ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089
http://www.nteinc.com

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°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

Rev. 4–12

Electrical Characteristics: (T_A = +25°C, V_S = ±35V, R_L = 8Ω, G_V = 30dB, R_g = 50Ω, f = 1kHz 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)