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## NTE7145 Integrated Circuit 18W BTL x 2 Ch Audio Power Amplifier

### Description:

The NTE7145 is a stereo audio power IC in a 17-Lead Staggered SIP type package designed for car audio use. This device has 2 built-in channels to reduce the characteristics difference between L and R channels. In addition, the functions of stand-by, muting, and a variety of protections circuits are involved.

### Features:

- High Power:
  - $P_{OUT(1)} = 18W$  (Typ)/Channel ( $V_{CC} = 14.4V$ ,  $f = 1kHz$ ,  $THD = 10%$ ,  $R_L = 4\Omega$ )
  - $P_{OUT(2)} = 15W$  (Typ)/Channel ( $V_{CC} = 13.2V$ ,  $f = 1kHz$ ,  $THD = 10%$ ,  $R_L = 4\Omega$ )
- Low Distortion Ratio:
  - $THD = 0.04%$  (Typ) ( $V_{CC} = 13.2V$ ,  $f = 1kHz$ ,  $P_{OUT} = 1W$ ,  $R_L = 4\Omega$ ,  $G_V = 50dB$ )
- Low Noise:
  - $V_{NO} = 0.30mV_{rms}$  (Typ) ( $V_{CC} = 13.2V$ ,  $R_L = 4\Omega$ ,  $G_V = 50dB$ ,  $R_g = 0\Omega$ ,  $BW = 20Hz$  to  $20kHz$ )
- Built-In Stand-By Function (With Pin4 set at Low, Power is Turned OFF):
  - $I_{SB} = 1\mu A$  (Typ)
- Built-In Muting Function (With Pin1 set at Low, Power is Turned OFF):
  - $V$  (Mute) =  $1V$  (Typ)
- Built-In Various Protection Circuits:
  - Thermal Shut Down
  - Overvoltage
  - OUT→ $V_{CC}$  Short
  - OUT→GND Short
  - OUT-OUT Short
- Operating Supply Voltage:  $V_{CC} = 9V$  to  $18V$

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

Peak Supply Voltage (0.2s), $V_{CCsurge}$ .....	50V
DC Supply Voltage, $V_{CCDC}$ .....	25V
Operating Supply Voltage, $V_{CCopr}$ .....	18V
Output Current (Peak), $I_{O(peak)}$ .....	9A
Power Dissipation, $P_D$ .....	50W
Operating Temperature Range, $T_{opr}$ .....	$-30^\circ$ to $+85^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ C$

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 13.2\text{V}$ ,  $R_L = 4\Omega$ ,  $f = 1\text{kHz}$ , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Supply Current	$I_{CCQ}$	$V_{IN} = 0$	–	120	250	mA
Output Power	$P_{OUT}$	$V_{CC} = 14.4\text{V}$ , THD = 10%	–	18	–	W
		THD = 10%	11	15	–	W
Total Harmonic Distortion	THD	$P_{OUT} = 1\text{W}$	–	0.04	0.4	%
Voltage Gain	$G_V$		48	50	52	dB
Output Noise Voltage	$V_{NO}$	$R_g = 0\Omega$ , BW = 20Hz to 20kHz	–	0.3	0.7	mV <sub>rms</sub>
Ripple Rejection Ratio	RR	$f_{ripple} = 100\text{Hz}$ , $R_g = 600\Omega$	40	54	–	dB
Input Resistance	$R_{IN}$		–	30	–	k $\Omega$
Output Offset Voltage	$V_{offset}$	$V_{IN} = 0$	–0.3	0	+0.3	V
Current at Stand-By State	$I_{SB}$		–	1	10	$\mu\text{A}$
Crosstalk	CT	$R_g = 600\Omega$ , $V_{OUT} = 0.775V_{rms}$ (0dBm)	–	60	–	dB
Pin4 Control Voltage	$V_{(SB)}$	Stand-By→OFF (Power→ON)	2.5	–	$V_{CC}$	V
Pin1 Control Voltage	$V_{(MUTE)}$	Mute→ON (Power→OFF)	–	1.0	2.0	V

**Pin Connection Diagram**  
(Front View)

17	Power $V_{CC2}$
16	Output 2
15	Output 1
14	GND 1
13	GND 2
12	Output 4
11	Output 3
10	Power $V_{CC1}$
9	Pre- $V_{CC}$
8	Ripple
7	Input 2
6	NF 2
5	Pre-GND
4	Stand-By Switch
3	NF 1
2	Input 1
1	Mute Switch

