



## TDA7269

LINEAR INTEGRATED CIRCUIT

### 14W+14W STEREO AMPLIFIER WITH MUTE & STAND-BY

#### DESCRIPTION

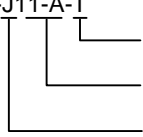
The UTC **TDA7269** is a stereo 14+14W class AB Dual Audio Power amplifier with mute and ST-BY control. This IC provides high output power of 14 watts per channel (at  $V_{CC}=\pm 16V$ ,  $f=1KHz$ ,  $THD=10\%$ ,  $R_L=8\Omega$ ). It has low  $I_Q$  at stand-by mode and no POP at turn ON or OFF.

#### FEATURES

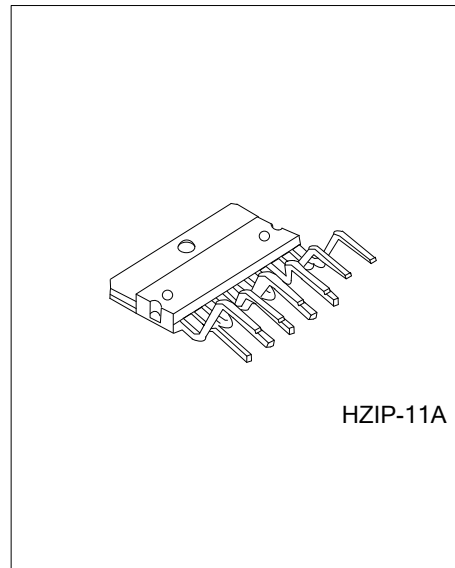
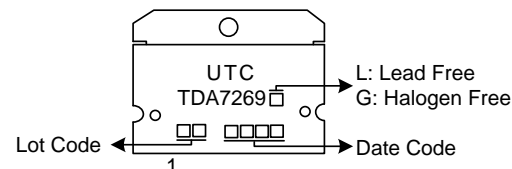
- \* High output power:  $P_{OUT}=14\text{ W/channel (Typ.)}$   
 $V_{CC}=\pm 16V$ ,  $R_L=8\Omega$ ,  $f=1KHz$ ,  $THD=10\%$
- \* Operation supply voltage range ( $T_a=25^\circ C$ )  
 $V_{CC(OPR)}=\pm 5\sim\pm 20V$  ( $R_L=8\Omega$ )  
 $V_{CC(OPR)}=\pm 5\sim\pm 15V$  ( $R_L=4\Omega$ )
- \* Split supply
- \* Built in overload protection circuit.
- \* Built in thermal shut down protector circuit.
- \* Built in audio muting circuit (POP free)
- \* Built in standby circuit.

#### ORDERING INFORMATION

| Ordering Number  |                  | Package  | Packing |
|------------------|------------------|----------|---------|
| Lead Free        | Halogen Free     |          |         |
| TDA7269L-J11-A-T | TDA7269G-J11-A-T | HZIP-11A | Tube    |

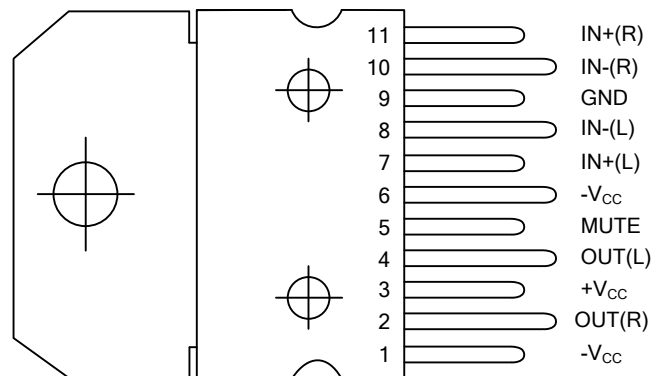
|   |                   |   |
|---|-------------------|---|
|  | (1) Packing Type  | (1) T: Tube                                     |
|   | (2) Package Type  | (2) J11-A: HZIP-11A                             |
|   | (3) Green Package | (3) G: Halogen Free and Lead Free, L: Lead Free |

#### MARKING



HZIP-11A

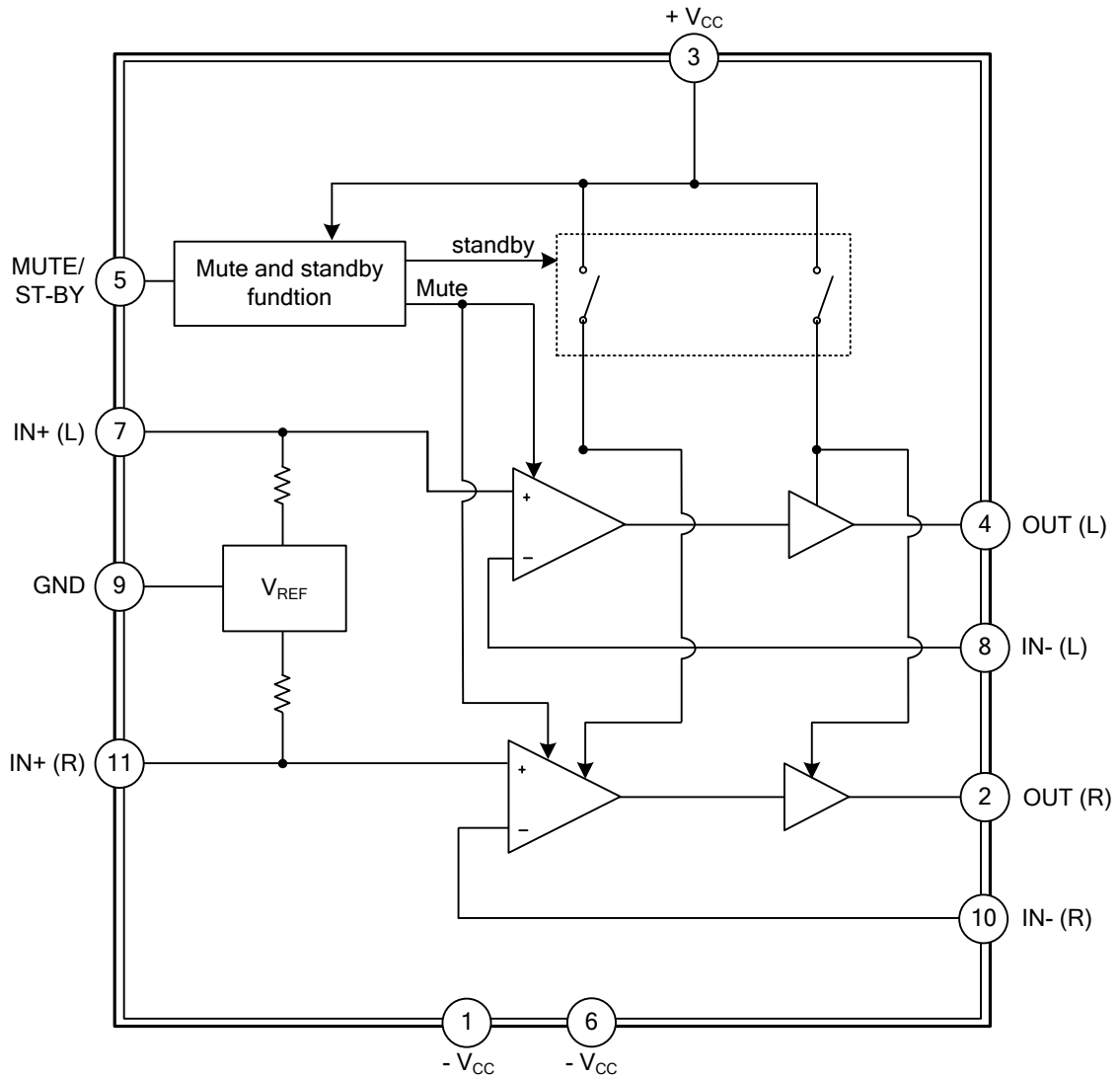
### ■ PIN CONNECTION



### ■ PIN DESCRIPTION

| PIN NO. | PIN NAME  | DESCRIPTION                |
|---------|-----------|----------------------------|
| 1       | $-V_{CC}$ | Negative supply            |
| 2       | OUT(R)    | Output(right)              |
| 3       | $+V_{CC}$ | Positive Supply voltage    |
| 4       | OUT(L)    | Output(left)               |
| 5       | MUTE      | Mute/standby switch input  |
| 6       | $-V_{CC}$ | Negative supply            |
| 7       | IN+(L)    | non-inverting input(left)  |
| 8       | IN-(L)    | inverting input(left)      |
| 9       | GND       | Ground                     |
| 10      | IN-(R)    | inverting input(right)     |
| 11      | IN+(R)    | non-inverting input(right) |

## ■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER  | SYMBOL    | RATING     | UNIT             |
|--|-----------|------------|------------------|
| DC Supply Voltage                                  | $V_{CC}$  | $\pm 22$   | V                |
| Output Power Current (internally limited)          | $I_{OUT}$ | 3          | A                |
| Total Power Dissipation ( $T_C=70^\circ\text{C}$ ) | $P_D$     | 40         | W                |
| Operating Temperature                              | $T_{OPR}$ | 0 ~ +70    | $^\circ\text{C}$ |
| Storage and Junction Temperature                   | $T_{STG}$ | -40 ~ +150 | $^\circ\text{C}$ |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ THERMAL DATA

| PARAMETER        | SYMBOL        | RATING | UNIT               |
|------------------|---------------|--------|--------------------|
| Junction to Case | $\theta_{JC}$ | 2.8    | $^\circ\text{C/W}$ |

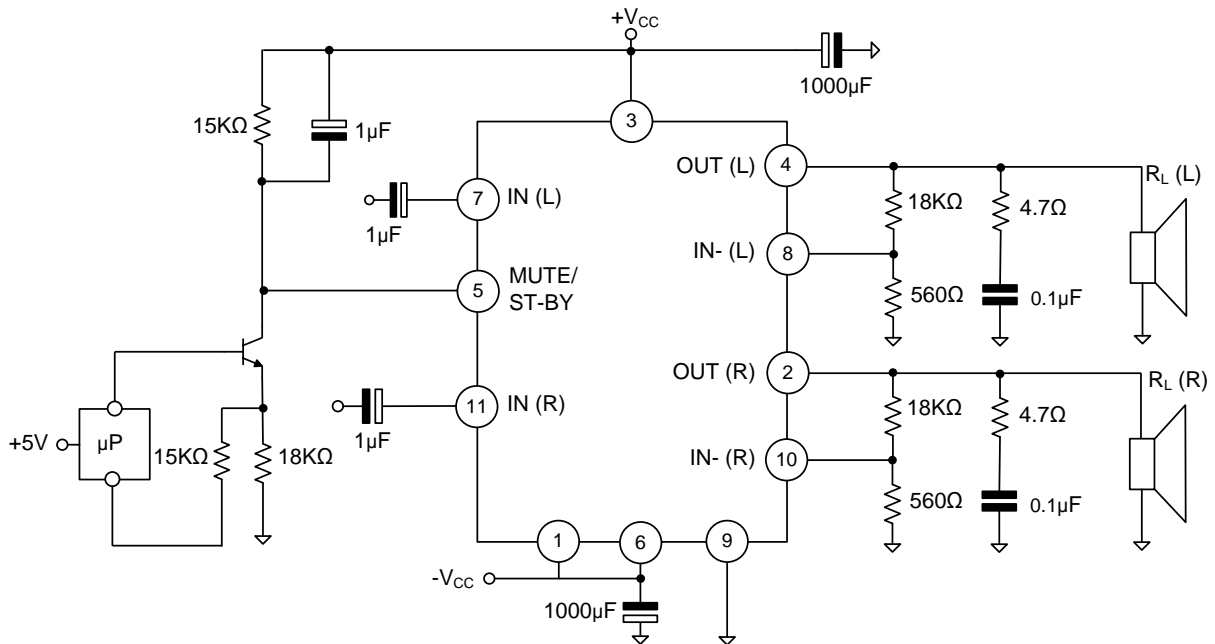
### ■ ELECTRICAL CHARACTERISTICS

( $V_{CC} = \pm 16\text{V}$ ;  $R_L = 8\Omega$ ;  $R_S = 50\Omega$ ;  $G_V = 30\text{dB}$ ;  $f = 1\text{KHz}$ ;  $T_A = 25^\circ\text{C}$ , unless otherwise specified)

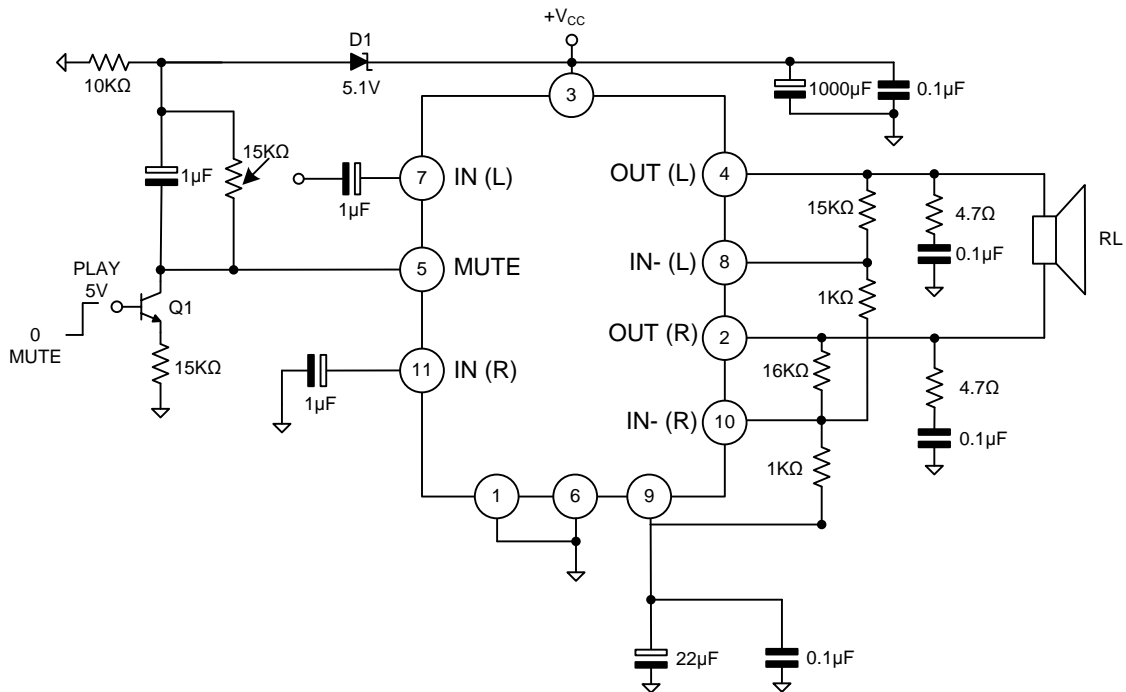
| PARAMETER  | SYMBOL         | TEST CONDITION   | MIN   | TYP  | MAX      | UNIT             |
|--|----------------|--|---|------|----------|------------------|
| Supply Voltage Range   | $V_{CC}$       | $R_L = 8\Omega$  | $\pm 5$                                       |      | $\pm 20$ | V                |
|  |                | $R_L = 4\Omega$  | $\pm 5$                                       |      | $\pm 15$ | V                |
| Total Quiescent Current  | $I_Q$          |  |   | 60   | 100      | mA               |
| <b>INPUT SECTION</b>   |                |  |   |      |          |                  |
| Input Offset Voltage   | $V_{I(OFF)}$   |  | -25   |      | 25       | mV               |
| Bias Current   | $I_{BIAS}$     |  |   | 500  |          | nA               |
| Input Resistance   | $R_{IN}$       |  | 15  | 20   |          | K $\Omega$       |
| <b>OUTPUT SECTION</b>  |                |  |   |      |          |                  |
| Output Power   | $P_{OUT}$      | THD=10%  | $V_{CC} = \pm 16\text{V}$ , $R_L = 8\Omega$   | 12   | 14       | W                |
|  |                |  | $V_{CC} = \pm 12.5\text{V}$ , $R_L = 4\Omega$ | 8    | 10       | W                |
|  |                | THD = 1%   | $V_{CC} = \pm 16\text{V}$ , $R_L = 8\Omega$   | 9    | 11       | W                |
|  |                |  | $V_{CC} = \pm 12.5\text{V}$ , $R_L = 4\Omega$ | 6    | 7.5      | W                |
| Total Harmonic Distortion  | THD            | $R_L = 8\Omega$ ; $P_{OUT} = 1\text{W}$ ; $f = 1\text{KHz}$ ;  |   | 0.03 |          | %                |
|  |                | $R_L = 8\Omega$ ; $P_{OUT} = 0.1$ to $7\text{W}$<br>$f = 100\text{Hz} \sim 15\text{KHz}$                             |   |      | 0.7      | %                |
|  |                | $R_L = 4\Omega$ ; $P_{OUT} = 1\text{W}$ ; $f = 1\text{KHz}$  |   | 0.02 |          | %                |
|  |                | $R_L = 4\Omega$ ; $V_{CC} = \pm 10\text{V}$ , $P_{OUT} = 0.1 \sim 5\text{W}$<br>$f = 100\text{Hz} \sim 15\text{KHz}$ |   |      | 1        | %                |
| Cross Talk   | $C_T$          | $f = 1\text{KHz}$  |   | 70   |          | dB               |
|  |                | $f = 10\text{KHz}$   | 50  | 60   |          | dB               |
| Slew Rate  | SR             |  | 6.5   | 10   |          | V/ $\mu\text{s}$ |
| Open Loop Voltage Gain   | $G_{VO}$       |  |   | 80   |          | dB               |
| Total Output Noise   | eN             | A Curve  |   | 3    |          | $\mu\text{V}$    |
|  |                | $f = 20\text{Hz}$ to $22\text{KHz}$  |   | 4    | 8        | $\mu\text{V}$    |
| Supply Voltage Rejection (each channel)                                  | SVR            | $f = 100\text{Hz}$ ; $V_R = 0.5\text{V}$   |   | 60   |          | dB               |
| <b>THERMAL PROTECTION</b>  |                |  |   |      |          |                  |
| Thermal Shut-down Junction Temperature                                   | $T_J$          |  |   | 145  |          | $^\circ\text{C}$ |
| <b>MUTE FUNCTION [ref: +V<sub>CC</sub>] (Note)</b>                       |                |  |   |      |          |                  |
| Mute /Play Threshold   | $V_{TMUTE}$    |  | -7  | -6   | -5       | V                |
| Mute Attenuation   | $A_{MUTE}$     |  | 60  | 70   |          | dB               |
| <b>STAND-BY FUNCTIONS [ref: +V<sub>CC</sub>] (only for Split Supply)</b> |                |  |   |      |          |                  |
| Stand-by Mute threshold  | $V_{TST-BY}$   |  | -3.5  | -2.5 | -1.5     | V                |
| Stand-by Attenuation   | $A_{ST-BY}$    |  |   | 110  |          | dB               |
| Quiescent Current ( Stand-by )   | $I_{Q(ST-BY)}$ |  |   | 3    | 6        | mA               |

Note: In mute condition the current drawn from Pin 5 must be  $\leq 650\mu\text{A}$ .

## APPLICATION CIRCUITS

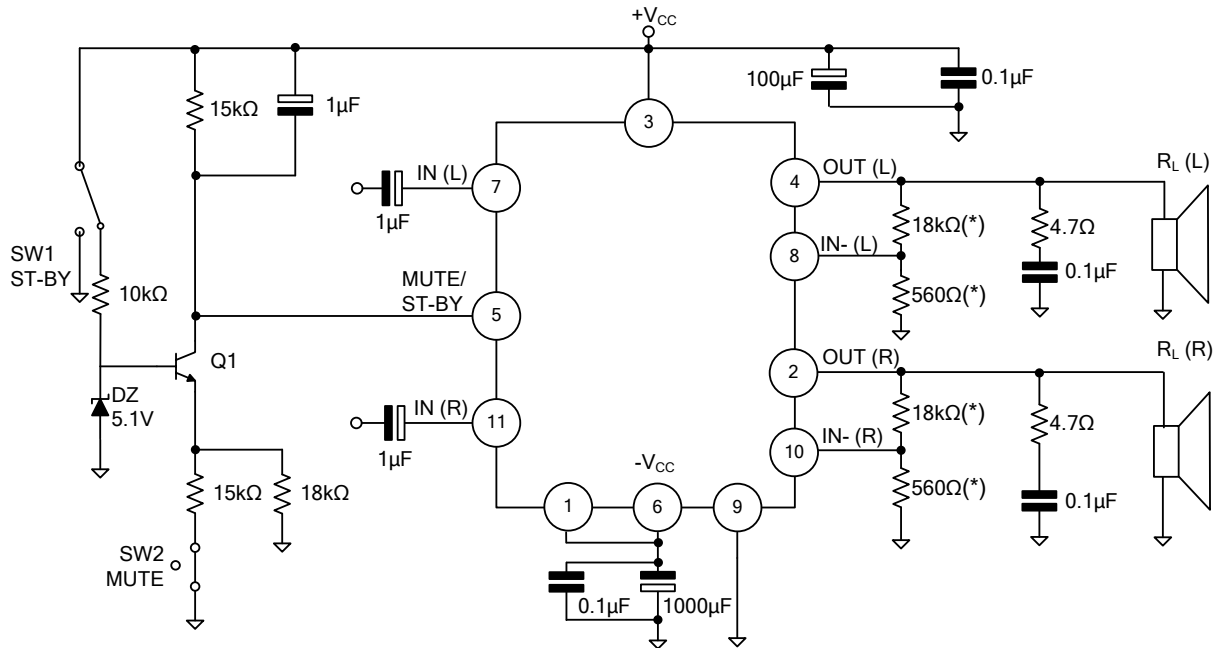


Typical Application Circuit



Single Supply Application

## APPLICATION CIRCUITS (Cont.)



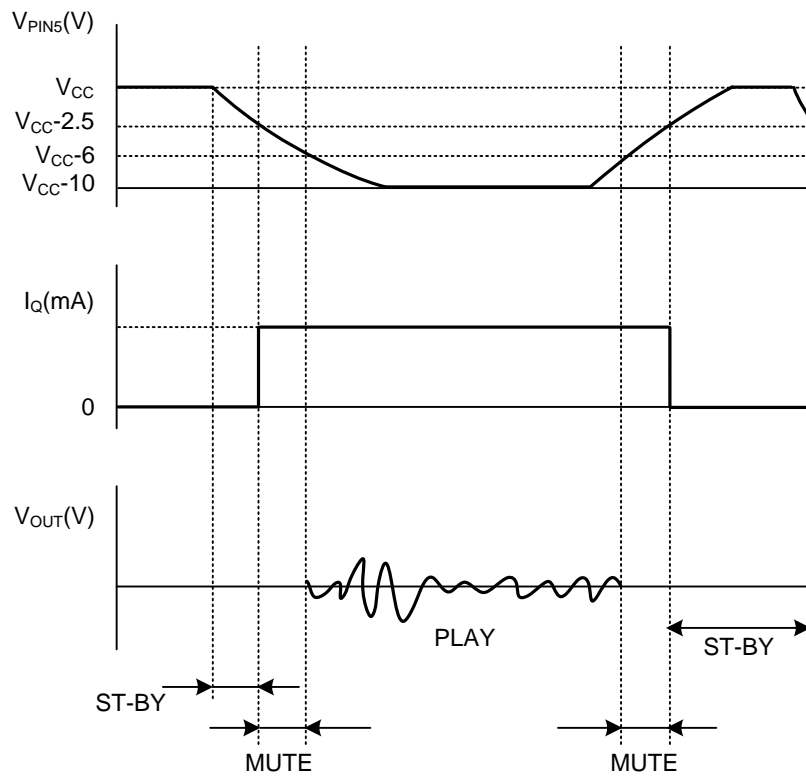
Test and Application Circuit (Stereo Configuration)

Note: (\*) Closed loop gain has to be  $\geq 25\text{dB}$

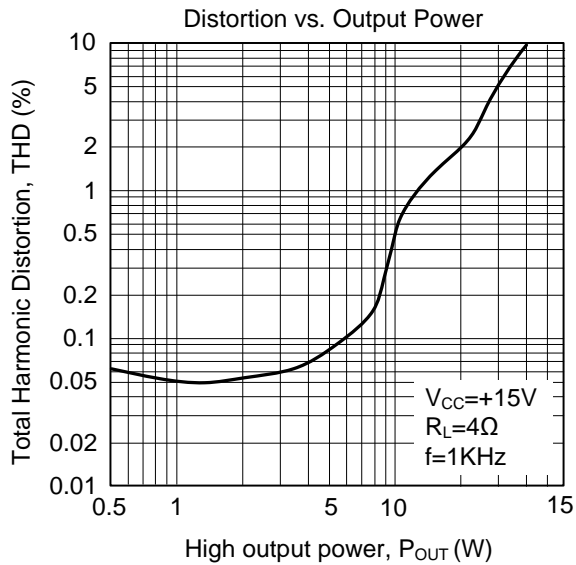
### ■ MUTE STAND-BY FUNCTION

The pin 5 (MUTE/STAND-BY) controls the amplifier status by two different thresholds, referred to  $+V_{CC}$ .

| $V_{PIN5}$                                 | Amplifier Status |
|--|------------------|
| $+V_{CC} > V_{PIN5} \geq +V_{CC} - 2.5V$   | Stand-by Mode    |
| $+V_{CC} - 2.5V > V_{PIN5} > +V_{CC} - 6V$ | Mute Mode        |
| $V_{PIN5} \leq +V_{CC} - 6V$               | Play Mode        |



### ■ TYPICAL CHARACTERISTICS



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