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NTE1378
Integrated Circuit
Audio Power Amplifier, 10W

Description:

The NTE1378 is a monolithic integrated circuit in a 5–Lead TO220 type package intended for use as an audio class AB amplifier. Typically, it provides 12W output power (THD = 10%) at V_S = ±12V/4Ω. This device provides high output current and has very low harmonic and cross–over distortion. Further, the NTE1378 incorporates a short circuit protection system comprising an arrangement for automatically limiting the dissipated power so as to keep the working point of the output transistors within their safe operating area. A thermal shut–down system is also included.

Absolute Maximum Ratings:

Supply Voltage, V_S . . . . . ±15V
Input Voltage, V_I . . . . . V_S
Differential Input Voltage, V_I . . . . . ±12V
Output Peak Current (Internally Limited), I_O 3A
Power Dissipation (T_C = +90°C), P_{tot} 20W
Operating Junction Temperature Range, T_J . . . . . –40° to +150°C
Storage Temperature Range, T_{stg} . . . . . –40° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 3°C/W
Min. Thermal Shut–Down Junction Temperature (V_S = ±12V, P_{tot} = 9W, T_A = +25°C), T_{sd} . +110°C

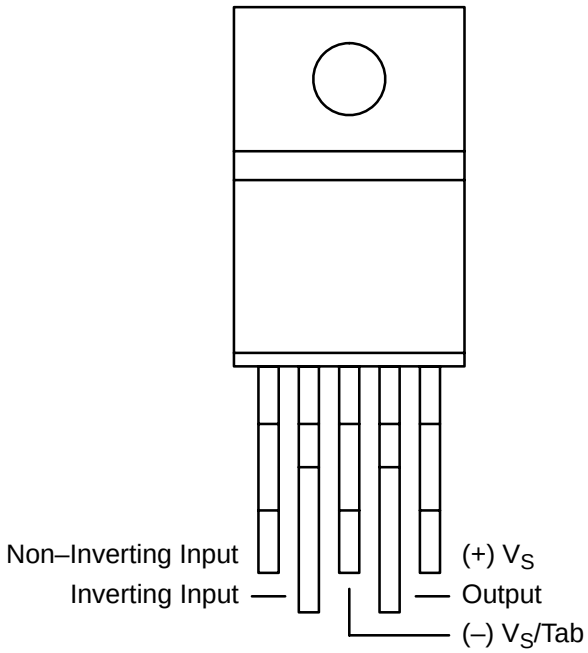
Electrical Characteristics: (V_S = ±12V, T_A = +25°C unless otherwise specified)

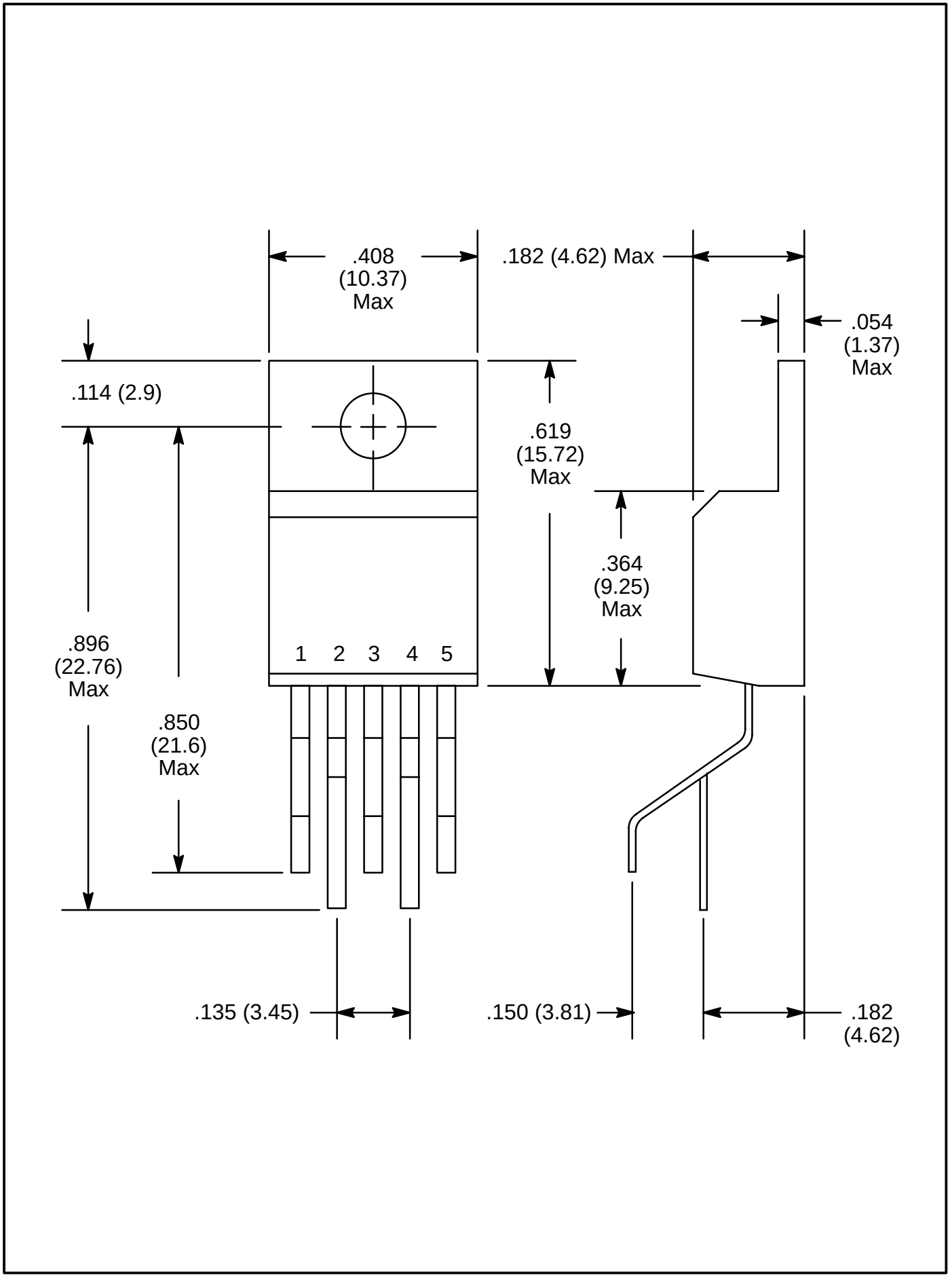
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_S		±6	–	±15	V
Quiescent Drain Current	I_d	V_S = ±15V	–	40	80	mA
Input Bias Current	I_b	V_S = ±15V	–	0.2	3.0	µA
Input Offset Voltage	V_{OS}	V_S = ±15V	–	±8	–	mV
Input Offset Current	I_{OS}	V_S = ±15V	–	±80	–	nA
Output Offset Voltage	V_{OS}	V_S = ±15V	–	±10	±100	mV
Output Power	P_O	THD = 10%, f = 1kHz, R_L = 4Ω	–	12	–	W
		THD = 10%, f = 1kHz, R_L = 8Ω	6	8	–	W

Electrical Characteristics (Cont'd): (V_S = ±12V, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Frequency Response (–3dB)	B	P_O = 8W, R_L = 4Ω	10 to 140,000			Hz
Input Sensitivity	V_i	f = 1kHz, P_O = 10W, R_L = 4Ω	–	200	–	mV
		f = 1kHz, P_O = 6W, R_L = 8Ω	–	220	–	mV
Voltage Gain	G_V	f = 1kHz, Open Loop	–	75	–	dB
		f = 1kHz, Closed Loop	29.5	30.0	30.5	dB
Total Harmonic Distortion	THD	P_O = 0.1 to 8W, R_L = 4Ω, f = 1kHz	–	0.2	–	%
		P_O = 0.1 to 4W, R_L = 8Ω, f = 1kHz	–	0.1	1.0	%
Input Noise Voltage	e_N	B = 22Hz to 22kHz, R_L = 4Ω	–	3	10	μV
Input Noise Current	I_N	B = 22Hz to 22kHz, R_L = 4Ω	–	80	200	pA
Input Resistance (Pin1)	R_I	f = 1kHz	0.5	5.0	–	MΩ
Supply Voltage Rejection	SVR	R_L = 4Ω, R_g = 22kΩ, f_{ripple} = 100Hz	40	50	–	dB
Drain Current	I_d	P_O = 12W, R_L = 4Ω	–	850	–	mA
		P_O = 8W, R_L = 8Ω	–	500	–	mA

Pin Connection Diagram
(Front View)




.408
(10.37)
Max
.182 (4.62) Max
.054
(1.37)
Max
.114 (2.9)
.619
(15.72)
Max
.364
(9.25)
Max
.896
(22.76)
Max
.850
(21.6)
Max
1 2 3 4 5
.135 (3.45)
.150 (3.81)
.182
(4.62)