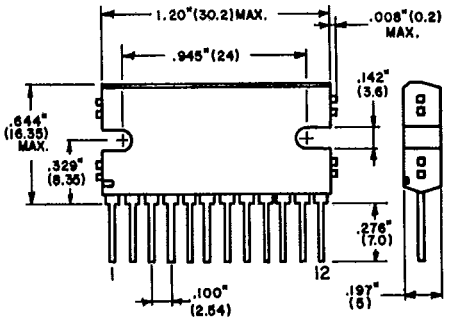
ECG® Semiconductors

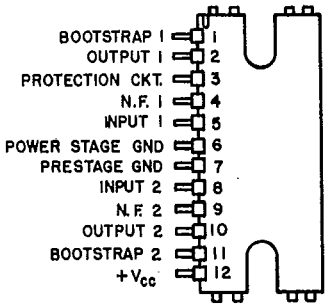
ECG1394

Dual 5.5 W AF PO
17 W BTL

Features

- Dual mode or bridge connection mode type
- Protection circuits included: Thermal protection, over voltage protection, current limiter, BTL DC short protection
- Operating voltage range: $V_{CC\ (opr)}$ = 8 to 18 V
- The ECG1394 obtains high output power by bridge connection: P_{OUT} = 17 W typ at V_{CC} = 13.2 V, R_L = 4 Ω, THD = 10%
- Dual mode: minimum load impedance is 2 Ω
- BTL mode: minimum load impedance is 4 Ω





Maximum Ratings (T_A = 25°C)

Characteristic	Symbol	Rating	Unit
Peak Supply Voltage	$V_{cc\ Surge}$	45	V
DC Supply Voltage	$V_{cc\ DC}$	25	V
Operating Supply Voltage	$V_{cc\ opr}$	18	V
Output Current (Peak)	$I_{o\ (peak)}$	4.5	A
Power Dissipation	P_D	25	W
Operating Temperature	T_{opr}	−30 to 75	°C
Storage Temperature	T_{stg}	−55 to 150	°C

Note: Less than 2 Ω (dual mode) or 4 Ω (BTL mode) load impedance is not recommended.

T-74-05-01

Electrical Characteristics (T_A=25°C, V_{CC}=13.2 V, R_L=4 Ω, R_g=600 Ω, f=1 kHz unless otherwise specified)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Quiescent Current	I_{CCO}		--	85	200	mA
Output Power	P_{OUT}	THD=10% Dual	4.5	5.5	--	W
		BTL	14	17.0	--	
Output Power	P_{O2}	THD=10%, R_L=2 Ω Dual	--	8.0	--	W
Maximum Output Power	P_{OM}	V_{IN}=100 mV_{rms} Dual	--	9.0	--	W
		BTL	--	30	--	
Total Harmonic Distortion	THD	P_{OUT}=1 W Dual	--	0.2	1.5	%
		BTL	--	0.3	1.5	
Voltage Gain	G_V	V_{OUT}=0 dBm (Note 1)	52.5	54.0	55.5	dB
Channel Balance	ΔG_V	V_{OUT}=0 dBm	--	0	±1.0	dB
Channel Separation	CT	V_{OUT}=0 dBm	--	−45	--	dB
Ripple Rejection	RR	f=100 Hz Dual	--	−20	--	dB
		BTL	--	−29	--	
Input Resistance	R_{IN}		20	35	50	kΩ
Output Noise Voltage	V_{NO}	R_g=10 kΩ, BW=50 to 20 kHz	--	1.0	2.0	mV_{rms}

Note 1: Voltage gain G_V is fixed by internal resistance and the typical voltage gain is 54 dB. If a lower voltage gain than 54 dB is needed, connect resistance R (*) which is shown on Figure 1 or Figure 2. To insure stability the minimum voltage gain G_V is 40 dB.

Test Circuits

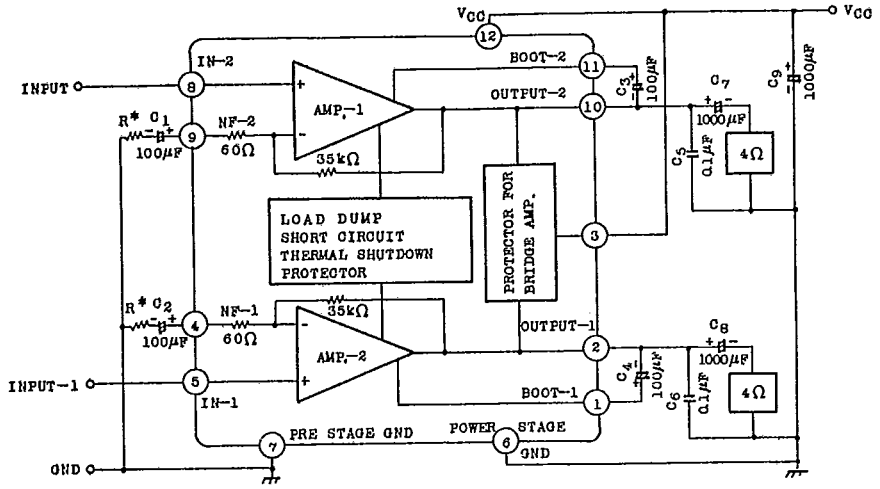


Figure 1. Dual Mode

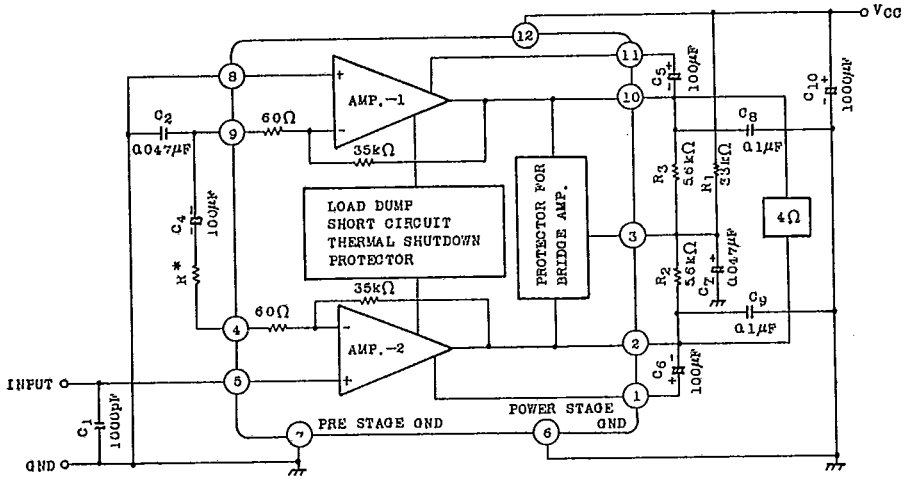


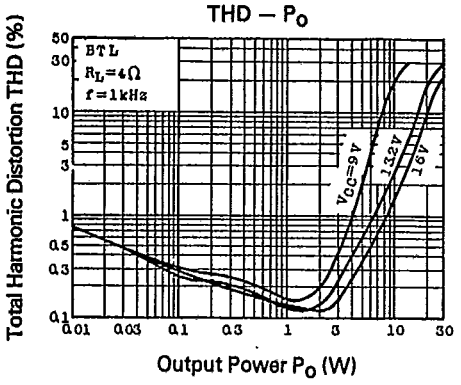
Figure 2. BTL Connection Mode

Notes:

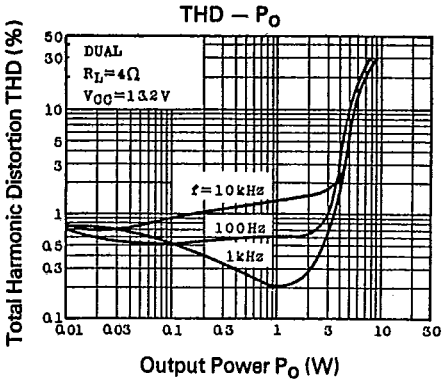
1. Pin 6 and Pin 7 must be directly connected to GND pattern.
2. For BTL connection, Pin 5 is the input terminal and Pin 8 is GND level.
3. Use capacitor values of .1 μF or larger for C5 and C6 (Dual mode) or C8 and C9 (BTL mode).
4. Do not short output pins (Pin 2 and Pin 10) to the GND directly, this can cause damage.

Typical Characteristics

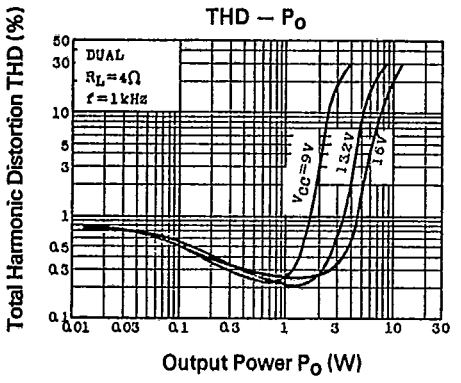
THD — P_O



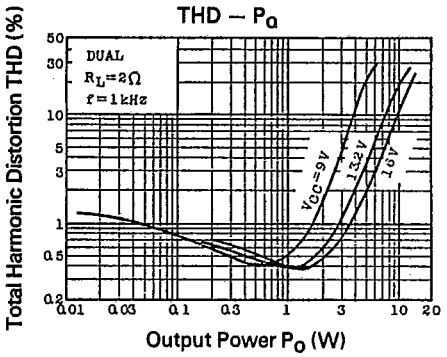
THD — P_O



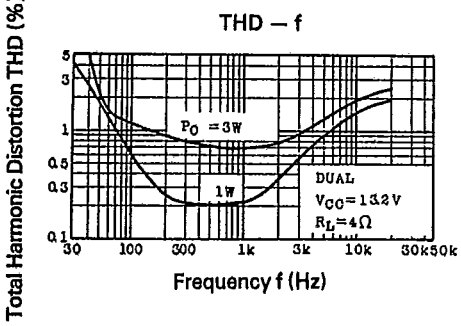
THD — P_O



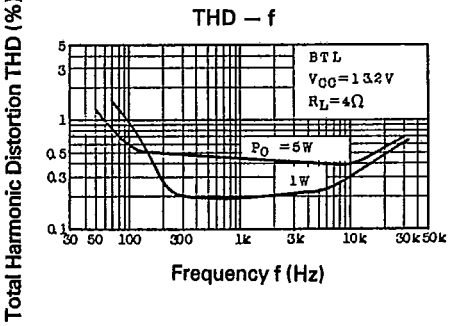
THD — P_O



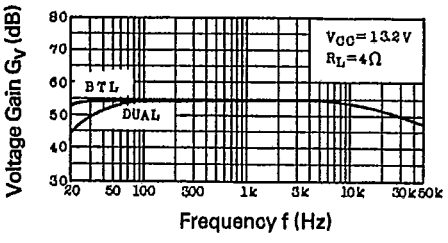
THD — f



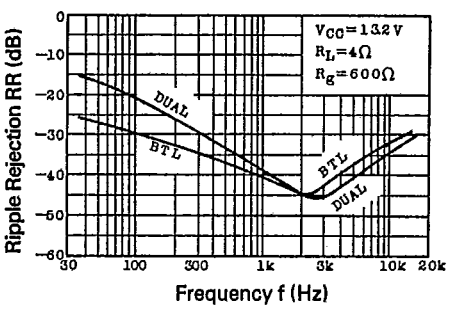
THD — f



G_V — f

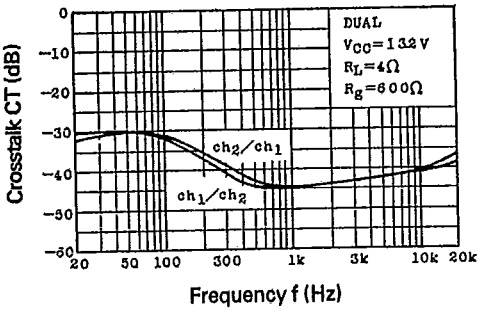


RR — f

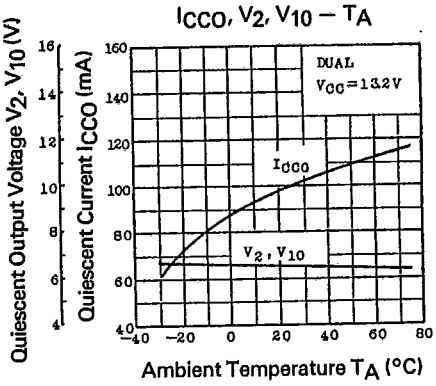


Typical Characteristics (Cont.)

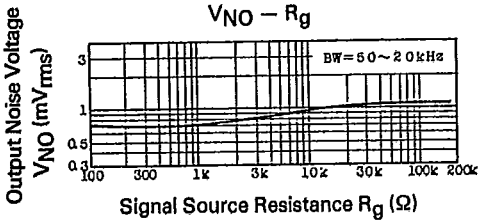
CT – f



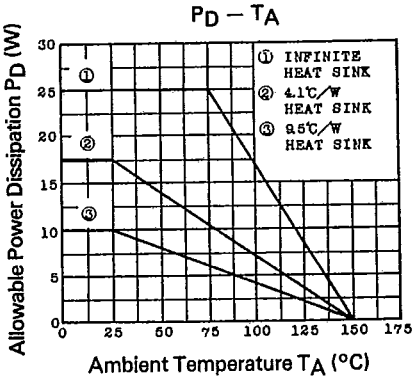
I_{CCO}, V_2, V_{10} – T_A



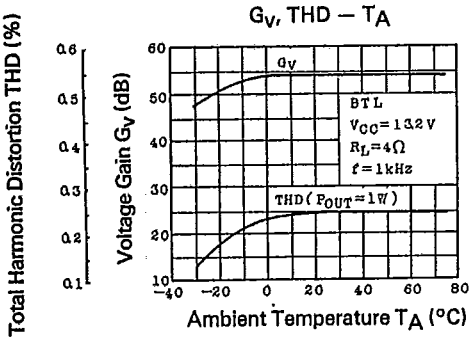
V_{NO} – R_g



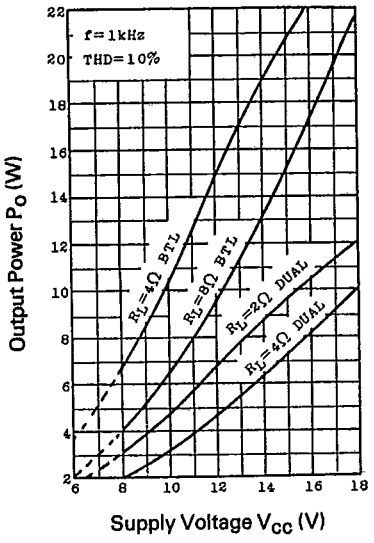
P_D – T_A



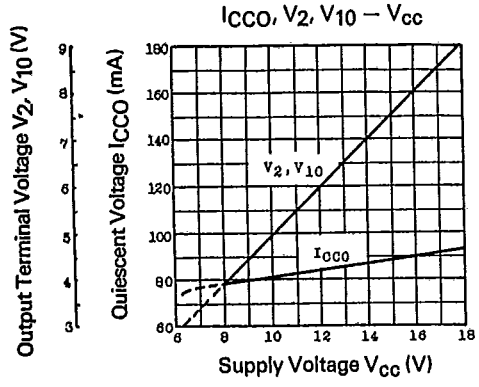
G_V, THD – T_A



P_O – V_{CC}

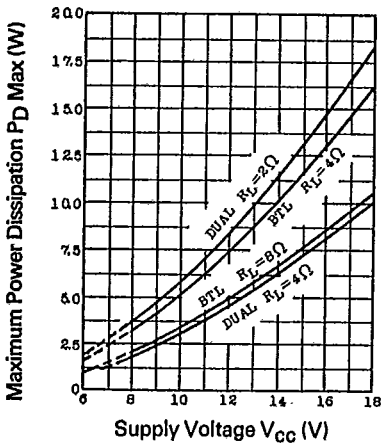


I_{CCO}, V_2, V_{10} – V_{CC}

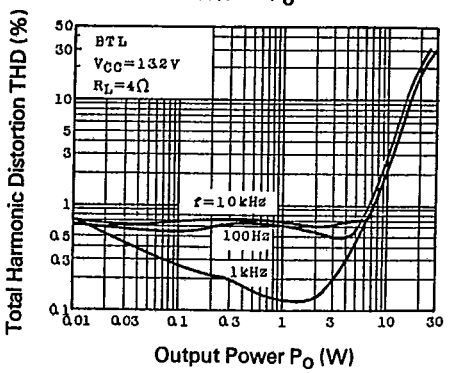


Typical Characteristics (Cont.)

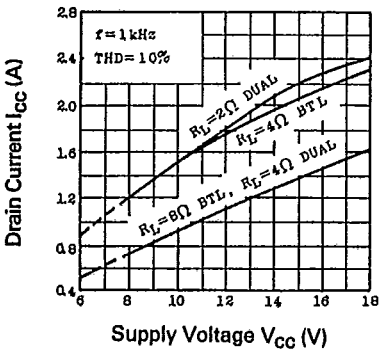
P_D Max – V_{CC}



THD – P_O



I_{CC} – V_{CC}



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