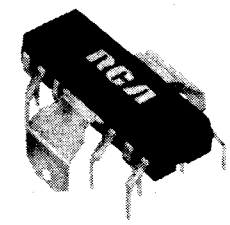
CA1190



Modified 16-lead quad-in-line plastic package with wing tabs

H-1825

TV Sound IF and Audio Output Subsystems

Features:

- *Nominal power output: 4 W at V+ = 24 V, R_L = 16 Ω, dist. = 10%, 2 W at V+ = 12 V, R_L = 8 Ω, dist. = 10%*
- *Wide power-supply range: 9 to 28 V*
- *Low quiescent current: 25 mA typ.*
- *5-kHz deviation sensitivity: 1 W output typ.*
- *3-dB limiting sensitivity: 50 μV typ.*
- *Excellent AM rejection: 50 dB typ.*
- *Differential peak detector – requires one tuned coil*
- *Electronic volume control with improved taper and single wire control*

The RCA-CA1190Q combines sound IF and audio output subsystems on a single monolithic integrated circuit to provide a television sound system. Each device includes a multistage IF amplifier-limiter, an FM detector, and an audio power amplifier that is designed to drive, primarily, an 8- 16-, or 32-ohm speaker.

The CA1190Q is electrically and mechanically equivalent to industry type TDA1190Z.

The CA1190Q differs from the TDA1190Z in that it includes provisions for a lower value volume control.

The CA1190Q is supplied in the 16-lead quad-in-line plastic package having an integral bent-down wing-tab (Q-suffix) heat sink intended for PC board mounting.

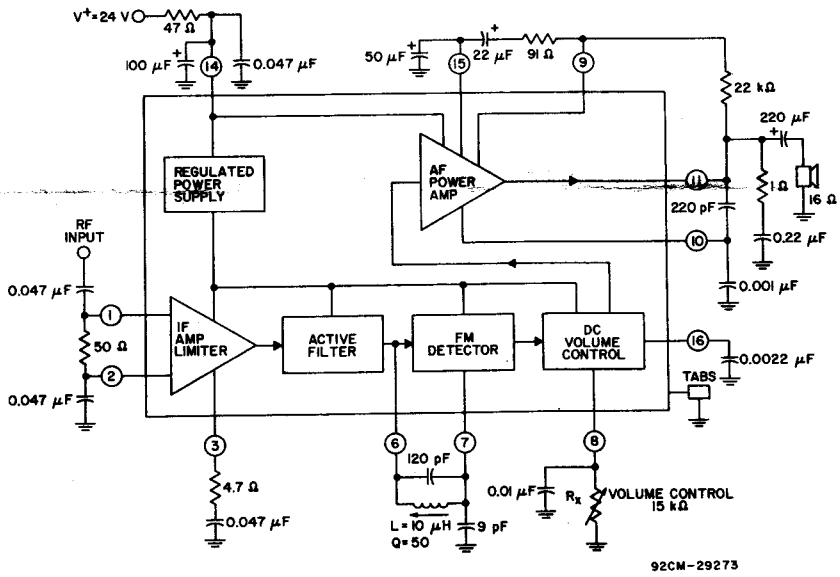


Fig. 1 - CA1190Q typical application.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

		UNITS
DC SUPPLY-VOLTAGE (Between Term. 14 V+ and ground tabs)	+28	V
OUTPUT PEAK CURRENT:		
Repetitive	1.5	A
Non-repetitive	2	A
INPUT SIGNAL VOLTAGE (Between Terms. 1 and 2)	±3	V
DEVICE DISSIPATION:		
With Infinite Heak Sink —		
Up to T_A = 90°C	5	W
Above T_A = 90°C, derate lineary	83.3	mW/°C
With No Heat Sink — (free air) —		
Up to T_A = 25°C	1.75	W
Above T_A = 25°C, derate lineary	14	mW/°C
THERMAL RESISTANCE:		
Junction to ground tabs	12	°C/W
Junction to ambient	70	°C/W
AMBIENT TEMPERATURE RANGE:		
Operating	-40 to +85	°C
Storage	-65 to +150	°C
LEAD TEMPERATURE (During Soldering): At a distance 1/16 in. ± 1/32 in. (1.59 ± 0.79 mm) from case for 10 seconds max.	+265	°C

ELECTRICAL CHARACTERISTICS at T_A = 25°C, V+ = 24 V, DC Volume Control R_X = 0 Ω, R_L = 16 Ω unless otherwise indicated. Refer to Fig. 1.

CHARACTERISTIC	TEST CONDITIONS	LIMITS			UNITS
		Min.	Typ.	Max.	
Static Characteristics					
Current into Term. 14	P_O = 0	10	25	40	mA
Dynamic Characteristics					
IF Amplifier: Input Limiting Voltage, (At — 3 dB point), V_1 (lim)	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz	—	50	100	μV
AM Rejection, AMR	f_o = 4.5 MHz, f_m = 400 Hz, Modulation Index = 0.3, V_{IN} = 1 mV	40	50	—	dB
Deviation Sensitivity	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz, V_I = 1 mV, R_X = 0, Deviation necessary to obtain 4 Vrms across 16 Ω (1 W)	—	5	—	kHz
Minimum Audio Output	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz, V_I = 1 mV, R_X = 15 kΩ	—	—	10	mVrms
Distortion at P_O = 1.5 W	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz, V_{IN} = 1 mV	—	—	3	%
Signal to Noise Ratio	V_{out} at Δf = 0 with R_X adjusted for V_{out} = 4 Vrms at Δf = ± 25 kHz	50	—	—	dB

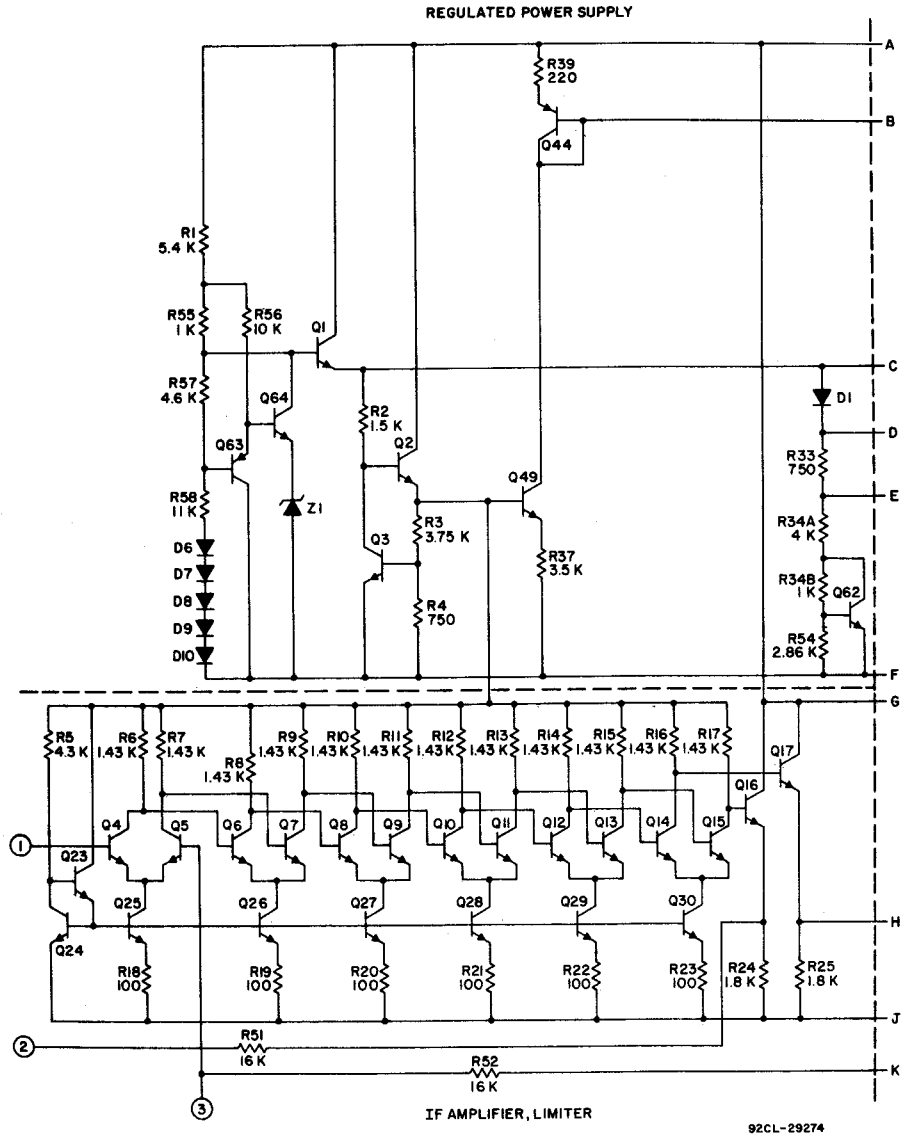


Fig. 2 - CA1190Q (cont'd on next page).

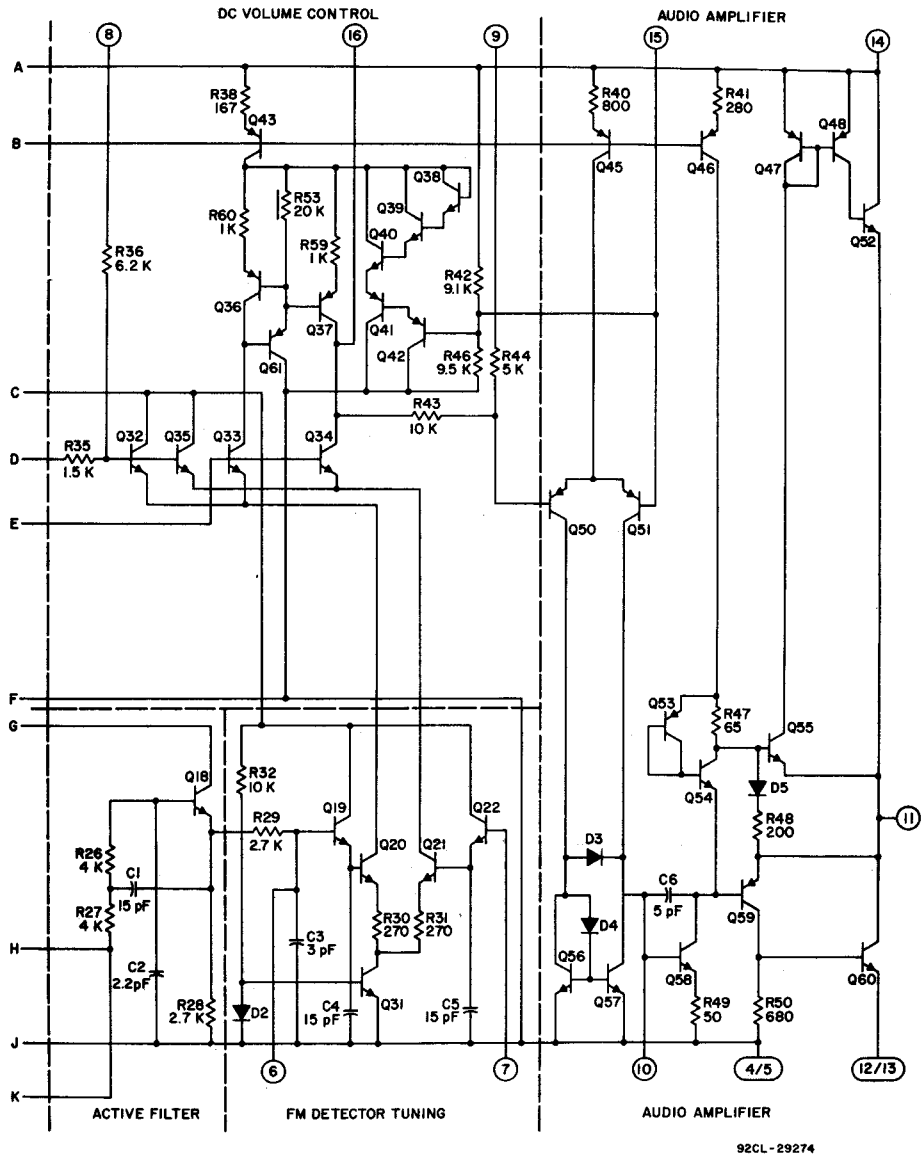


Fig. 2 - CA1190Q (cont'd from previous page).

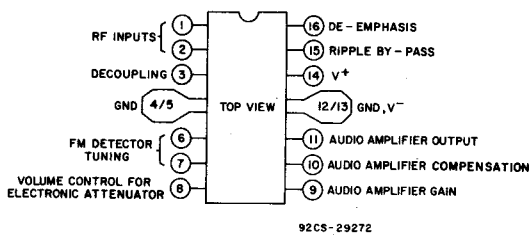
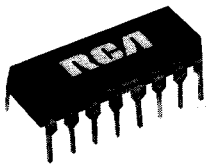


Fig. 3 - Terminal diagram.

CA1191



H-1918

16-Lead Dual-In-Line Webbed Plastic Package

TV Sound IF and Audio Output Subsystems

Features:

- *Nominal power output: 4 W at V + = 24 V, R_L = 16 Ω, dist. = 10%, 2 W at V + = 12 V, R_L = 8 Ω dist. = 10%*
- *Wide power-supply range: 9 to 28 V*
- *Low quiescent current: 25 mA typ.*
- *5-kHz deviation sensitivity: 1 W output typ.*
- *3-dB limiting sensitivity: 50 μV typ.*
- *Excellent AM rejection: 50 dB typ.*
- *Differential peak detector – requires one tuned coil*
- *Electronic volume control with improved taper and single wire control*

The RCA-CA1191E* combines sound IF and audio output subsystems on a single monolithic integrated circuit to provide a television sound system. Each device includes a multi-stage IF amplifier-limiter, an FM detector, and an audio power amplifier that is designed to drive, primarily, an 8-, 16, or 32 ohm speaker.

The CA1191E is electrically and mechanically equivalent to industry type TDA 3190.

*Formerly RCA Dev. No. TA11029

The CA1191E differs from the TDA3190 in that it includes provisions for a lower value volume control.

The CA1191E is supplied in the dual-in-line 16 lead plastic package with webbed-lead construction for improved dissipation and allows the use of a standard IC socket or printed circuit board layout.

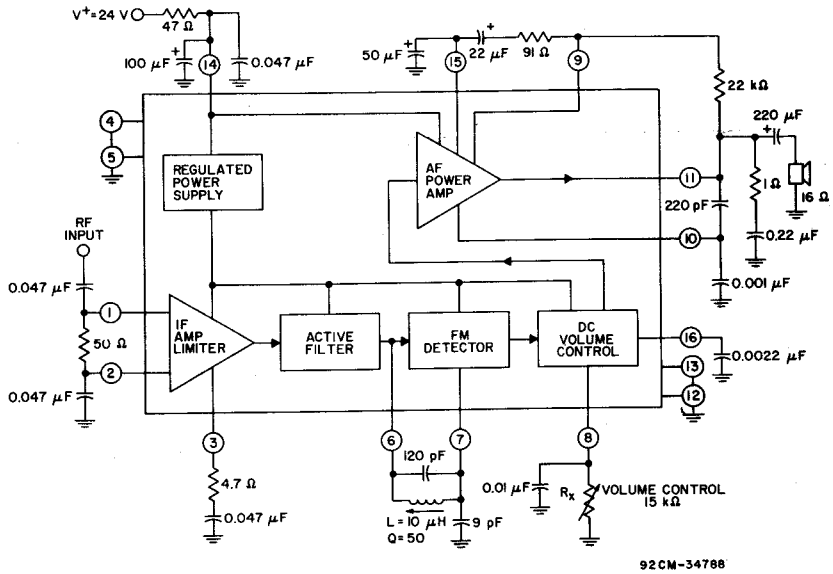


Fig. 1 — Block diagram of the CA1191E in a typical application.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

DC SUPPLY VOLTAGE (Between Term. 14 V^+ and ground tabs)	+28	V
OUTPUT PEAK CURRENT:		
Repetitive	1.5	A
Non-repetitive	2	A
INPUT SIGNAL VOLTAGE (Between Terms. 1 and 2)	±3	V
DEVICE DISSIPATION:		
With Infinite Heat Sink —		
Up to T_A = 90°C	4.3	W
Above T_A = 90°C, derate linearly	71.7	mW/°C
With No Heat Sink — (free air) —		
Up to T_A = 25°C	1.6	W
Above T_A = 25°C, derate linearly	12.8	mW/°C
THERMAL RESISTANCE:		
Junction to ground pins	14	°C/W
Junction to ambient	80	°C/W
AMBIENT TEMPERATURE RANGE:		
Operating	−40 to +85	°C
Storage	−65 to +150	°C
LEAD TEMPERATURE (During Soldering):		
At a distance 1/16 in. ± 1/32 in. (1.59 ± 0.79 mm) from case for 10 seconds max.	+265	°C

ELECTRICAL CHARACTERISTICS *at T_A = 25°C, V^+ = 24 V, DC Volume Control Rx = 0 Ω, R_L = 16 Ω unless otherwise indicated. Refer to Fig. 1.*

CHARACTERISTIC	TEST CONDITIONS	LIMITS			UNITS
		MIN.	TYP.	MAX.	
Static Characteristics					
Current into Term. 14	P_o = 0	10	25	40	mA
Dynamic Characteristics					
IF Amplifier: Input Limiting Voltage, (At −3 dB point), V_I (lim)	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz	—	50	100	μV
AM Rejection, AMR	f_o = 4.5 MHz, f_m = 400 Hz, Modulation Index = 0.3, V_{IN} = 1 mV	40	50	—	dB
Deviation Sensitivity	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz, V_I = 1 mV, Rx = 0, Deviation necessary to obtain 4 Vrms across 16 Ω (1 W)	—	5	—	kHz
Minimum Audio Output	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz, V_I = 1 mV, Rx = 15 kΩ	—	—	10	mVrms
Distortion at P_o = 1.5 W	f_o = 4.5 MHz, f_m = 400 Hz, Δf = ± 25 kHz, V_{IN} = 1 mV	—	—	3	%
Signal to Noise Ratio	V_{out} at Δf = 0 with Rx adjusted for V_{out} = 4 Vrms at Δf = ± 25 kHz	50	—	—	dB

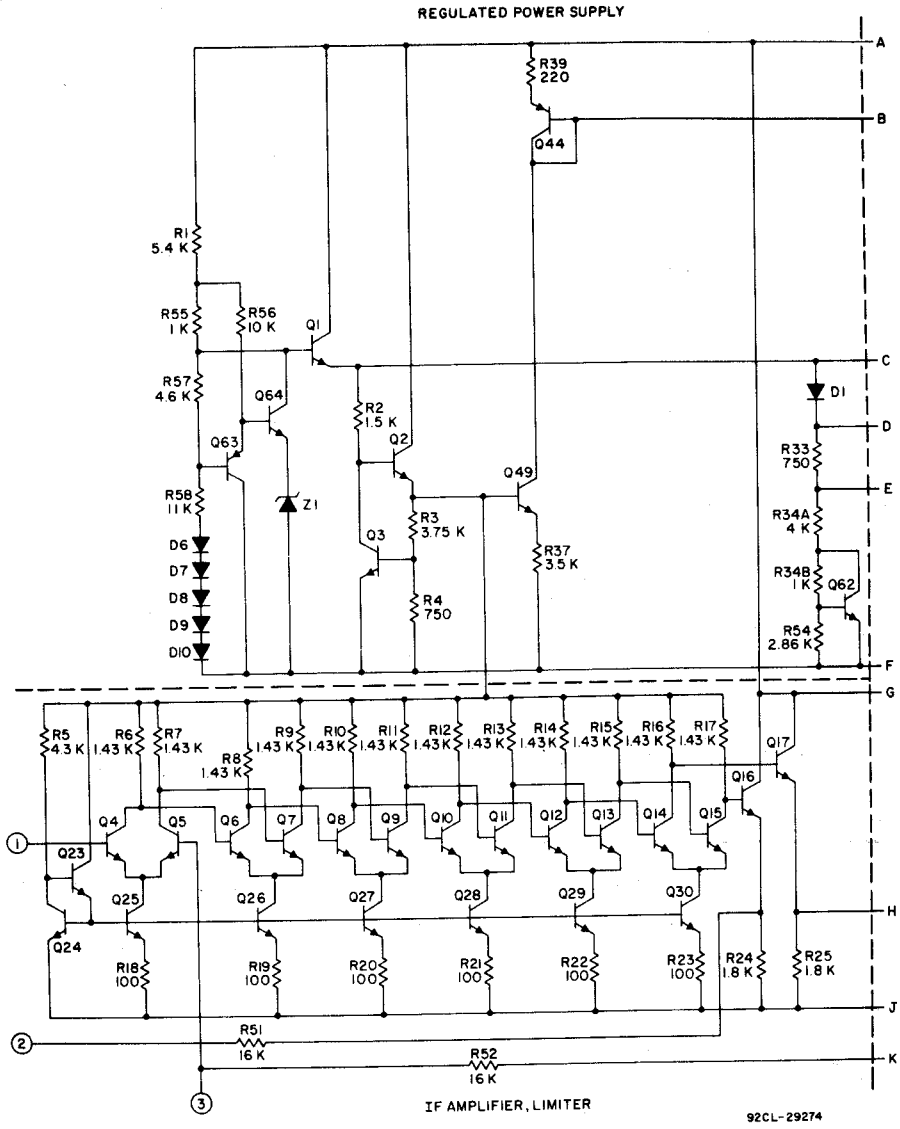
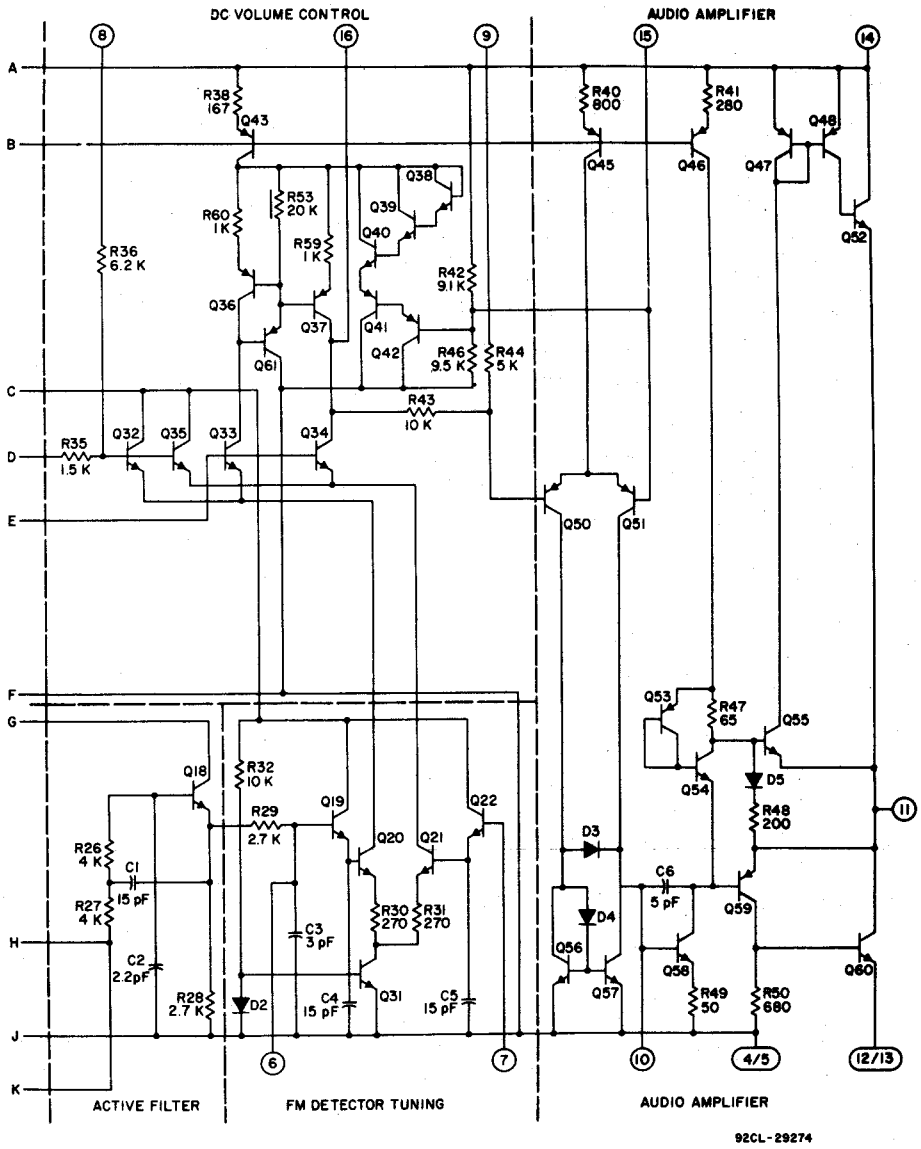


Fig. 2 — CA1191E Schematic diagram.



CA1191E Schematic diagram (con't.)