

NTE7165 Integrated Circuit DMOS Audio Amplifier, 100W, for Self-Powered Loudspeakers

Description:

The NTE7165 is a monolithic integrated circuit in a 15-Lead Staggered SIP type package designed for use as an audio class AB amplifier in Hi-Fi field applications (Home Stereo, self-powered loudspeakers, Top-Class TV). Thanks to the wide voltage range and to the high output current capability it is able to supply the highest power into both 4Ω and 8Ω loads even in the presence of poor supply regulation, with high Supply Voltage Rejection. The built-in muting function with turn-on delay simplifies the remote operation avoiding switching ON/OFF noises.

Features:

- Very High Operating Voltage Range
- DMOS Power Stage
- High Output Power (Up To 100W Music Power)
- Muting/Stand-By Functions
- No Switch ON/OFF Noise
- No Boucherot Cells
- Very Low Distortion
- Very Low Noise
- Short Circuit Protection
- Thermal Shutdown

Absolute Maximum Ratings:

Supply Voltage (No Signal), V_S	±50V
Output Peak Current, I_O	10A
Total Power Dissipation ($T_C = +70^\circ\text{C}$), P_{tot}	50W
Maximum Operating Junction Temperature, T_J	+150°C
Operating Ambient Temperature Range, T_A	0° to +70°C
Maximum Storage Temperature, T_{stg}	+150°C
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	1.5°C/W

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_S = \pm 35\text{V}$, $R_L = 8\Omega$, $G_V = 30\text{dB}$, $R_g = 50\Omega$, $f = 1\text{kHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Supply Range	V _S			±10	-	±40	V
Quiescent Current	I _q			20	30	60	mA
Input Bias Current	I _D			-	-	500	nA
Input Offset Voltage	V _{OS}			-	-	±10	mV
Input Offset Current	I _{OS}			-	-	±100	nA
RMS Continuous Output Power	P _O	d = 0.5%	V _S = ±35V, R _L = 8Ω	60	70	-	W
			V _S = ±31V, R _L = 6Ω	60	70	-	W
			V _S = ±27V, R _L = 4Ω	60	70	-	W
Music Power (RMS), Note 1 IEC268.3 Rules - Δt = 1s		d = 10%	V _S = ±38V, R _L = 8Ω	-	100	-	V
			V _S = ±33V, R _L = 6Ω	-	100	-	W
			V _S = ±29V, R _L = 4Ω, Note 2	-	100	-	W
Total Harmonic Distortion	d	P _O = 5W, f = 1kHz		-	0.005	-	%
		P _O = 0.1 to 50W, f = 20Hz to 20kHz		-	-	0.1	%
		V _S = ±27V, R _L = 4Ω	P _O = 5W, f = 1kHz	-	0.01	-	%
			P _O = 0.1 to 50W, f = 20Hz to 20kHz	-	-	0.1	%
Slew Rate	SR			7	10	-	V/μs
Open Loop Voltage Gain	G _V			-	80	-	dB
Closed Loop Voltage Gain	G _V			24	30	40	dB
Total Input Noise	e _N	A = Curve		-	1	-	μV
		f = 20Hz to 20kHz		-	2	5	μV
Frequency Response (- 3dB)	f _L , f _H	P _O = 1W		20Hz to 20kHz			
Input Resistance	R _i			100	-	-	kΩ
Supply Voltage Rejection	SVR	f = 100Hz, V _{ripple} = 0.5V _{rms}		60	75	-	dB
Thermal Shutdown	T _S			-	145	-	°C
Stand-By Function (Ref: -V _S or GND)							
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}			-	1	3	mA
Mute Function (Ref: -V _S or GND)							
Mute ON Threshold	V _{Mon}			-	-	1.5	V
Mute OFF Threshold	V _{Moff}			3.5	-	-	V
Mute Attenuation	ATT _{mute}			60	80	-	dB

Note 1. Music Power is the maximum power which the amplifier is capable of producing across the rated load resistance (regardless of non linearity) 1sec after the application of a sinusoidal input signal of frequency 1kHz.

Note 2. Limited by the maximum allowable current.

Pin Connection Diagram
(Front View)

15	(-)V _S (Power)
14	Output
13	(+) V _S (Power)
12	N.C.
11	N.C.
10	Mute
9	Stand - By
8	(-)V _S (Signal)
7	(+)V _S (Signal)
6	Bootstrap
5	N.C.
4	SVR
3	Non-Inverting Input
2	Inverting Input
1	Stand - By GND

