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DOCUMENT COVER PAGE



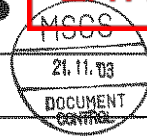
Note: This cover page establishes the Doc No., Title and current status of the attached document.

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|-----------|-------------------------------------|---|-----|-----------|
| Doc No. | SDSC-PSE-AN17808B | Issue Level | Rev | Eff Date |
| | | 1 | 4 | 28-MAR-05 |
| Doc Title | Product Specifications for AN17808B | Total no. of pages (excluding this page) | | 14 |

Revision History

| Issue | Rev | Eff Date | S/N | Page | Change Details | Remarks |
|-------|-----|-----------|-----|------|---|---------|
| 1 | 2 | 4-NOV-04 | 1 | - | Added this cover page. | |
| | | | 2 | 7A | Added this page for leadfree specification. | |
| | 3 | 15-DEC-04 | 1 | 7 | Removed this page. | |
| | | | 2 | 7A | Amended Outer Lead Surface Process & Chip Mounting Method. | |
| | 4 | 28-MAR-05 | 1 | 6 | Removed physical product marking indications. | |
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| Prepared | <i>Guo</i> | Product Specifications AN17808B | Ref No. | A-1 |
| Checked | <i>Kenneth Law</i> | | APPROVED EXTERNAL ISSUE | |
| Approved | <i>Ziguli</i> | | Total Page | 14 |
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| | |
|-------------|--|
| Structure | Silicon Monolithic Bipolar IC |
| Appearance | SIL-12 Pins Plastic Package (Power-type with Fin) |
| Application | Low Frequency Amplifier |
| Function | Dual 5W Audio Power Amplifier, with muting circuit and incorporating protection circuits |

| A Absolute Maximum Ratings | | | | | |
|----------------------------|---------------------------------|----------------|--|------------------|------|
| No. | Item | Symbol | Ratings | Unit | Note |
| 1 | Storage Temperature | Tstg | -55 ~ +150 | °C | 1 |
| 2 | Operating Ambient Temperature | Topr | -25 ~ +75 | °C | 1 |
| 3 | Operating Ambient Pressure | Popr | $1.013 \times 10^5 \pm 0.61 \times 10^5$ | Pa | |
| 4 | Operating Constant Acceleration | Gopr | 9,810 | m/s ² | |
| 5 | Operating Shock | Sopr | 4,900 | m/s ² | |
| 6 | Supply Voltage | Vcc | 26.0 | V | |
| 7 | Supply Current | Icc | 4.0 | A | |
| 8 | Power Dissipation | P _D | 37.5 | W | 2 |

| | | |
|--------------------------|-----|----------------|
| Operating Supply Voltage | Vcc | 10.0 V ~ 24.0V |
|--------------------------|-----|----------------|

Note 1) The temperature of all item shall be Ta = 25°C except storage temperature and operating ambient temperature.

2) Ta = 75°C



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| Approved | <i>H. Gulin</i> | | Total Page | 14 |
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| Absolute Maximum Ratings | | | | | |
|--------------------------|---------------------|--------|-------------|------|------|
| No. | Item | Symbol | Ratings | Unit | Note |
| 1 | Pin Voltage (2-Pin) | V2 | -0.3 ~ +3.0 | V | 1 |
| 2 | Pin Voltage (5-Pin) | V5 | -0.3 ~ +3.0 | V | 1 |

Note: 1) Do not apply a current or voltage from the external to the terminals not described above. For circuit current, '+' denotes the current flowing into IC and, '-' denotes the current flowing out of IC.

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| Prepared | <i>GWS</i> | Product Specifications AN17808B | Ref No. | B-1 |
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| B Electrical Characteristics ($T_a = 25^\circ\text{C} \pm 2^\circ\text{C}$, unless otherwise specified, $V_{cc}=19\text{V}$, $R_L=8\Omega$ and $f=1\text{kHz}$) | | | | | | | | | |
|---|---------------------------|---------------|--------------|--|-------|------|-----|------|------|
| No. | Item | Symbol | Test Circuit | Condition | Limit | | | Unit | Note |
| | | | | | Min | Typ | Max | | |
| 1 | Quiescent Current | I_{CQ} | 1 | $V_{in}=0\text{mV}$ | - | 35 | 70 | mA | |
| 2 | Output End Noise Voltage | V_{no} | 1 | No Input $R_g=10\text{k}\Omega$ | - | 0.22 | 0.4 | mV | 1 |
| 3 | Voltage Gain | G_v | 1 | $V_{in}=57\text{mV}$ | 32 | 34 | 36 | dB | |
| 4 | Total Harmonic Distortion | THD | 1 | $V_{in}=57\text{mV}$ | - | 0.2 | 0.4 | % | |
| 5 | Maximum Output Power 1 | P_{o1} | 1 | $V_{cc}=19\text{V}$ THD=10% | 4.0 | 5.0 | - | W | |
| 6 | Maximum Output Power 2 | P_{o2} | 1 | $V_{cc}=22\text{V}$ THD=10% | 5.6 | 7.0 | - | W | |
| 7 | Ripple Rejection Ratio | RR | 1 | $V_r=1\text{V}_{rms}$, $f_r=120\text{Hz}$, $R_g=10\text{k}\Omega$ | 45 | 55 | - | dB | 1 |
| 8 | Channel Balance | CB | 1 | $V_{in}=57\text{mV}$ | -1.0 | 0 | 1.0 | dB | |
| 9 | Muting Ratio | MR | 1 | $V_{in}=57\text{mV}$ $V_{mute} \geq 3.0\text{V}$ | 65 | 75 | - | dB | |
| 10 | Muting Control Voltage | V_{mute} | 1 | $V_{in} = 57\text{mV}$, MR $\geq 65\text{dB}$ | 3.0 | - | - | V | |
| 11 | Standby On Voltage | V_{stb-on} | 1 | No Input $I_{cc} < 0.1\text{mA}$ | - | - | 0.4 | V | |
| 12 | Standby Off Voltage | $V_{stb-off}$ | 1 | No Input $I_{cc} \geq 17\text{mA}$ | 3.0 | - | - | V | |
| 13 | Channel Crosstalk | CT | 1 | $V_{in} = 57\text{mV}$ $R_g=10\text{k}\Omega$ | 50 | 60 | - | dB | |

Note 1) For this measurement, use the 20Hz~20kHz (12dB/OCT) filter.

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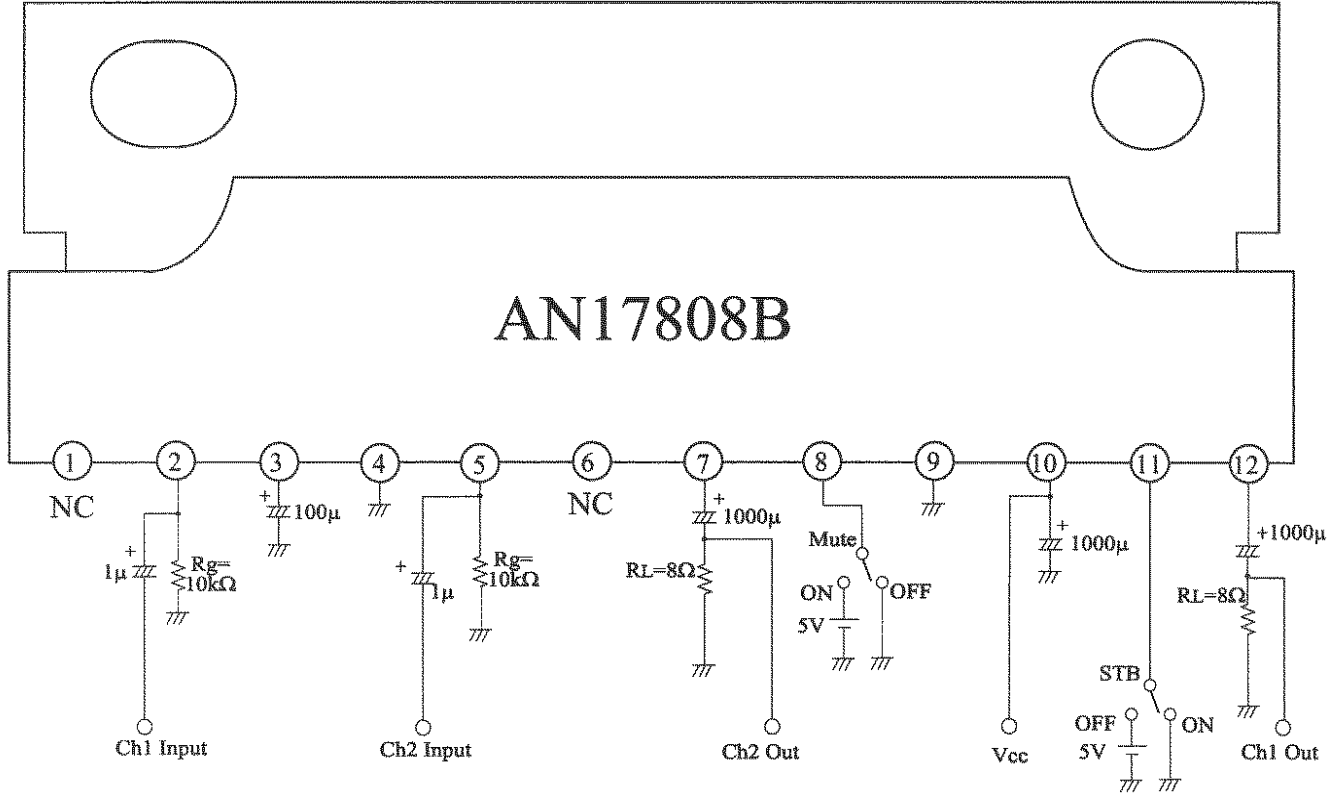
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| Prepared | <i>[Signature]</i> | Product Specifications AN17808B | Ref No. | C-1 |
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(Description of Test Circuit and Test Method)

Test Circuit 1

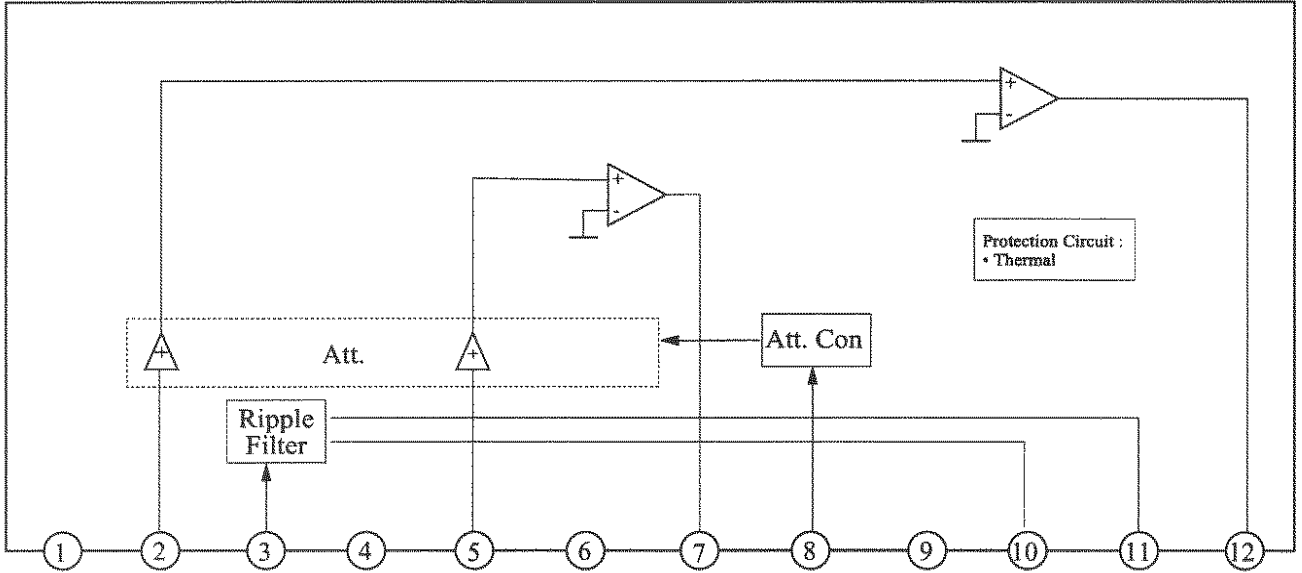


Note : For STB 'OFF', connect to 5V.
Mute 'OFF' means 0V.

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Circuit Function Block Diagram



Pin Descriptions

| Pin No. | Pin Name | Pin No. | Pin Name |
|---------|-----------------|---------|------------------|
| 1 | N.C | 7 | Channel 2 Output |
| 2 | Channel 1 Input | 8 | Mute |
| 3 | Ripple Filter | 9 | Output GND |
| 4 | Input GND | 10 | Vcc |
| 5 | Channel 2 Input | 11 | Standby |
| 6 | N.C | 12 | Channel 1 Output |

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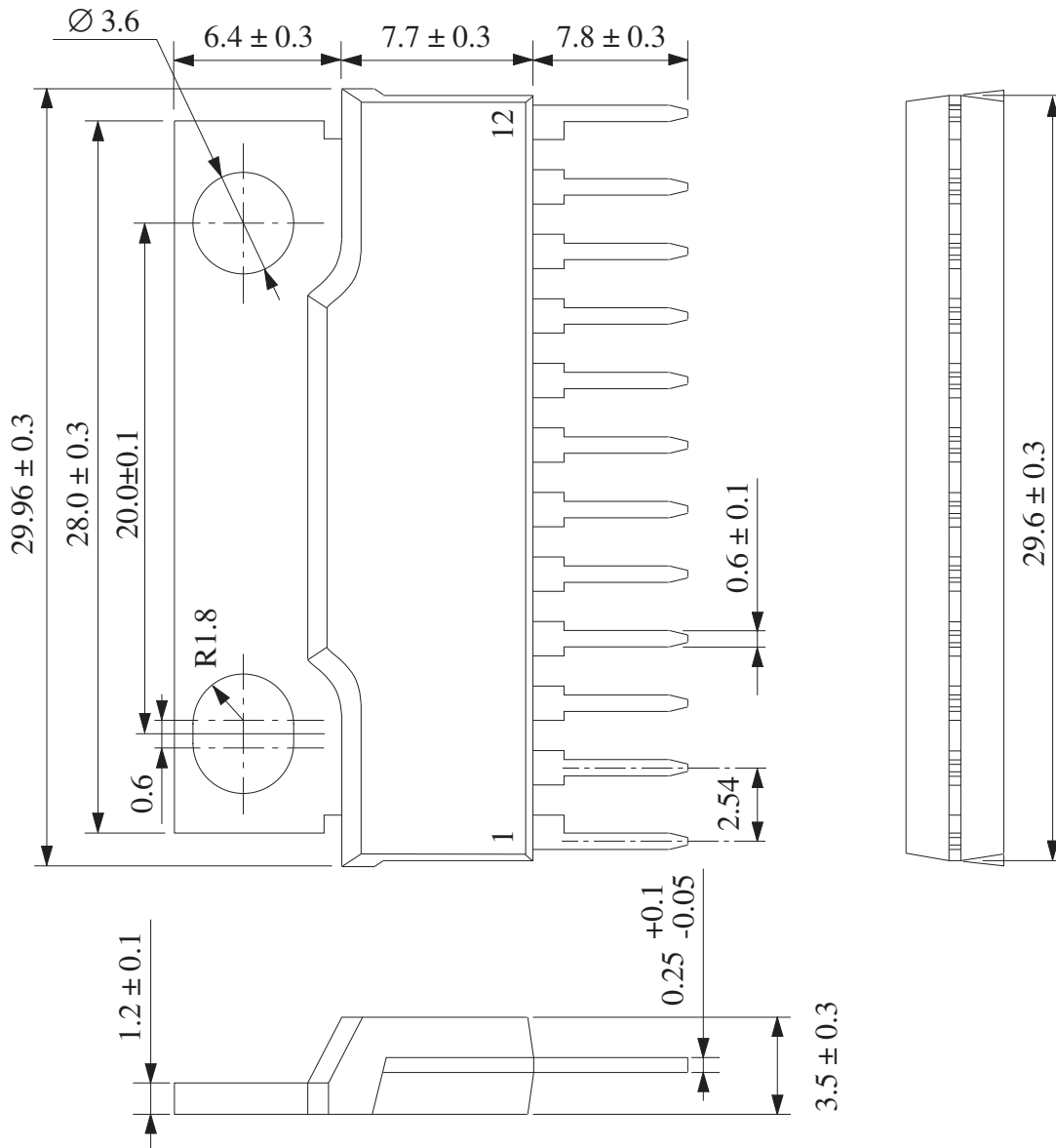
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12-SIL(FP)

Package Name

FP-12S

Unit : mm



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(Structure Description)

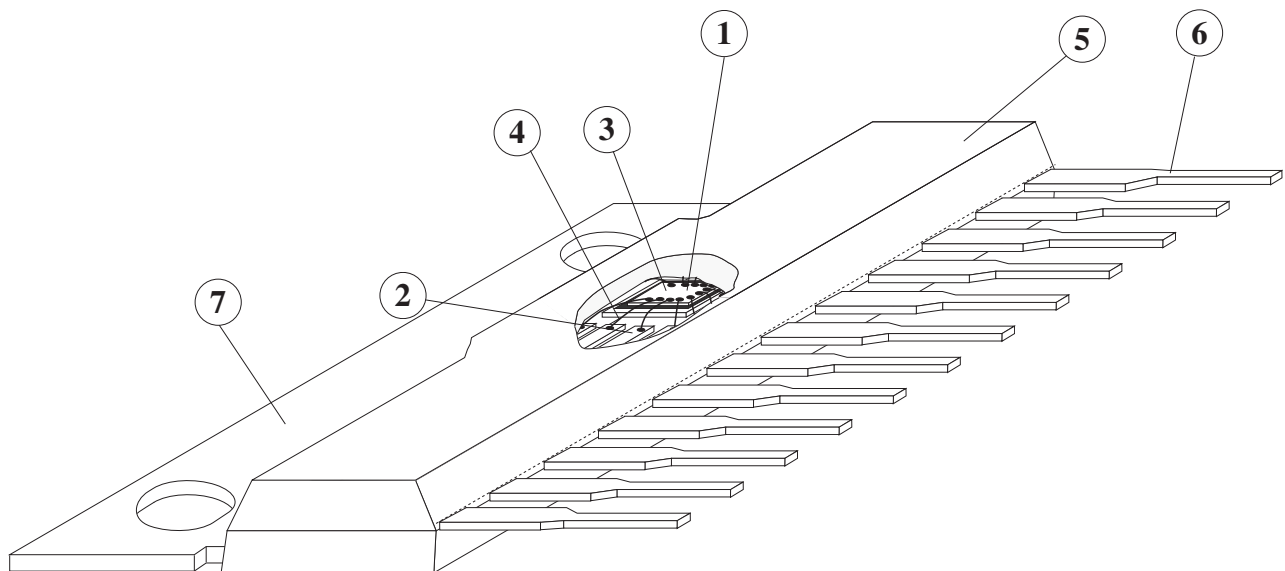
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| Chip surface passivation | SiN, PSG, Others () | ① |
| Lead frame material | Fe group, Cu group, Others () | ②, ⑥ |
| Inner lead surface process | Ag plating, Au plating, Others () | ② |
| Outer lead surface process | Solder plating (98Sn-2Bi), Solder dip, Others () | ⑥ |
| Chip mounting method | Ag paste, Au-Si alloy, Solder (95.5Pb-2.5Ag-2Sn)** | ③ |
| Wire bonding method | Thermalsonic bonding, Others () | ④ |
| Wire material | Au, Others () | ④ |
| Mold material | Epoxy, Others () | ⑤ |
| Molding method | Transfer mold, Multiplunger mold, Others () | ⑤ |
| Fin material | Cu group, Others () | ⑦ |

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Package FP-12S

**Under RoHS exemption clause, Lead (Pb) in high melting temperature type solder (i.e. tin-lead solder alloys containing more than 85% of lead), is exempted until 2010.



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Product Specifications
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AN17808B

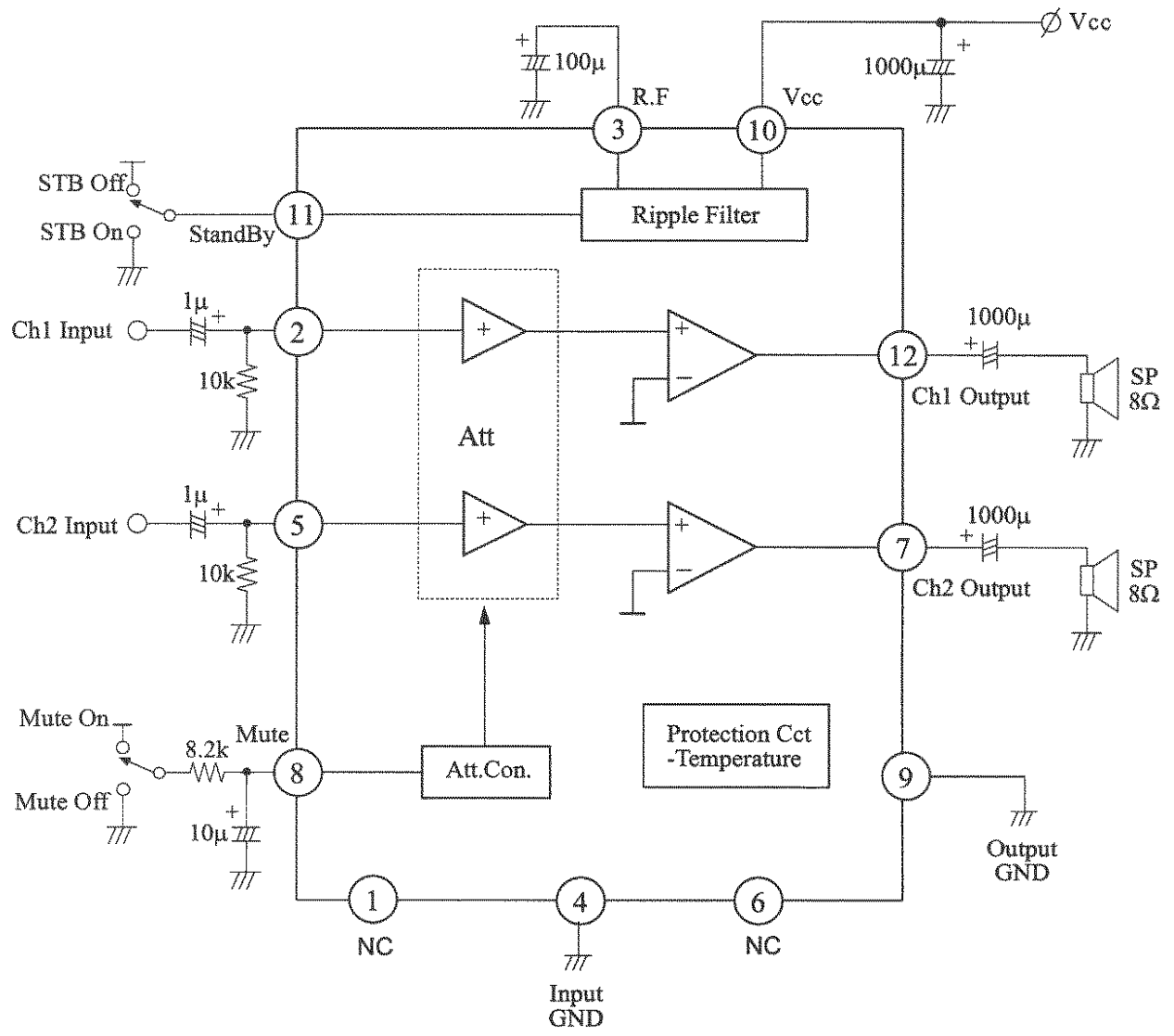
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Application Circuit 1

StandBy Pin is controlled by microcontroller.



| | |
|------------|----|
| STB 'OFF' | 5V |
| STB 'ON' | 0V |
| Mute 'OFF' | 0V |
| Mute 'ON' | 5V |

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AN17808B

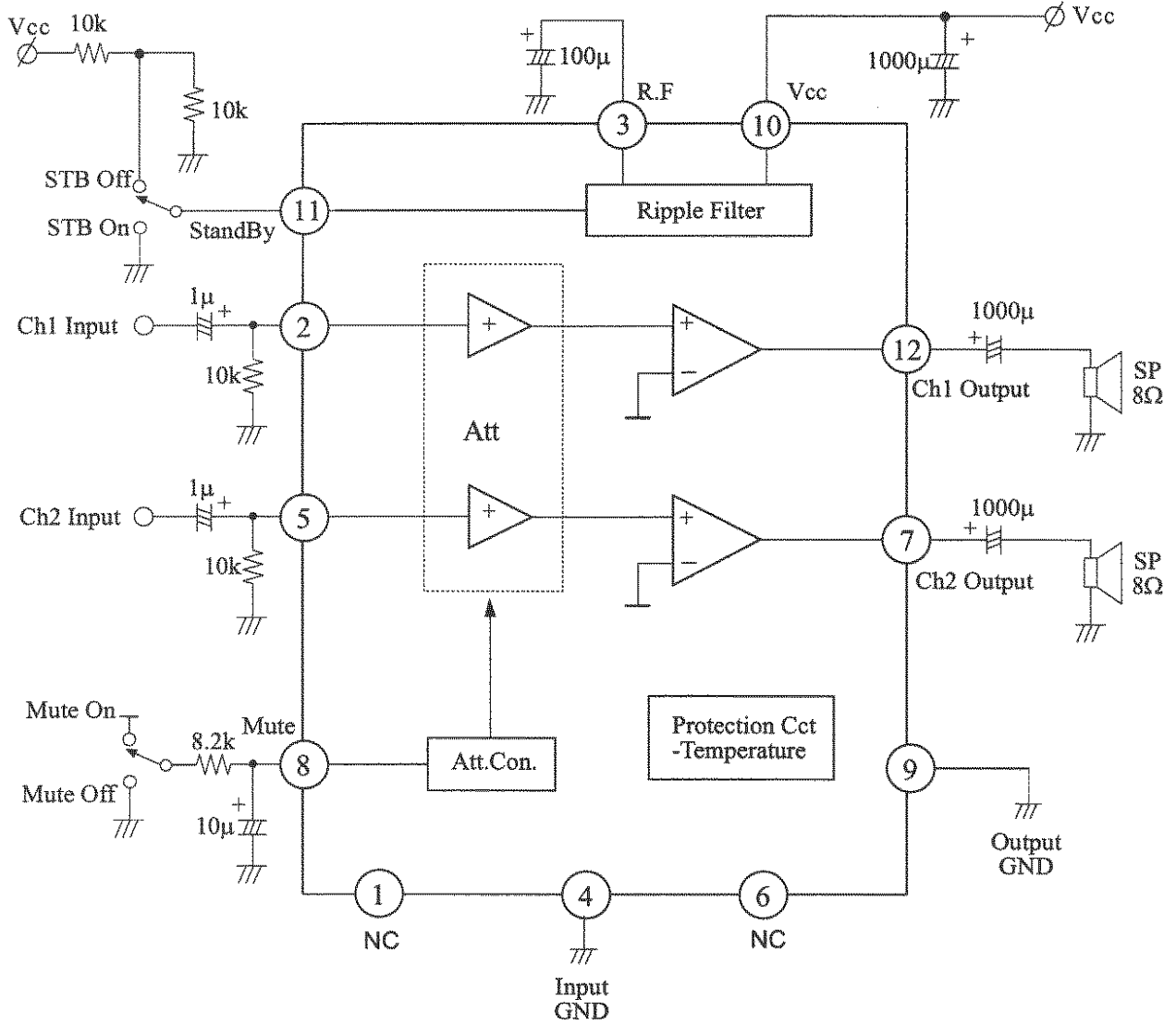
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Application Circuit 2

Standby Pin is controlled by Vcc.



| | |
|------------|----|
| Mute 'OFF' | 0V |
| Mute 'ON' | 5V |

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| Pin No. | Function | Adjacent Circuitry | Description | DC Bias (V) |
|---------|----------------|--------------------|--|-------------|
| 2, 5 | Ch1, Ch2 Input | | This is the amplifier input pin. | 0V |
| 3 | Ripple Filter | | This is the pin to connect the positive terminal of a ripple filter capacitor. | Vcc-1.5VBE |
| 4 | Input GND | | Input ground pin. | 0V |
| 1,6 | Not Connected | | | |

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| Pin No. | Function | Adjacent Circuitry | Description | DC Bias (V) |
|---------|--------------------|--------------------|--|-------------|
| 12, 7 | Ch1 and Ch2 Output | | Ch1 and Ch2 output pin | Vcc/2 |
| 8 | Mute | | Mute input pin. Mute 'On' = 5V Mute 'Off' = 0V | |
| 9 | Output GND | | Ch1 and Ch2 output ground. | 0V |
| 10 | Vcc | | This is the power supply pin. | Typ: 19V |

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| Pin No. | Function | Adjacent Circuitry | Description | DC Bias (V) |
|---------|----------|--------------------|----------------------------------|-------------|
| 11 | Standby | | This is the Standby control pin. | |

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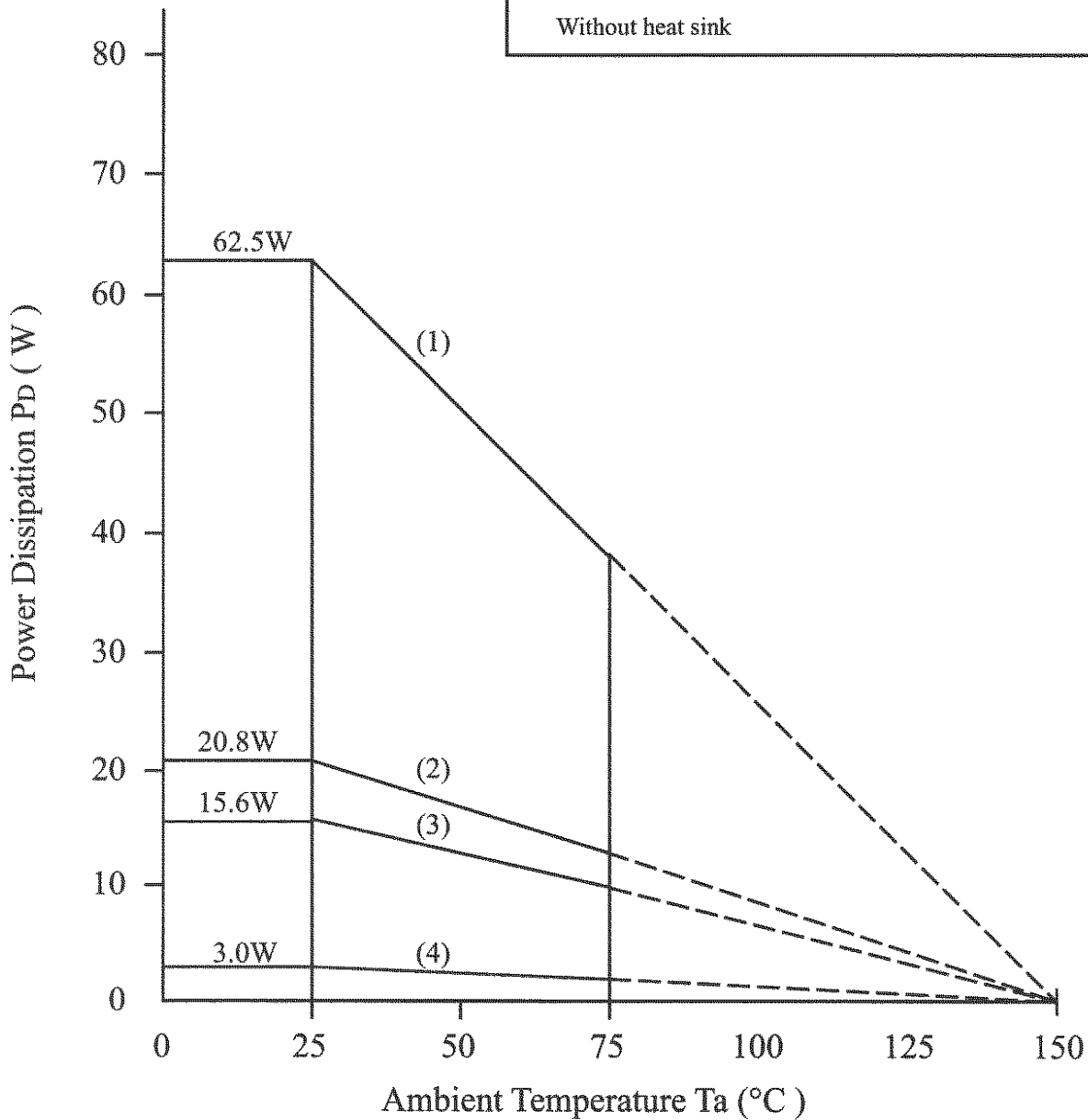
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PD - Ta Curves

- (1) $T_c = T_a$, 62.5W ($\theta_{j-c} = 2 \text{ }^\circ\text{C/W}$)
- (2) 20.83W ($\theta_f = 4.0 \text{ }^\circ\text{C/W}$)
 With a 100cm² X 3mm Al heat sink (black colour coated)
 or a 200cm² X 2mm Al heat sink (not lacquered)
- (3) 15.63W ($\theta_f = 6.0 \text{ }^\circ\text{C/W}$)
 With a 100cm² X 2mm Al heat sink (not lacquered)
- (4) 3.0W at $T_a = 25^\circ\text{C}$ ($\theta_{j-a} = 42 \text{ }^\circ\text{C/W}$)
 Without heat sink



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Application's Precautions

- (1) External heatsink is needed when used. External heatsink should be fixed to the chassis.
- (2) Fin of the IC can be connected to GND.
- (3) Please prevent "Output to Vcc short", "Output to GND short", "Pin shift" and "Load short". The IC may be damaged if any of these occurs and smoke may be observed.
- (4) The temperature protection circuit will operate at Tj around 150°C. However, if temperature decrease, the protection circuit will automatically be deactivated and resume normal operation.
- (5) The Absolute Maximum Supply Voltage for this IC is specified as 26V. The IC is permitted to operate up to this voltage, without causing damage, for the condition that no signal is applied to all the 2 input pins.
- (6) For the condition of chip junction temperature below the minimum thermal shutdown temperature, under continuous operation, this will not cause damage to the IC for the recommended application. The minimum thermal shutdown temperature of this IC is typically 140 °C. This value is provided as a design reference and is not guaranteed by testing.

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