamplifier and double balanced mixer*
- One pin local oscillator
- IF amplifier with internal AGC
- Detector and audio preamplifier

FM SECTION

- IF amplifier and limiter
- Quadrature detector
- Audio preamplifier

The TDA 1220L is suitable up to 30 MHz AM and for FM bands and features:

- High sensitivity and low noise
- Very low **tweet**
- High signal handling (1V)
- Low battery drain
- AM sensitivity regulation facility
- High stability of electrical characteristics from 2V to 9V
- Very simple DC switching of AM-FM

* Patent pending.

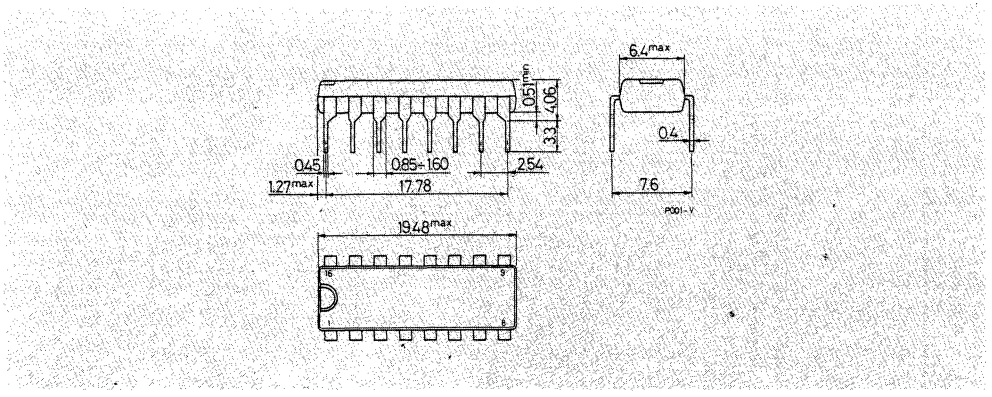
ABSOLUTE MAXIMUM RATINGS

V_s	Supply voltage	12	V
P_{tot}	Total power dissipation at $T_{amb} < 110°C$	400	mW
T_{op}	Operating temperature	-20 to 85	°C
T_{stg}, T_j	Storage and junction temperature	-55 to 150	°C

ORDERING NUMBER: TDA 1220L

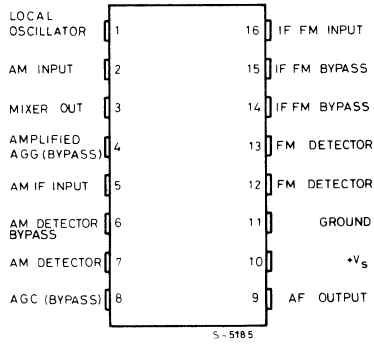
MECHANICAL DATA

Dimensions in mm

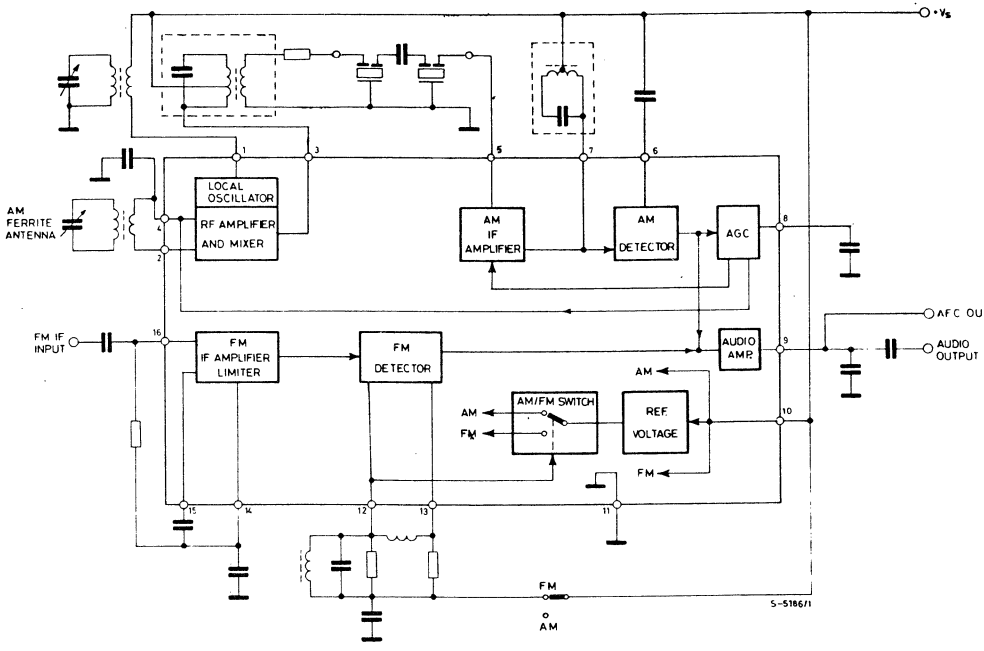


TDA1220L

CONNECTION DIAGRAM



BLOCK DIAGRAM



THERMAL DATA

$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C, V_s = 4.5V unless otherwise specified, refer to test circuit)

Parameter		Test conditions		Min.	Typ.	Max.	Unit
V_s	Operating supply voltage			2		9	V
I_d	Drain current				10		mA

AM SECTION (f_o = 1 MHz; f_m = 1 KHz)

V_i	Input sensitivity	S/N = 26 dB	m = 0.3		15		μV
S/N		V_i = 10 mV	m = 0.3		52		dB
V_i	AGC range	ΔV_{out} = 10 dB	m = 0.8		100		dB
V_o	Recovered audio signal (pin 9)	V_i = 1 mV	m = 0.3		80		mV
d	Distortion				0.4		%
V_H	Max input signal handling capability	m = 0.8	d < 10%		1		V
R_i	Input resistance between pins 2 and 4	m = 0			7.5		KΩ
C_i	Input capacitance between pins 2 and 4	m = 0			18		pF
R_o	Output resistance (pin 9)				5		KΩ
	Tweet 2 IF	m = 0,3	V_i = 1 mV		40		dB
	Tweet 3 IF				55		dB

FM SECTION (f_o = 10.7 MHz; f_m = 1 KHz)

V_i	Input limiting voltage	-3 dB limiting point			20		μV
AMR	Amplitude modulation rejection	Δf = ± 22.5 KHz V_i = 3 mV	m = 0.3		50		dB
S/N	Ultimate quieting	Δf = ± 22.5 KHz	V_i = 1 mV		70		dB
d	Distortion	Δf = ± 22.5 KHz	V_i = 1 mV		0.3		%
V_o	Recovered audio signal (pin 9)	Δf = ± 22.5 KHz	V_i = 1 mV		80		mV
R_i	Input resistance between pin 16 and ground	Δf = 0			6.5		KΩ
C_i	Input capacitance between pin 16 and ground	Δf = 0			14		pF
R_o	Output resistance (pin 9)				5		KΩ

Fig. 1 - Test circuit

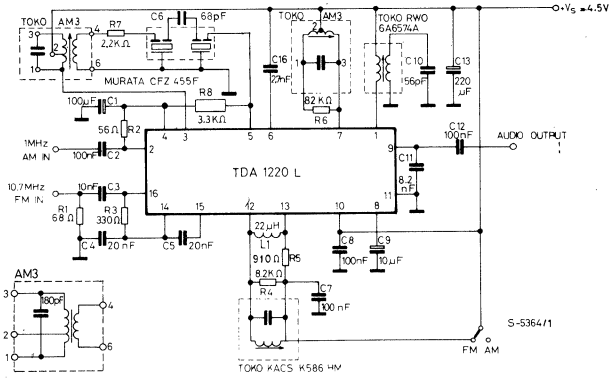


Fig. 2 - PC board and component layout (1:1 scale) of the test circuit.

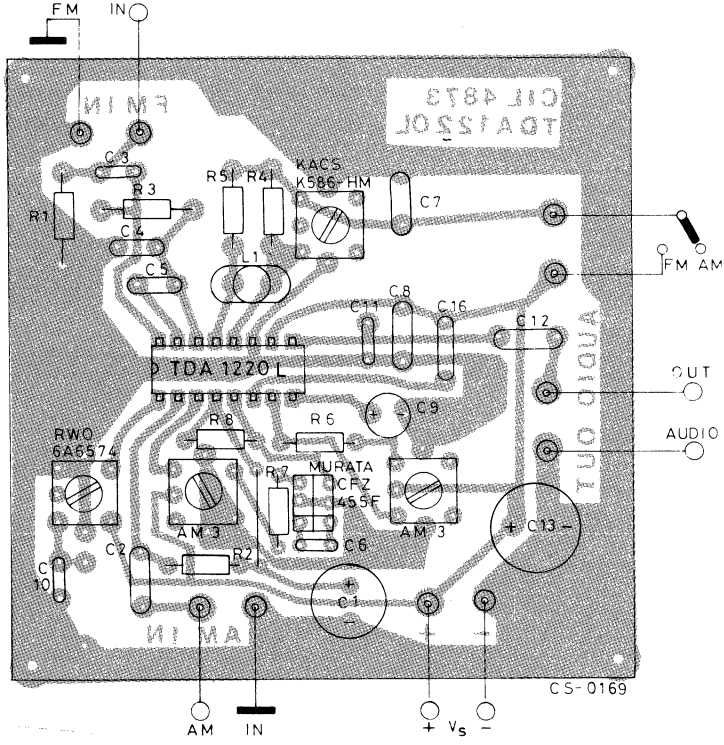


Fig. 3 - Suggestion for varicap tuned receiver.

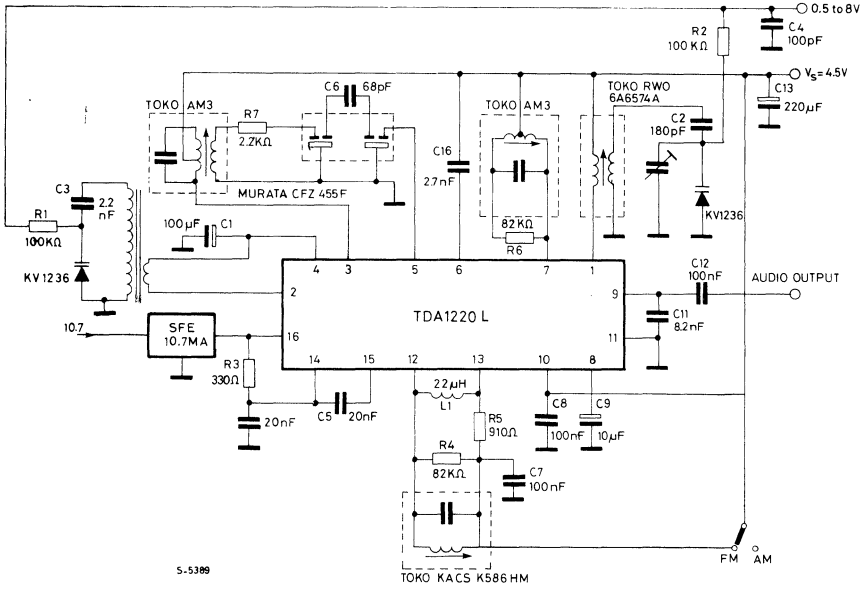


Fig. 4 - Suggestion for "coil block" use