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NTE1288 Integrated Circuit Audio Power Amplifier, 10W for Car Radio

Description:

The NTE1288 has improved performance with the same pin configuration as the NTE1232. The additional features of the NTE1232; very low number of external components, ease of assembly, space and cost saving, are maintained. The device provides a high output current capability (up to 3.5A), very low harmonic and cross distortion.

Complete safe operation is guaranteed due to protection against DC and AC short-circuit between all pins and GND, thermal over-range, load dump voltage surge up to 40V, polarity inversion and fortuitous open ground.

Absolute Maximum Ratings:

Peak Supply Voltage (50ms), V_{CC}	40V
DC Supply Voltage, V_{CC}	28V
Operating Supply Voltage, V_{CC}	18V
Output Peak Current, I_O	
Repetitive	3.5A
Non-Repetitive	4.5A
Power Dissipation ($T_C = +90^\circ C$), 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

Static Characteristics: ($T_A = +25^\circ C$, $V_{CC} = 14.4V$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	8	-	18	V
Quiescent Output Voltage	Pin4 V_O	6.1	6.9	7.7	V
Quiescent Drain Current	Pin5 I_{CC}	-	44	50	mA

Dynamic Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 14.4\text{V}$, $A_V = 40\text{dB}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Power	P_O	$d = 10\%$, $f = 1\text{kHz}$	$R_L = 4\Omega$	5.5	6.0	-	W
			$R_L = 2\Omega$	9	10	-	W
			$R_L = 3.2\Omega$	-	7.5	-	W
			$R_L = 1.6\Omega$	-	12	-	W
Input Saturation Voltage	V_I		300	-	-	mV	
Input Sensitivity	S	$f = 1\text{kHz}$, $P_O = 500\text{mW}$, $R_L = 4\Omega$	-	14	-	mV	
		$P_O = 6\text{W}$, $R_L = 4\Omega$	-	55	-	mV	
		$P_O = 500\text{mW}$, $R_L = 2\Omega$	-	10	-	mV	
		$P_O = 10\text{W}$, $R_L = 2\Omega$	-	50	-	mV	
Bandwidth (-3dB)	B	$P_O = 1\text{W}$, $R_L = 4\Omega$	40 to 15,000			Hz	
Harmonic Distortion	d	$50\text{mW} \leq P_O \leq 4.5\text{W}$, $R_L = 4\Omega$, $f = 1\text{kHz}$	-	0.15	-	%	
		$50\text{mW} \leq P_O \leq 7.5\text{W}$, $R_L = 2\Omega$, $f = 1\text{kHz}$	-	0.15	-	%	
Input Resistance (Pin1)	R_I	$f = 1\text{kHz}$	70	150	-	k Ω	
Voltage Gain Open Loop	A_V	$R_L = 4\Omega$, $f = 1\text{kHz}$	-	80	-	dB	
			Closed Loop	39.5	40.0	40.5	dB
Input Noise Voltage	V_n	B (-3dB) = 10Hz to 25kHz, B (-20dB) = 4Hz to 27kHz	-	1	5	μV	
Input Noise Current	i_n	B (-3dB) = 10Hz to 25kHz, B (-20dB) = 4Hz to 27kHz	-	60	200	pA	
Efficiency	η	$f = 1\text{kHz}$, $P_O = 6\text{W}$, $R_L = 4\Omega$	-	69	-	%	
		$P_O = 10\text{W}$, $R_L = 2\Omega$	-	65	-	%	
Supply Voltage Rejection	SVR	$f = 100\text{Hz}$, $V_{\text{ripple}} = 500\text{mV}$, $R_G = 10\text{k}\Omega$, $R_L = 4\Omega$	30	36	-	dB	

