TDA3190

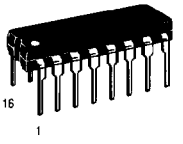
4.2 WATT TV SOUND SYSTEM

SILICON MONOLITHIC INTEGRATED CIRCUIT

TV Sound System

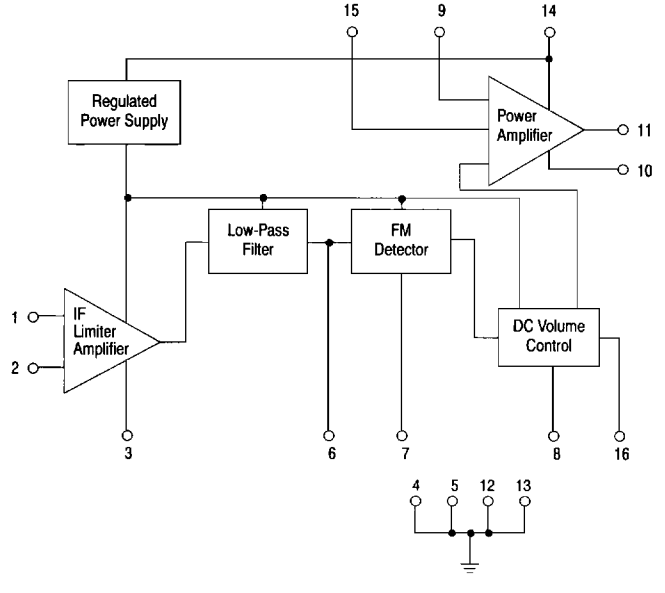
The TDA3190 is a 4.2 W sound system designed for television and related applications. Functions performed by this device includes: IF Limiting, IF amplifier, low pass filter, FM detector, DC volume control, audio preamplifier, and audio power amplifier.

- 4.2 W Output Power (V_{CC} = 24 V, R_L = 16 Ω)
- Linear Volume Control
- High AM Rejection
- Low Harmonic Distortion
- High Sensitivity

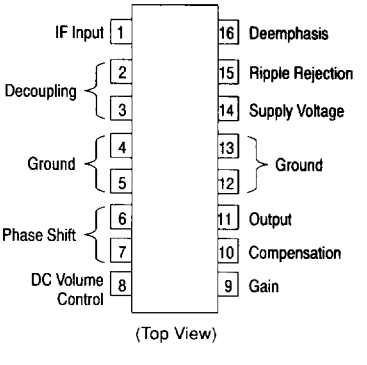


P SUFFIX
PLASTIC PACKAGE
CASE 648C

BLOCK DIAGRAM



PIN CONNECTIONS



(Top View)

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Supply Voltage Range	V_{CC}	9.0 to 28	V
Output Peak Current (Nonrepetitive) (Repetitive)	I_O	2.0 1.5	A
Input Signal Voltage	V_I	1.0	V
Operating Temperature Range	T_A	0 to + 75	°C
Junction Temperature	T_J	150	°C

ELECTRICAL CHARACTERISTICS (V_{CC} = 24 V, f_o = 4.5 MHz, Δf = ±25 kHz, T_A = 25°C, unless otherwise noted.)

Characteristics	Symbol	Min	Typ	Max	Unit
Quiescent Output Voltage (Pin 11) V_{CC} = 24 V	Q_O	11	12	13	V
Quiescent Drain Current (P1 = 22 kΩ) V_{CC} = 24 V	I_D	11	22	35	mA
Output Power (d = 10%, f_m = 400 Hz) V_{CC} = 24 V, R_L = 16 Ω V_{CC} = 12 V, R_L = 8.0 Ω (d = 2%, f_m = 400 Hz) V_{CC} = 24 V, R_L = 16 Ω V_{CC} = 12 V, R_L = 8.0 Ω	P_O	 — — — —	 4.2 1.5 3.5 1.4	 — — — —	W
Input Limiting Threshold Volts (–3.0 dB) at Pin 1 Δf = ±7.5 kHz, f_m = 400 Hz, set P1 for 2.0 Vrms on Pin 11	V_I	—	40	100	μV
Distortion (P_O = 50 mW, f_m = 400 Hz, Δf = ± 7.5 kHz) V_{CC} = 24 V, R_L = 16 Ω		—	0.75	—	%
Frequency Response of Audio Amplifier (–3.0 dB) (R_L = 16 Ω, C_{10} = 120 pF, C_{12} = 470 pF, P_1 = 22 kΩ) R_f = 82 Ω R_f = 47 Ω	B	 — —	 70 to 12 k 70 to 7.0 k	 — —	Hz
Recovered Audio Voltage (Pin 16) (V_I ≥ 1.0 mV, f_m = 400 Hz, Δf = ± 7.5 kHz, P_1 = 0)	V_o	—	120	—	mV
Amplitude Modulation Rejection (V_I ≥ 1.0 mV, f_m = 400 Hz, m = 30%)	AMR	—	55	—	dB
Signal and Noise to Noise Ratio (V_I ≥ 1.0 mV, V_O = 4.0 V, f_m = 400 Hz)	$\frac{S+N}{N}$	50	65	—	dB
Input Resistance (Pin 1) (V_I = 1.0 mV)	r_i	—	30	—	kΩ
Input Capacitance (Pin 1) (V_I = 1.0 mV)	C_i	—	5.0	—	pF
DC Volume Control Attenuation (P1 = 12 kΩ)		—	90	—	dB

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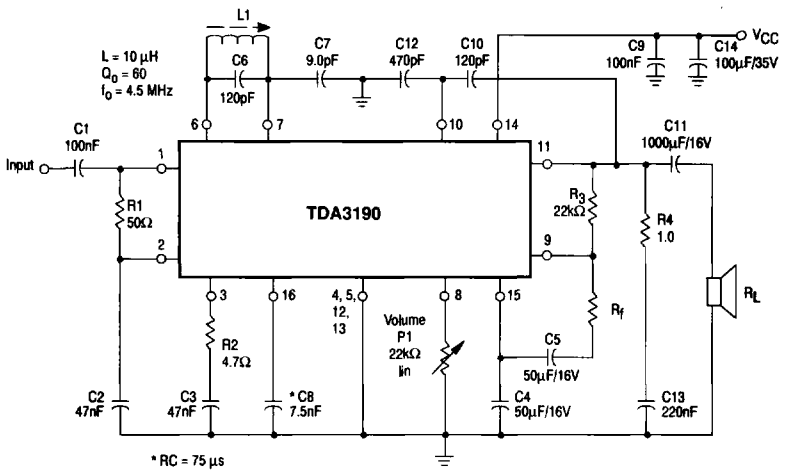
TEST CIRCUIT



V_{CC}	12	24	V
R_L	8	16	Ω
R_f	82	47	Ω

TYPICAL CIRCUIT CONFIGURATION