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NTE778S
Integrated Circuit
Dual Operational Amplifier

Description:

The NTE778S is an integrated circuit designed as a low noise preamplifier in audio equipment and a general purpose operational amplifier in other electronic equipment. Two low noise operational amplifier circuits displaying internal phase–compensated high gain and low distortion are contained in a 8–pin SIP for applications over a wide range as a general–purpose dual amplifier in general electronic equipment. The device can also be used as a single power type and amplifier in portable equipment. It is also suitable as a headphone amplifier because of its high load current.

Features:

- High gain, Low Distortion
  G_{VO} = 110dB, THE = 0.0015% (typ.)
- High Slew Rate, High f_T
  SR = 3.0V/μs, f_T = 7MHz (typ.)
- Low Noise (R_S = 1kΩ)
  FLAT, V_{NI} = 2μV_{rms} (typ.)
  RIAA, V_{NI} = 1μV_{rms} (typ.)
- Operation with Low Supply Voltage
  $V_{CC} \geq$ 4V (±2V)
- High Load Current, High Current Dissipation
  I_{LP} = ±50mA, P_D = 800mW

Recommended Operating Conditions:

Supply Voltage Range . . . . . ±2 to ±16V
Rated Supply Voltage . . . . . ±15

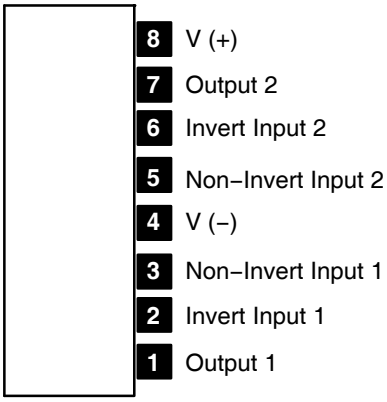
Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

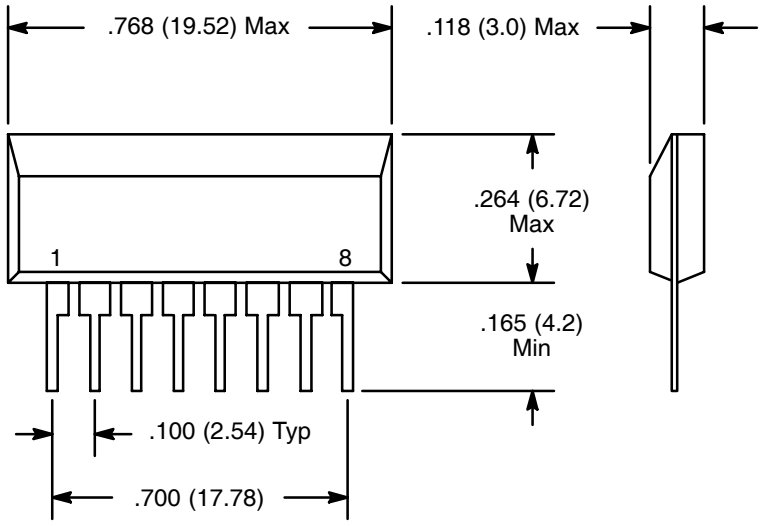
Supply Voltage, V_{CC}, ... ±18V
Load Current, I_{LP} . . . . . ±50mA
Differential Input Voltage, V_{id} . . . . . ±30V
Common Input Voltage, V_{ic} . . . . . ±15V
Power Dissipation, P_D 800mW
Thermal Dirating ($T_A \geq$ 25°C), K_θ . . . . . 8mW/°C
Ambient Temperature Range, T_{opr} . . . . . –20° to +75°C
Storage Temperature Range, T_{stg} . . . . . –55° to +125°C

Electrical Characteristics: (T_A = +25°, V_{CC} = +15V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Circuit Current	I_{CC}	V_{in} = 0	–	3.0	6.0	mA
Input Offset Voltage	V_{IO}	$R_S \le 10k\Omega$	–	0.5	6.0	mV
Input Offset Current	I_{IO}		–	5	200	nA
Input Bias Current	I_{IB}		–	–	500	nA
Input Resistance	R_{in}		0.3	5	–	MΩ
Open Loop Voltage Gain	G_{VO}	$R_L \ge 2k\Omega$, $V_O = \pm 10V$	86	110	–	dB
Maximum Output Voltage	V_{OM}	$R_L \ge 10k\Omega$	±12	±14	–	V
		$R_L \ge 2k\Omega$	±10	±13	–	V
Common Input Voltage Range	V_{CM}		±12	±14	–	V
Common Mode Rejection Ratio	CMRR	$R_S \le 10k\Omega$	70	90	–	dB
Supply Voltage	SVRR	$R_S \le 10k\Omega$	–	30	150	μV/V
Power Dissipation	P_d		–	90	180	mW
Slew Rate	SR	G_V = 0dB, R_L 2kΩ	–	3.0	–	V/μs
Gain Bandwidth Product	f_T		–	7	–	MHz
Input Referred Noise Voltage	V_{NL}	R_S = 1kΩ, BW:1–Hz to 30Hz	–	2.0	–	μV_{rms}

Pin Connection Diagram





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