SGS ATES

TDA 1200

LINEAR INTEGRATED CIRCUIT

PRELIMINARY DATA

FM-IF RADIO SYSTEM

- HIGH LIMITING SENSITIVITY
- HIGH AMR
- HIGH RECOVERED AUDIO
- GOOD CAPTURE RATIO
- LOW DISTORTION
- MUTING CAPABILITY

The TDA 1200 is a silicon monolithic integrated circuit in a 16-lead dual in-line plastic package. It provides a complete subsystem for amplification of FM signals.
The functions incorporated are:

— FM amplification and detection
— interchannel controlled muting
— AFC and delayed AGC for FM tuner
— switching of stereo decoder
— driving of a field strength meter

The TDA 1200 can be used for FM-IF amplifier application in HI-FI, car-radios and communication receivers.

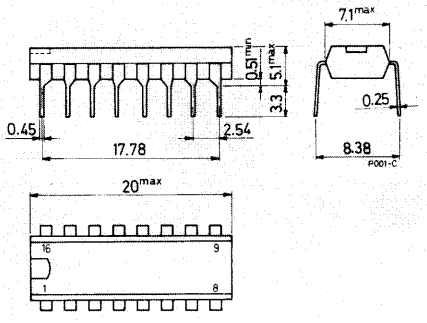
ABSOLUTE MAXIMUM RATINGS

V_s	Supply voltage	16 V
I_o	Output current (from pin 15)	2 mA
P_{tot}	Total power dissipation at $T_{amb} \leq 70$ °C	500 mW
T_{stg}	Storage temperature	-55 to 150 °C
T_{op}	Operating temperature	-25 to 70 °C

ORDERING NUMBER: TDA 1200

MECHANICAL DATA

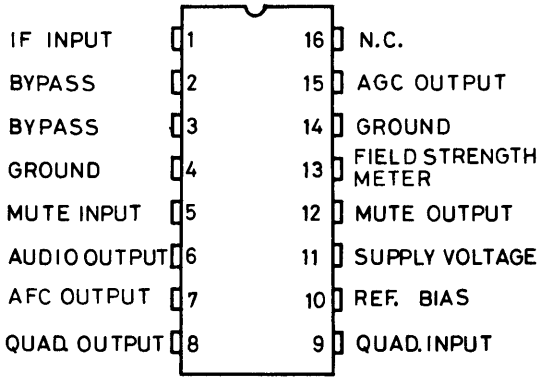
Dimensions in mm



TDA 1200

TDA 1200

CONNECTION DIAGRAM
(top view)



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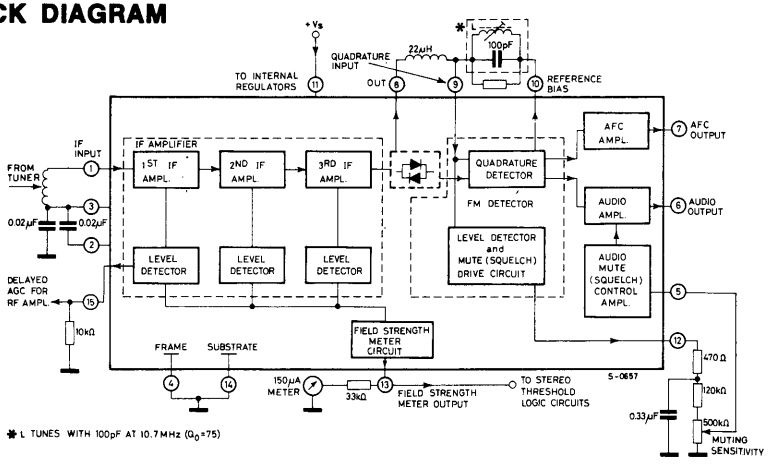
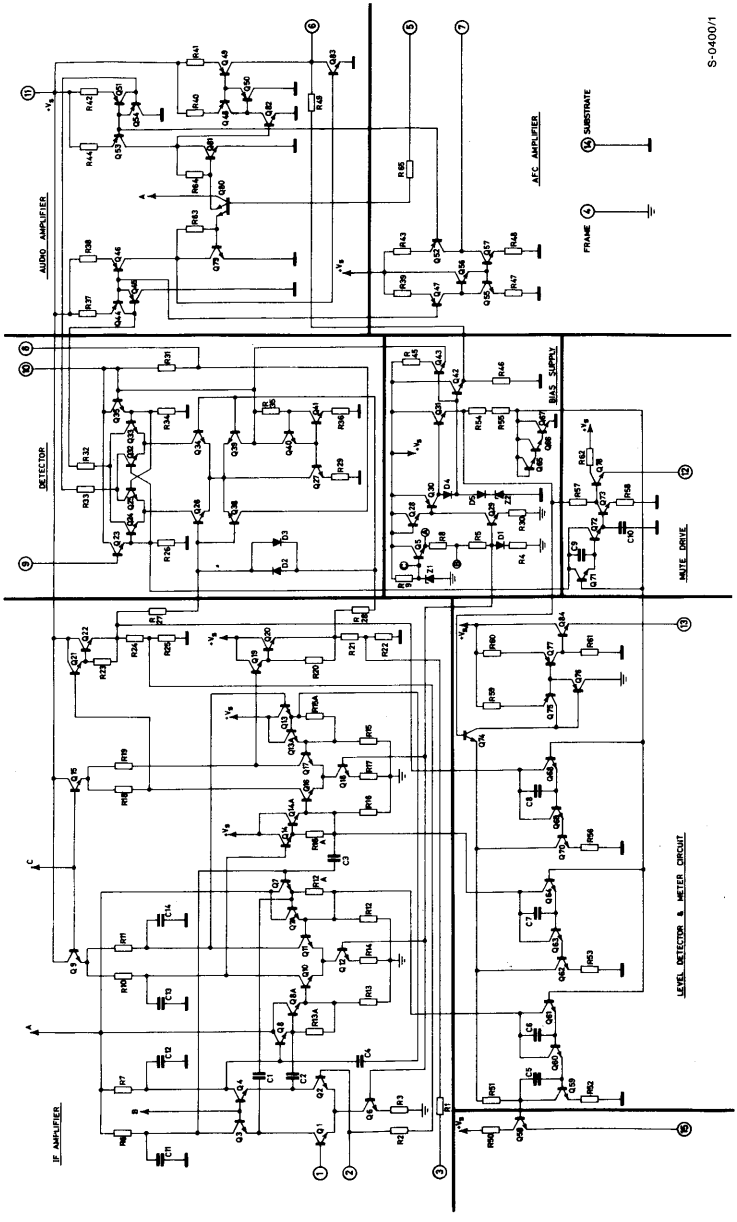
BLOCK DIAGRAM

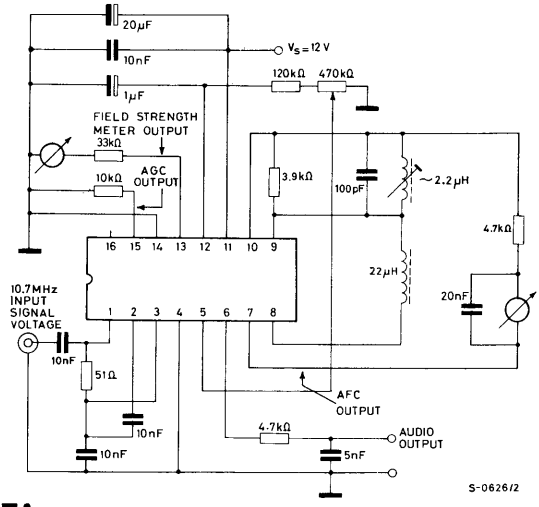


SCHEMATIC DIAGRAM



TDA 1200

TEST CIRCUIT



THERMAL DATA

$R_{th\ j\text{-}amb}$ Thermal resistance junction-ambient	Typ.	160	°C/W

ELECTRICAL CHARACTERISTICS

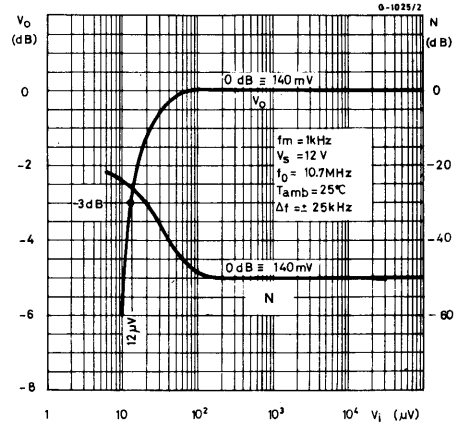
(Refer to the test circuit; V_s = 12 V, T_{amb} = 25 °C)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
STATIC (DC) CHARACTERISTICS						
I_s	Supply current			23		mA
V_1	Voltage at the IF amplifier input			1.9		V
V_2, V_3	Voltage at the input bypassing			1.9		V
V_6	Voltage at the audio qutput			5.6		V
V_{10}	Reference bias voltage			5.6		V

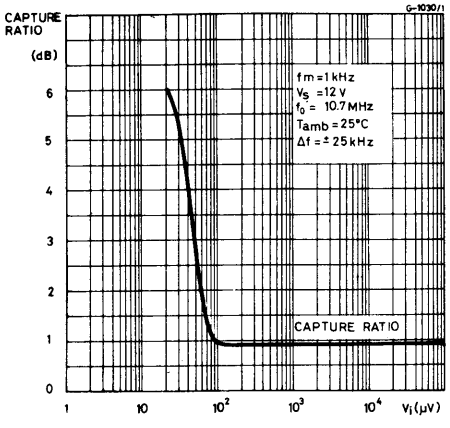
ELECTRICAL CHARACTERISTICS (continued)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
DYNAMIC CHARACTERISTICS						
$V_{i(threshold)}$	Input limiting voltage (-3 dB) at pin 1	$f_0 = 10.7$ MHz $f_m = 1$ kHz $\Delta f = \pm 25$ kHz		12		µV
V_o	Recovered audio voltage (pin 6)	$V_i \geqq 50$ µV $f_0 = 10.7$ MHz $f_m = 1$ kHz $\Delta f = \pm 25$ kHz		140		mV
d	Distortion	$V_i \geqq 1$ mV $f_0 = 10.7$ MHz $f_m = 1$ kHz $\Delta f = \pm 75$ kHz		0.5		%
$\frac{S+N}{N}$	Signal and noise to noise ratio			60		dB
AMR	Amplitude modulation rejection	$V_i \geqq 1$ mV $f_0 = 10.7$ MHz $f_m = 1$ kHz $\Delta f = \pm 25$ kHz $m = 0.3$		40		dB
V_i	Input voltage for delayed AGC action(pin 1)			10		mV
$\frac{\Delta V_{15}}{\Delta V_i}$	AGC control slope	$V_i \geqq 10$ mV $f_0 = 10.7$ MHz		40		dB
$\frac{\Delta I_7}{\delta f}$	AFC control slope			1		$\frac{\mu A}{kHz}$
$\frac{\Delta V_{13}}{\Delta V_i}$	Field strength meter output slope			42		dB
V_{13}	Field strength meter output sensitivity	$V_i = 1$ mV $f_0 = 10.7$ MHz		1.7		V

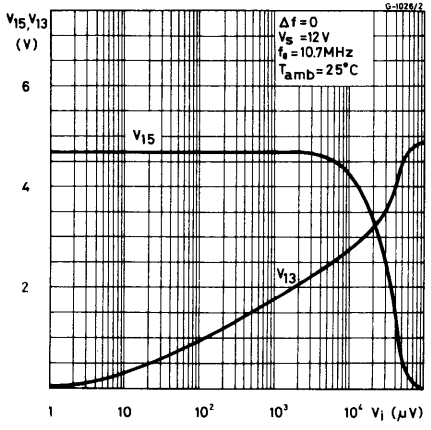
Typical relative recovered audio and noise output versus input voltage



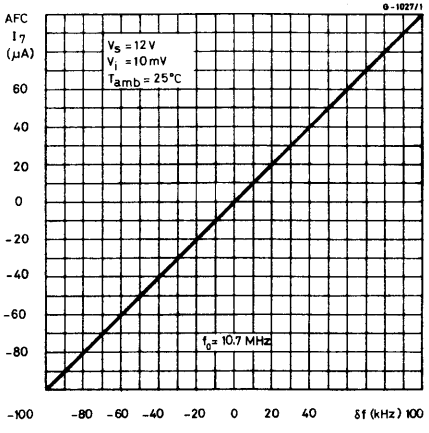
Typical capture ratio versus input voltage



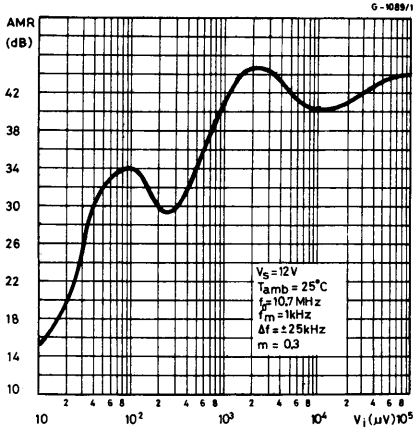
Typical AGC (V_{15}) and field strength meter output (V_{13}) versus input signal



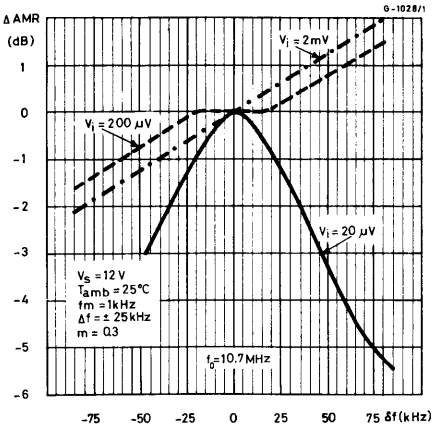
Typical AFC output current versus change-in tuning frequency



Typical amplitude modulation rejection versus input signal

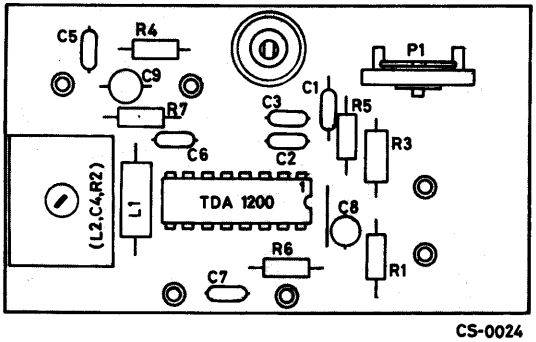


Typical AMR (relative to the value of f_0= 10.7 MHz) versus change-in tuning frequency



APPLICATIONS

PC board and component layout of the circuit on next page (1:1 scale).



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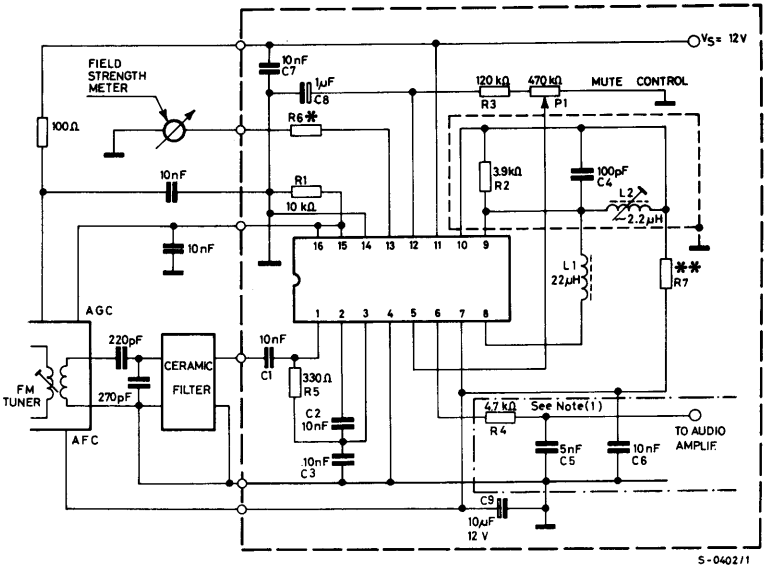
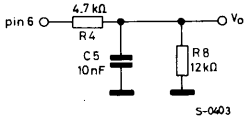
TDA 1200

Typical application circuit



NOTES: (1) When V_s is less than 12 V, a resistor R8 = 12 kΩ must be connected between audio output and ground, and the integrator capacitor C5 must be changed to 10 nF, as follows:



* Dependent on field strength meter sensitivity.

** Dependent on the tuner's AFC circuit.