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NTE7186 **Integrated Circuit** **DMOS Audio Amplifier, 100W** **with Mute/Stand-By**

Description:

The NTE7186 is a monolithic integrated circuit in a 15-Lead Staggered SIP type package, intended for use as audio class AB amplifier in Hi-Fi field applications (Home Stereo, self powered loudspeakers, Top class TV). Thanks to a wide voltage range and to the high out current capability it is able to supply the highest power into both 4Ω and 8Ω loads. The built in muting function with turn on delay simplifies the remote operation avoiding switching on-off noises.

Features:

- Very High Operating Voltage Range ($\pm 50V$)
- DMOS Power Stage
- High Output Power (100W @ THD = 10%, $R_L = 8\Omega$, $V_S = \pm 40$)
- Muting/Stand-By Functions
- No Switch ON/OFF Noise
- Very Low Distortion
- Very Low Noise
- Short Circuit Protection
- Thermal Shutdown
- Clip Detector

Absolute Maximum Ratings:

Supply Voltage (No Signal), V_S	$\pm 60V$
$V_{\text{STAND-BY}}$ GND Voltage Referred to $-V_S$ (Pin8), V_1	90V
Input Voltage (Inverting) Referred to $-V_S$, V_2	90V
Maximum Differential Inputs, $V_2 - V_3$	$\pm 30V$
Input Voltage (Non-Inverting) Referred to $-V_S$, V_3	90V
Signal GND Voltage Referred to $-V_S$, V_4	90V
Clip Detector Voltage Referred to $-V_S$, V_5	120V
Bootstrap Voltage Referred to $-V_S$, V_6	120V
Stand-by Voltage Referred to $-V_S$, V_9	120V
Mute Voltage Referred to $-V_S$, V_{10}	120V
Buffer Voltage Referred to $-V_S$, V_{11}	120V
Bootstrap Loader Voltage Referred to $-V_S$, V_{12}	100V
Output Peak Current, I_o	10A
Power Dissipation ($T_C = +70^\circ C$), P_{tot}	50W
Operating Ambient Temperature Range, T_{op}	0° to $+70^\circ C$
Storage and Junction Temperature, T_{stg} , T_j	$+150^\circ C$
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	$1.5^\circ C/W$

Electrical Characteristics: ($V_S = \pm 40$, $R_L = 8\Omega$, $R_g = 50\Omega$; $T_A = +25^\circ\text{C}$, $f = 1\text{kHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Supply Range (No Signal)	V _S			±12	–	±50	V
Quiescent Current	I _q			–	30	–	mA
Input Bias Current	I _D			–	0.3	1	μA
Input Offset Voltage	V _{OS}			–10	–	10	mV
Input Offset Current	I _{OS}			–	–	0.2	μA
RMS Continuous Output Power	P _O	d = 1%	R _L = 4Ω, V _S = ±29V	–	80	–	W
		d = 10%		–	100	–	W
Total Harmonic Distortion	d	P _O = 5W, f = 1kHz		–	0.005	–	%
		P _O = 0.1 to 50W, f = 20Hz to 15kHz		–	–	0.1	%
Current Limiter Threshold	I _{SC}			–	6.5	–	A
Slew Rate	SR			–	15	–	V/μs
Open Loop Voltage Gain	G _V			–	80	–	dB
Closed Loop Voltage Gain (Note 1)	G _V			–	30	–	dB
Total Input Noise	e _N	A = Curve		–	1	–	μV
		f = 20Hz to 20kHz		–	2	5	μV
Input Resistance	R _i			100	–	–	kΩ
Supply Voltage Rejection	SVR	f = 100Hz, V _{ripple} = 0.5V _{rms}		–	75	–	dB
Thermal Protection	T _S	Device Muted		–	150	–	°C
		Device Shut Down		–	160	–	°C
Stand-By Function (Ref: to Pin1)							
Stand-By ON Threshold	V _{STon}			–	–	1.5	V
Stand-By OFF Threshold	V _{SToff}			3.5	–	–	V
Stand-By Attenuation	ATT _{st-by}			70	90	–	dB
Quiescent Current at Stand-By	I _{q st-by}			–	0.5	–	mA
Mute Function (Ref: to Pin 1)							
Mute ON Threshold	V _{Mon}			–	–	1.5	V
Mute OFF Threshold	V _{Moff}			3.5	–	–	V
Mute Attenuation	ATT _{mute}			60	80	–	dB
Clip Detector							
Duty Cycle	Duty	THD = 1%	R _L = 10KΩ to 5V	–	10	–	%
		THD = 10%		–	40	–	%
	I _{CLEAK}	P _O = 50W		–	–	1	μA
Slave Function Pin 4 (Ref: to Pin 8 –V _S)							
Slave Threshold	V _{Slave}			–	–	1	V
Master Threshold	V _{Master}			3	–	–	V

Note 1. $G_{Vmin} \geq 26\text{dB}$.

Pin Connection Diagram

(Front View)

15	(-)V _S (Power)
14	Out
13	(+) V _S (Power)
12	Bootstrap Loader
11	Buffer Driver
10	Mute
9	Stand-By
8	(-)V _S (Signal)
7	(+)V _S (Signal)
6	Bootstrap
5	Clip and Short Circuit Detector
4	Signal Ground
3	Non-Inverting Input
2	Inverting Input
1	Stand-By GND

