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NTE7169
Integrated Circuit
Audio Power Amplifier, 32W

Description:

The NTE7169 is a monolithic integrated circuit in a 5-Lead TO220 type package intended for use as an audio class AB audio amplifier. Thanks to its high power capability, the NTE7169 is able to provide up to 35W true RMS power into a 4Ω load (THD = 10%, V_S = ±18V, f = 1kHz) and up to 32W into an 8Ω load (THD = 10%, V_S = ±22V, f = 1kHz). Moreover, the NTE7169 delivers typically 50W music power into a 4Ω load over 1sec at V_S = 22.5V, f = 1kHz. The high power and very low harmonic and crossover distortion (THD = 0.05% Typ., @ V_S = ±22V, P_O = 0.1 to 15W, R_L = 8Ω, f = 100Hz to 15kHz) make the device most suitable for both HiFi and high class TV sets.

Features:

- High Output Power (50W Music Power IEC 268.3 Rules)
- High Operating Supply Voltage
- Single or Split Supply Operations
- Very Low Distortion
- Short Circuit Protection (OUT-TO-GND)
- Thermal Shutdown

Absolute Maximum Ratings:

Supply Voltage, V_S . . . . . ±25V
Input Voltage, V_i . . . . . V_S
Differential Input Voltage, V_i . . . . . ±15V
Output Peak Current (Internally Limited), I_O 5A
Power Dissipation (T_C = +75°C), P_{tot} 25W
Operating Junction Temperature Range, T_J . . . . . -40° to +150°C
Storage Temperature Range, T_{stg} . . . . . -40° to +150°C
Maximum Thermal Resistance, Junction-to-Case, R_{thJC} . . . . . 3°C/W

Electrical Characteristics: (V_S = ±18V, T_A = +25°C, f = 1kHz unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Supply Voltage Range	V_S			±4.5	-	±25	V
Quiescent Drain Current	I_d	V_S = ±4.5V		-	30	50	mA
		V_S = ±25V		-	55	90	mA
Input Bias Current	I_D	V_S = ±22V		-	0.1	0.5	µA
Input Offset Voltage	V_{OS}	V_S = ±22V		-	-	±15	mV
Input Offset Current	I_{OS}	V_S = ±22V		-	-	±200	nA
RMS Output Power	P_O	d = 0.5%	R_L = 4Ω	24	28	-	W
			R_L = 8Ω	-	18	-	W
			V_S = ±22V, R_L = 8Ω	22	25	-	W
		d = 10%	R_L = 4Ω	-	35	-	V
			R_L = 8Ω	-	22	-	W
			V_S = ±22V, R_L = 8Ω	-	32	-	W
Music Power IEC268.3		d = 10%, T = 1s, V_S = ±22.5V, R_L = 4Ω		-	50	-	W
Total Harmonic Distortion	d	R_L = 4Ω	P_O = 0.1 to 24W, f = 1kHz	-	0.03	0.5	%
			P_O = 0.1 to 18W, f = 100Hz to 10kHz	-	-	0.5	%
		V_S = ±22V, R_L = 8Ω	P_O = 0.1 to 20W, f = 1kHz	-	0.02	-	%
			P_O = 0.1 to15W, f = 100Hz to 10kHz	-	-	0.1	%
Slew Rate	SR			5	8	-	V/µs
Open Loop Voltage Gain	G_V			-	80	-	dB
Closed Loop Voltage Gain	G_V			30.0	30.5	31.0	dB
Power Bandwidth (-3dB)	BW	R_L = 4Ω, V_i = 2000mV		20 to 80,000			Hz
Total Input Noise	e_N	A = Curve		-	4	-	µV
		f = 22Hz to 22kHz		-	5	10	µV
Input Resistance (Pin1)	R_i			500	-	-	kΩ
Supply Voltage Rejection	SVR	R_s = 22kΩ, f = 100Hz, V_{ripple} = 0.5V_{rms}		-	45	-	dB
Efficiency	η	P_O = 28W, R_L = 4Ω		-	65	-	%
		P_O = 25W, R_L = 8Ω, V_S = ±22V		-	67	-	%
Thermal Shutdown	T_S			-	150	-	°C

Pin Connection Diagram
(Front View)