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NTE1516 Integrated Circuit Audio Power Amp, 1.8 Watt

Description:

The NTE1516 is a silicon monolithic integrated circuit in an 8-Lead DIP plastic package with a tab designed for audio power amplifiers used in portable radio receivers or portable cassette tape recorders using a 9V power supply.

Features:

- High Output Power: $P_O = 2.4W$ (Typ) at $V_{CC} = 9V$, $R_L = 4\Omega$, T.H.D. = 10%
- Wide Operating Voltage Range: $V_{CC} = 4.5$ to 9 to 11V
- High Ripple Rejection Ratio: R.R.R. = 55dB (Typ)
- Soft Crippling Waveform.
- Contains a Muting Circuit so that No Shock Noise is Heard at Power Supply Switch ON/OFF
- Contains a Terminal (Pin2) to Reject Interference Noise in a Strong Electric Field.

Absolute Maximum Ratings: ($T_A = +25^\circ C$ unless otherwise specified)

Supply Voltage (No Signal), V_{CC1} 16V
 Supply Voltage (Operating), V_{CC2} 11V
 Allowable Power Dissipation (Note 1), P_d 2.4W
 Operating Temperature Range, T_{opt} -20° to $70^\circ C$
 Storage Temperature Range, T_{stg} -40° to $150^\circ C$

Note 1. 50 x 50 x 0.035mm copper heat sink on P.C.B.

Recommended Operating Conditions: ($T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		4.5	9.0	11.0	V
Load Impedance	R_L		-	4	-	Ω

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 9\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$, Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Quiescent Circuit Current	I_{CC}	No Signal	8	15	25	mA	
Open Loop Voltage Gain	A_{VO}	$P_O = 0.25\text{W}$	55	65	-	dB	
Voltage Gain (Closed Loop)	A_V	$R_f = 100\Omega$	41	45	48	dB	
		$R_f = 360\Omega$	-	34	-	dB	
Output Power	P_O	THD = 10%, $R_f = 100\Omega$	$V_{CC} = 11\text{V}$, $R_L = 4\Omega$	-	3.6	-	W
			$V_{CC} = 11\text{V}$, $R_L = 8\Omega$	-	2.2	-	W
			$V_{CC} = 9\text{V}$, $R_L = 4\Omega$	1.8	2.4	-	W
			$V_{CC} = 9\text{V}$, $R_L = 8\Omega$	-	1.3	-	W
			$V_{CC} = 6\text{V}$, $R_L = 4\Omega$	-	1.0	-	W
			$V_{CC} = 6\text{V}$, $R_L = 8\Omega$	-	0.54	-	W
Input Sensitivity	$V_{i(rms)}$	$P_O = 2.4\text{W}$, $R_L = 4\Omega$	$R_f = 100\Omega$ ($A_V = 45\text{dB}$)	-	19.5	-	mV
			$R_f = 360\Omega$ ($A_V = 34\text{dB}$)	-	47.3	-	mV
Input Sensitivity	$V_{i(rms)}$	$P_O = 50\text{mW}$, $R_L = 4\Omega$	$R_f = 100\Omega$ ($A_V = 45\text{dB}$)	-	2.5	-	mV
			$R_f = 360\Omega$ ($A_V = 34\text{dB}$)	-	8.9	-	mV
Total Harmonic Distortion	THD	$P_O = 0.25\text{W}$	-	0.4	1.5	%	
Output Noise Voltage	NL	$R_G = 0$	-	0.2	0.8	mV_{rms}	
Supply Voltage Rejection Ratio	SVR	$R_G = 0$, $f_{ripple} = 100\text{Hz}$, $V_{ripple} = 0.3\text{V}_{rms}$	40	55	-	dB	
Input Impedance	R_i		10	20	-	$\text{k}\Omega$	

Note 1. 50 x 50 x 0.035mm copper heat sink on P.C.B.

Note 2. In case that only a Typ. value is specified, this specification is for helping to design.

Pin Connection Diagram

