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LV5682P

Bi-CMOS LSI

Multi-Power Supply System IC for Car Audio Systems

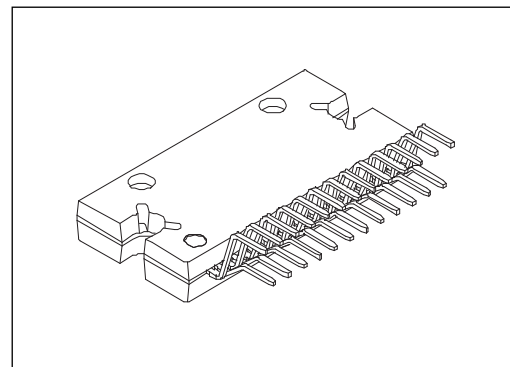
Overview

The LV5682P is a multi-power supply system IC that provides four regulator outputs and two high side switches as well as a number of protection functions including overcurrent protection and overheat protection. It is an optimal power supply IC for car audio and car entertainment systems and similar products. It is possible to use it like the bus track etc. in the vehicle whose voltage of the battery is 24V because there is a range of the power-supply voltage up to 32V.

Features

- Four regulator output systems
 - For microcontroller: 5.0V output voltage, 200mA maximum output current
 - For CD drive: 8.0V output voltage, 1300mA maximum output current
 - For illumination: 8 to 12V output voltage (output can be set with external resistors), 300mA maximum output current
 - For audio systems: 8 to 9V output voltage (output voltage can be set with external resistors), 300mA maximum output current
- Two V_{CC} -linked high side switch systems
 - EXT: 350mA maximum output current, 0.5V voltage difference between input and output.
 - ANT: 300mA maximum output current, 0.5V voltage difference between input and output.
- Two V_{DD} 5V-linked high side switch systems
 - SW5V: 200mA maximum output current, 0.2V voltage difference between input and output.
 - ACC (accessory voltage detection output): 100mA maximum output current, 0.2V voltage difference between input and output.
- Overcurrent protection function
- Overheat protection function, typ 175°C
- On-chip accessory voltage detection circuit
- P-channel LDMOS used for power output block

(Warning) The protector functions only improve the IC's tolerance and they do not guarantee the safety of the IC if used under the conditions out of safety range or ratings. Use of the IC such as use under overcurrent protection range or thermal shutdown state may degrade the IC's reliability and eventually damage the IC.



HZIP25

ORDERING INFORMATION

See detailed ordering and shipping information on page 15 of this data sheet.

LV5682P

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter | Conditions | Conditions | | Ratings | Unit |
|-------------------------------|---------------|--|-----------------------------|-------------|------------------|
| | | | | | |
| Supply voltage | V_{CC} max | | | 36 | V |
| Allowable Power dissipation | P_d max | Independent IC | $T_a \leq 25^\circ\text{C}$ | 2.7 | W |
| | | With an infinity heat sink | | 65 | W |
| Peak supply voltage | V_{CC} peak | Each output is a no load. See below for the waveform applied. | | 50 | V |
| Junction temperature | T_j max | | | 150 | $^\circ\text{C}$ |
| Operating ambient temperature | T_{opr} | | | -40 to +85 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | | | -55 to +150 | $^\circ\text{C}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Allowable Operating range at $T_a = 25^\circ\text{C}$

| Parameter | Conditions | Ratings | Unit |
|----------------------------|--|------------|------|
| Operating supply voltage 1 | V_{DD} output, SW output and ACC output total current $\leq 0.5\text{A}$ | 7.5 to 30 | V |
| | V_{DD} output, SW output and ACC output total current $\leq 0.4\text{A}$ | 7.5 to 32 | V |
| Operating supply voltage 2 | ILM output at 10V | 12 to 32 | V |
| | ILM output at 8V | 10 to 32 | V |
| Operating supply voltage 3 | Audio output at 9V | 10 to 32 | V |
| Operating supply voltage 4 | CD output (CD output current $\leq 1.3\text{A}$) | 10.5 to 24 | V |
| | CD output (CD output current $\leq 0.7\text{A}$) | 10 to 32 | V |

* The area of safe operation of each output is shown in P13-15. Please perform a set design based on an area of safe operation.

Electrical Characteristics at $V_{CC} = 24\text{V}$, $T_a = 25^\circ\text{C}$ (*1)

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|-------------------|---|---------|------|------|------------------|
| | | | min | typ | max | |
| Current drain | I_{CC} | V_{DD} no load, CTRL1/2 = $\lceil L/L \rceil$, ACC = 0V | | 400 | 800 | μA |
| CTRL1 Input | | | | | | |
| Low input voltage | V_{IL1} | | 0 | | 0.5 | V |
| M1 input voltage | V_{IM1} | | 0.8 | 1.1 | 1.4 | V |
| M2 input voltage | V_{IM2} | | 1.9 | 2.2 | 2.5 | V |
| High input voltage | V_{IH1} | | 2.9 | 3.3 | 5.5 | V |
| Input impedance | R_{IH1} | | 350 | 500 | 650 | $\text{k}\Omega$ |
| CTRL2 Input | | | | | | |
| Low input voltage | V_{IL2} | | 0 | | 0.5 | V |
| M input voltage | V_{IM2} | | 1.1 | 1.65 | 2.1 | V |
| High input voltage | V_{IH2} | | 2.5 | 3.3 | 5.5 | V |
| Input impedance | R_{IH2} | | 350 | 500 | 650 | $\text{k}\Omega$ |
| V_{DD} 5V Output *2 The V_{DD} 5V output supplies the output currents of SW 5V and ACC 5V. | | | | | | |
| Output voltage 1 | V_{O1} | $I_{O1} = 200\text{mA}$, I_{O7} , $I_{O8} = 0\text{A}$ | 4.75 | 5.0 | 5.25 | V |
| Output voltage 2 | V_{O1}' | $I_{O1} = 200\text{mA}$, $I_{O7} = 200\text{mA}$, $I_{O8} = 100\text{mA}$ | 4.75 | 5.0 | 5.25 | V |
| Output total current | I_{to1} | $V_{O1} \geq 4.75\text{V}$, $I_{to1} = I_{O1} + I_{O7} + I_{O8}$ | 500 | | | mA |
| Line regulation | ΔV_{OLN1} | $22\text{V} < V_{CC} < 32\text{V}$, $I_{O1} = 200\text{mA} *3$ | | 30 | 90 | mV |
| Load regulation | ΔV_{OLD1} | $1\text{mA} < I_{O1} < 200\text{mA} *3$ | | 70 | 150 | mV |
| Dropout voltage 1 | V_{DROP1} | $I_{O1} = 200\text{mA} *3$ | | 1.0 | 1.5 | V |
| Dropout voltage 2 | V_{DROP1}' | $I_{O1} = 100\text{mA} *3$ | | 0.7 | 1.05 | V |
| Dropout voltage 3 | V_{DROP1}'' | $I_{O1} + I_{O7} + I_{O8} = 500\text{mA}$ | | 2.5 | 3.75 | V |
| Ripple rejection | R_{REJ1} | $f = 120\text{Hz}$, $I_{O1} = 200\text{mA} *3$ | 40 | 50 | | dB |

*1: All the specifications are provided for by the test by the fact that $T_j (= 25^\circ\text{C})$ is almost equal. To suppress the rise of T_j in the joint part temperature as much as possible, it tests by the pulse loading.

*2: The V_{DD} 5V output also supplies the output currents of SW 5V and ACC 5V. Therefore, the current supply capability of the V_{DD} 5V output and its other electrical characteristics are affected by the output statuses of SW 5V and ACC 5V.

*3: SW 5V and ACC 5V are not subject to a load.

Continued on next page.

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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------------|---|-----------------------|----------------------|-------|------|
| | | | min | typ | max | |
| CD Output ; CTRL2 = [H] | | | | | | |
| Output voltage | V _{O2} | I _{O2} = 1000mA | 7.6 | 8.0 | 8.4 | V |
| Output current | I _{O2} | V _{O2} ≥ 7.6V | 1300 | | | mA |
| Line regulation | ΔV _{OLN2} | 22V < V _{CC} < 32V, I _{O2} = 1000mA | | 50 | 100 | mV |
| Load regulation | ΔV _{OLD2} | 10mA < I _{O2} < 1000mA | | 100 | 200 | mV |
| Dropout voltage 1 | V _{DROP2} | I _{O2} = 1000mA | | 1.0 | 1.5 | V |
| Dropout voltage 2 | V _{DROP2'} | I _{O2} = 500mA | | 0.5 | 0.75 | V |
| Ripple rejection | R _{REJ2} | f = 120Hz, I _{O2} = 1000mA | 40 | 50 | | dB |
| AUDIO (8-9V) Output ; CTRL2 = [M] | | | | | | |
| AUDIO_F pin voltage | V _{I3} | | 1.222 | 1.260 | 1.298 | V |
| AUDIO_F pin inflow current | I _{IN3} | | -1 | | 1 | μA |
| AUDIO output voltage 1 | V _{O3} | I _{O3} = 200mA, R ₂ = 30kΩ, R ₃ = 5.6kΩ *4 | 7.65 | 8.0 | 8.35 | V |
| AUDIO output voltage 2 | V _{O3'} | I _{O3} = 200mA, R ₂ = 27kΩ, R ₃ = 4.7kΩ *4 | 8.13 | 8.5 | 8.87 | V |
| AUDIO output voltage 3 | V _{O3''} | I _{O3} = 200mA, R ₂ = 24kΩ, R ₃ = 3.9kΩ *4 | 8.6 | 9.0 | 9.4 | V |
| AUDIO output current | I _{O3} | | 300 | | | mA |
| Line regulation | ΔV _{OLN3} | 22V < V _{CC} < 32V, I _{O3} = 200mA | | 30 | 90 | mV |
| Load regulation | ΔV _{OLD3} | 1mA < I _{O3} < 200mA | | 70 | 150 | mV |
| Dropout voltage 1 | V _{DROP3} | I _{O3} = 200mA | | 0.3 | 0.45 | V |
| Dropout voltage 2 | V _{DROP3'} | I _{O3} = 100mA | | 0.15 | 0.23 | V |
| Ripple rejection | R _{REJ3} | f = 120Hz, I _{O3} = 200mA | 40 | 50 | | dB |
| ILM (8-12V) Output ; CTRL1 = [M1] | | | | | | |
| ILM_F pin voltage | V _{I4} | | 1.222 | 1.260 | 1.298 | V |
| ILM output voltage 1 | V _{O4} | I _{O4} = 200mA | 11.4 | 12.0 | 12.6 | V |
| ILM output voltage 2 | V _{O4'} | I _{O4} = 200mA, R ₁ = 270kΩ *5 | 8.5 | 10.0 | 11.5 | V |
| ILM output voltage 3 | V _{O4''} | I _{O4} = 200mA, R ₁ = 100kΩ *5 | 6.8 | 8.0 | 9.2 | V |
| ILM output current | I _{O4} | R ₁ = 270kΩ | 300 | | | mA |
| Line regulation | ΔV _{OLN4} | 22V < V _{CC} < 32V, I _{O4} = 200mA | | 30 | 90 | mV |
| Load regulation | ΔV _{OLD4} | 1mA < I _{O4} < 200mA | | 70 | 150 | mV |
| Dropout voltage 1 | V _{DROP4} | I _{O4} = 200mA | | 0.7 | 1.05 | V |
| Dropout voltage 2 | V _{DROP4'} | I _{O4} = 100mA | | 0.35 | 0.53 | V |
| Ripple rejection | R _{REJ4} | f = 120Hz, I _{O4} = 200mA | 40 | 50 | | dB |
| Remoto (EXT) ; CTRL1 = [M2] | | | | | | |
| Output voltage | V _{O5} | I _{O5} = 350mA | V _{CC} -1.0 | V _{CC} -0.5 | | V |
| Output current | I _{O5} | V _{O5} ≥ V _{CC} -1.0 | 350 | | | mA |
| ANT remoto ; CTRL1 = [H] | | | | | | |
| Output voltage | V _{O6} | I _{O6} = 300mA | V _{CC} -1.0 | V _{CC} -0.5 | | V |
| Output current | I _{O6} | V _{O6} ≥ V _{CC} -1.0 | 300 | | | mA |
| SW 5V Output ; CTRL2 = [M] | | | | | | |
| Output voltage 1 | V _{O7} | I _{O7} = 1mA, I _{O1} , I _{O8} = 0A *6 | V _{O1} -0.25 | V _{O1} | | V |
| Output voltage 2 | V _{O7'} | I _{O7} = 200mA, I _{O1} , I _{O8} = 0A *6 | V _{O1} -0.45 | V _{O1} -0.2 | | V |
| Output current | I _{O7} | V _{O7} ≥ 4.55 | 200 | | | mA |
| ACC Detection ; ACC Integration 5V output | | | | | | |
| ACC detection voltage | V _{TH8} | | 2.8 | 3.0 | 3.2 | V |
| Hysteresis width | V _{HIS8} | | 0.2 | 0.3 | 0.4 | V |
| Input impedance | Z _{I8} | (Pull-down resistance internal) | 42 | 60 | 78 | kΩ |
| ACC output voltage 1 | V _{O8} | I _{O8} = 0.5mA, I _{O1} , I _{O7} = 0A *6 | V _{O1} -0.25 | V _{O1} | | V |
| ACC output voltage 2 | V _{O8'} | I _{O8} = 100mA, I _{O1} , I _{O7} = 0A *6 | V _{O1} -0.45 | V _{O1} -0.2 | | V |
| ACC output current | I _{O8} | V _{O8} ≥ 4.55 | 100 | | | mA |

*4 : When a component with a resistance accuracy of ±1% is used

<Reference> When a component with a resistance accuracy of ±0.5% is used, V_{O3''} is 8.67V ≤ 9.0V ≤ 9.33V.

*5 : When a component with a resistance accuracy of ±1% is used

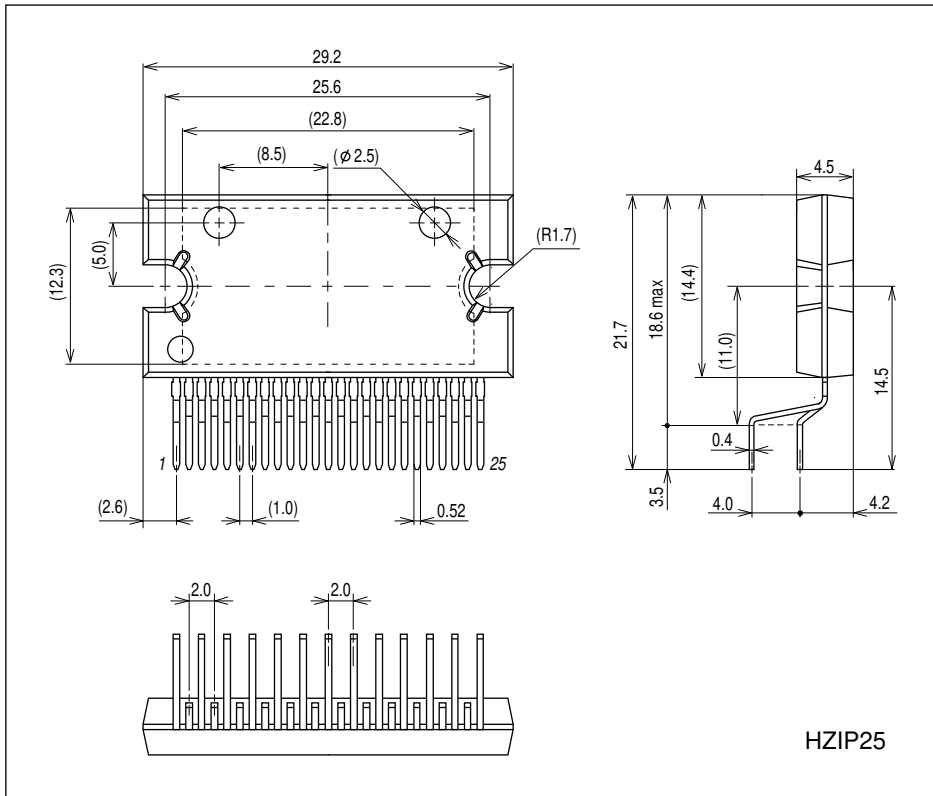
The absolute accuracy of the internal resistance is ±15%.

*6 : Since the SW 5V and ACC 5V are output from V_{DD} 5V through the SW, the voltage drops by an amount equivalent to the ON resistance of the SW.

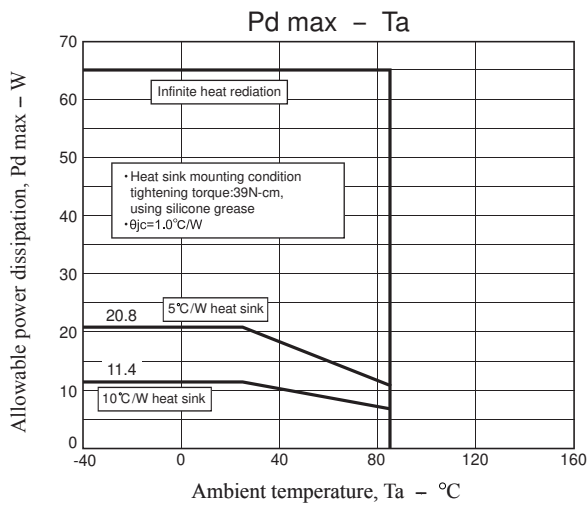
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Package Dimensions

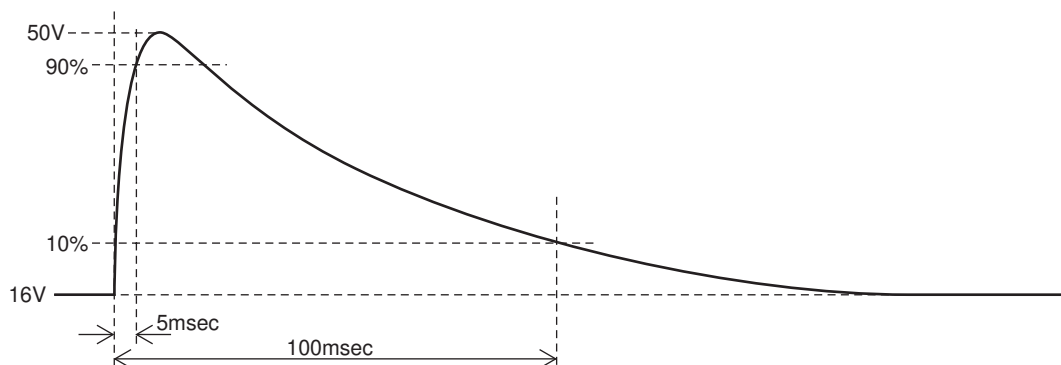
unit : mm (typ)



• Allowable power dissipation derating curve

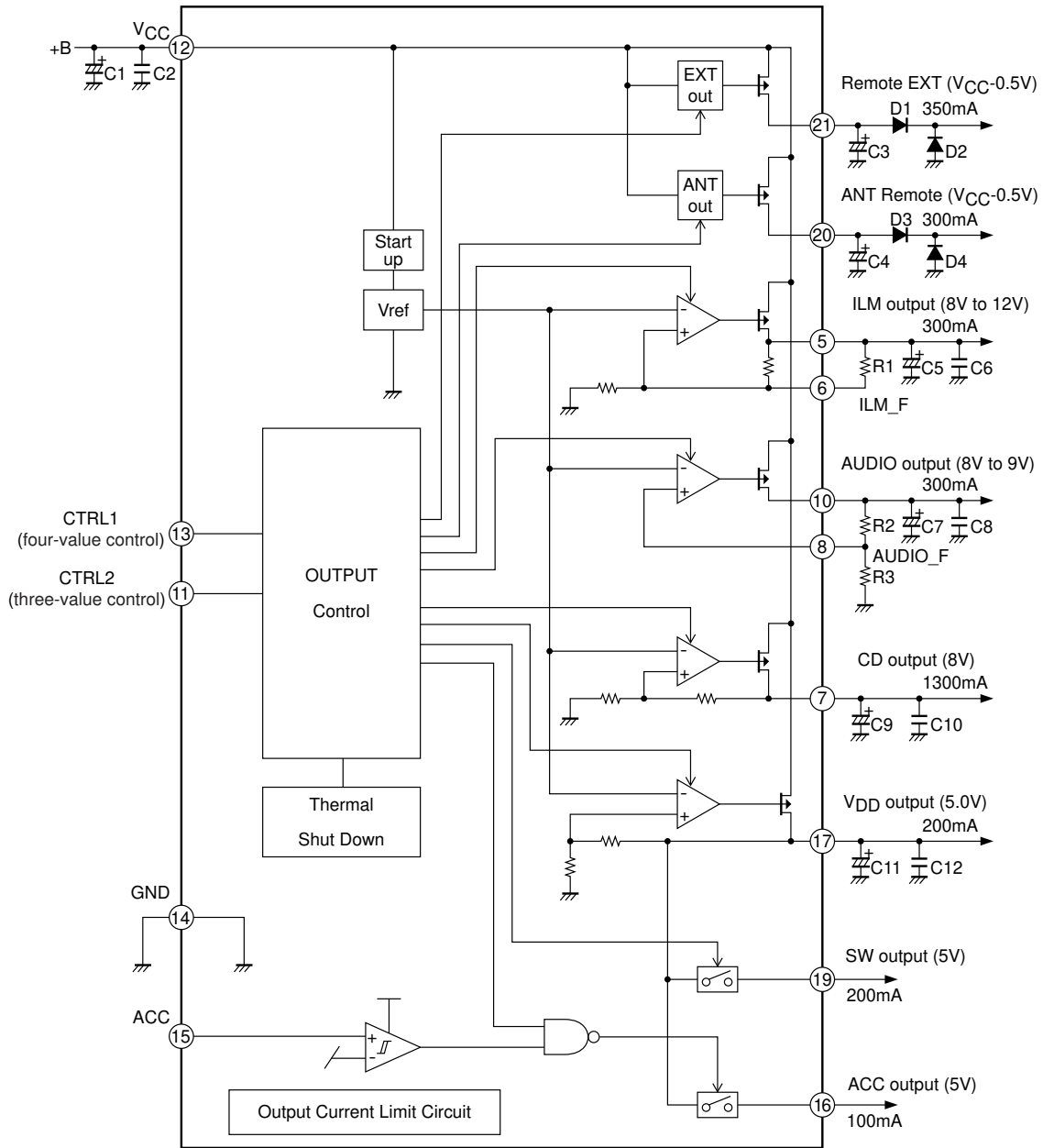


• Waveform applied during surge test



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Block Diagram



Pin Function

| Pin No. | Pin name | Description | Equivalent Circuit |
|---------|----------|--|--------------------|
| 1 to 4 | N.C. | - | - |
| 5 | ILM | ILM output pin ON when CTRL1 = M1, M2, H 12.0V/300mA | |
| 6 | ILM_F | ILM output voltage adjustment pin | |

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| Pin No. | Pin name | Description | Equivalent Circuit |
|---------|-----------------|--|--------------------|
| 7 | CD | CD output pin ON when CTRL2 = M, H 8.0V/1.3A | |
| 8 | AUDIO_F | AUIDO output voltage adjustment pin | |
| 9 | N.C. | - | |
| 10 | AUDIO | AUDIO output pin ON when CTRL2 = M, H | |
| 11 | CTRL2 | CTRL2 input pin three-value input | |
| 12 | V _{CC} | Supply terminal | |
| 13 | CTRL1 | CTRL1 input pin four-value input | |
| 14 | GND | GND pin | |

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| Pin No. | Pin name | Description | Equivalent Circuit |
|----------|--------------------|--|--------------------|
| 15 | ACC | Accessory input | |
| 16 | ACC5V | Accessory detection output ON when ACC > 3V | |
| 17 | V _{DD} 5V | V _{DD} 5V output pin 5.0V/200mA | |
| 18 | N.C. | - | |
| 19 | SW5V | SW5V output pin ON when CTRL2 = M, H | |
| 20 | ANT | ANT output pin ON when CTRL1 = H V _{CC} -0.5V/300mA | |
| 21 | EXT | EXT output pin ON when CTRL1 = M2, H V _{CC} -0.5V/350mA | |
| 22 to 25 | N.C. | - | - |

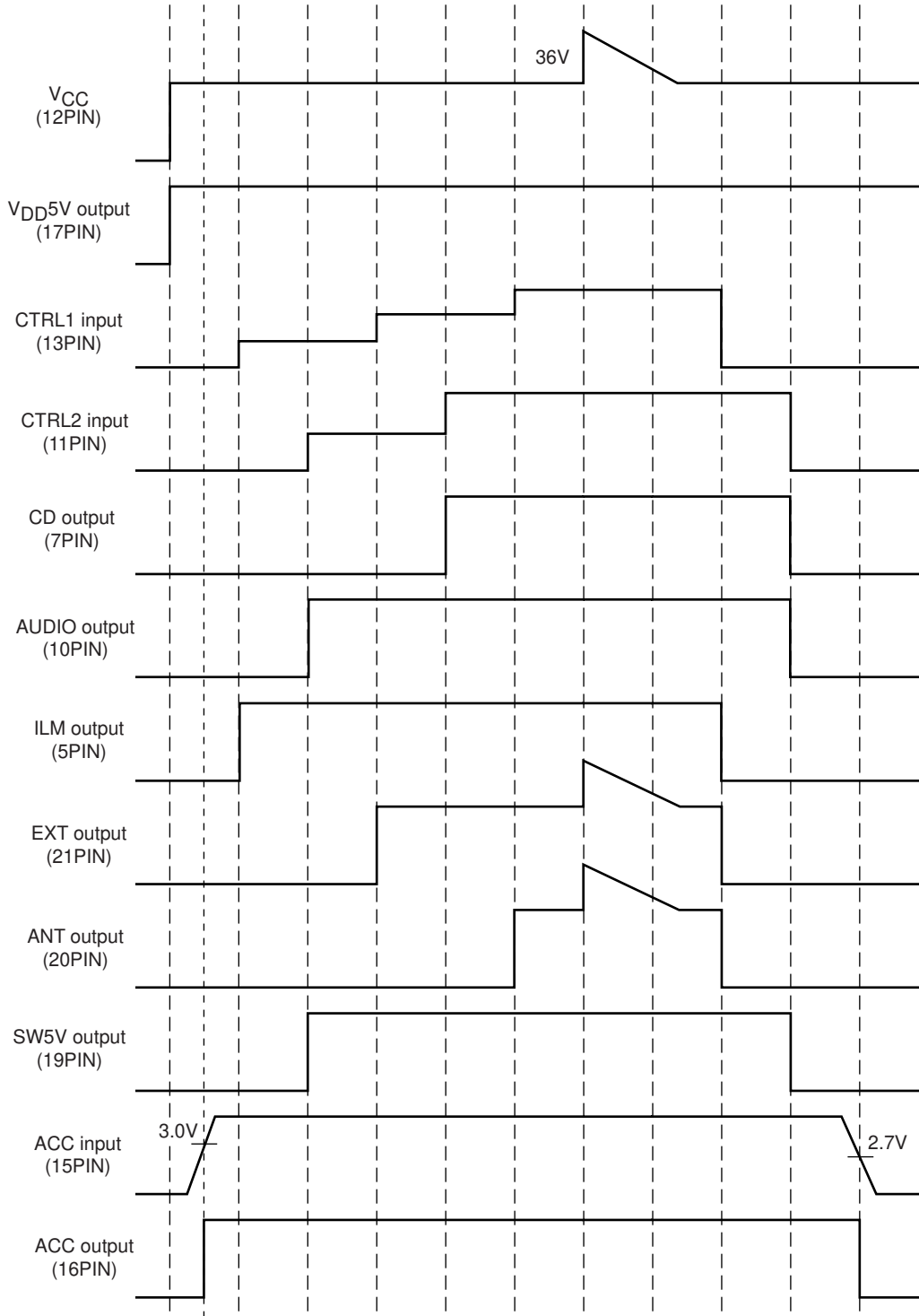
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CTRL Pin Output Truth Table

| CTRL1 | ANT | EXT | ILM |
|-------|-----|-----|-----|
| L | OFF | OFF | OFF |
| M1 | OFF | OFF | ON |
| M2 | OFF | ON | ON |
| H | ON | ON | ON |

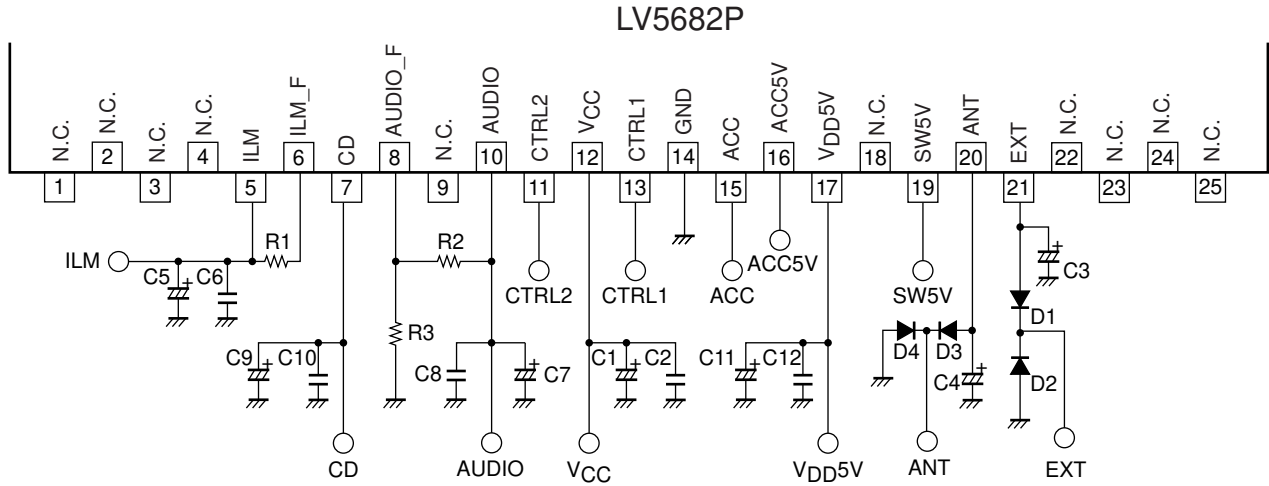
| CTRL2 | CD | AUDIO | SW5 |
|-------|-----|-------|-----|
| L | OFF | OFF | OFF |
| M | OFF | ON | ON |
| H | ON | ON | ON |

Timing Chart



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Recommended Operation Circuit



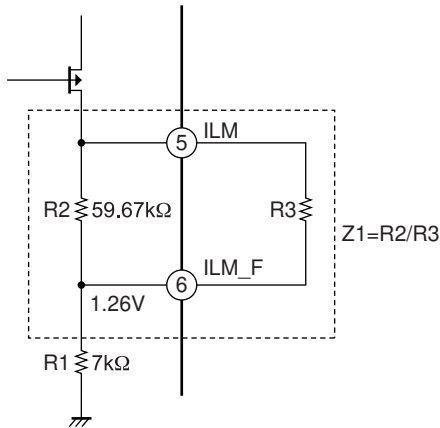
Peripheral parts list

| Name of part | Description | Recommended value | Remarks |
|-------------------|--|--|---|
| C1 | Power supply bypass capacitor | 100 μ F or more | These capacitors must be placed near the V _{CC} and GND pins. |
| C2 | Oscillation prevention capacitor | 0.22 μ F or more | |
| C3 | EXT output stabilization capacitor | 2.2 μ F or more | |
| C4 | ANT output stabilization capacitor | 2.2 μ F or more | |
| C6, C9, C11, C13 | Output stabilization capacitor | 4.7 μ F or more | Electrolytic capacitor * |
| C7, C10, C12, C14 | Output stabilization capacitor | 0.22 μ F or more | Ceramic capacitor * |
| R1 | Resistor for ILM voltage adjustment | ILM output voltage R1:without = 12.0V :270k Ω = 10.0V | A resistor with resistance accuracy as low as less than $\pm 1\%$ must be used. |
| R2, R3 | Resistor for AUDIO voltage setting | R2/R3:30k Ω /5.6k Ω = 8.0V :27k Ω /4.7k Ω = 8.5V :24k Ω /3.9k Ω = 9.0V | A resistor with resistance accuracy as low as less than $\pm 1\%$ must be used. |
| D1, D2, D3, D4 | Diode for internal device breakdown protection | | Recommendation: SBD1003M3(30V/1.0A) |

* : In order to stabilize the regulator outputs, it is recommended that the electrolytic capacitor and ceramic capacitor be connected in parallel.

Moreover, the above-mentioned value doesn't guarantee the operation stability in use and the overcurrent protection operation by I_{Omax} or more of the regulator. Therefore, there is a possibility of oscillating by use conditions.

• ILM output voltage setting method



The ILM_F voltage is determined by the internal band gap voltage of the IC (typ = 1.26V).

Formula for ILM voltage calculation

$$Z_1 = R_2 // R_3 = \frac{R_2 \cdot R_3}{R_2 + R_3}$$

$$ILM = \frac{1.26[V]}{R_1} \times Z_1 + 1.26[V]$$

$$Z_1 = \frac{(ILM - 1.26) \cdot R_1}{1.26} \quad R_3 = \frac{R_2 \cdot Z_1}{R_2 - Z_1}$$

Example : ILM = 9V setting method

$$Z_1 = \frac{(9V - 1.26V) \cdot 7k\Omega}{1.26V} \cong 43k\Omega$$

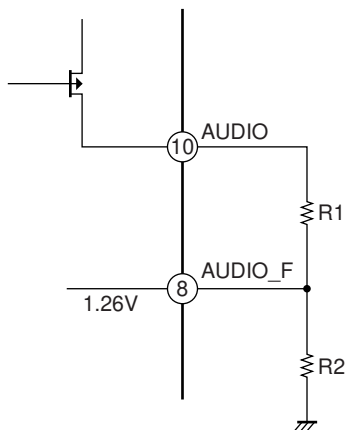
$$R_3 = \frac{59.67k\Omega \cdot 43k\Omega}{59.67k\Omega - 43k\Omega} \cong 153.9k\Omega \rightarrow \boxed{150k\Omega}$$

When R3 = 150k, the ILM output voltage will be as follows:

$$Z_1' = \frac{59.67k\Omega \cdot 150k\Omega}{59.67k\Omega + 150k\Omega} \cong 42.69k\Omega$$

$$ILM = \frac{1.26V}{7k\Omega} \times 42.69k\Omega + 1.26V \cong \boxed{8.94V}$$

• AUDIO output voltage setting method



The AUDIO_F voltage is determined by the internal band gap voltage of the IC (typ = 1.26V).

Formula for AUDIO voltage calculation

$$AUDIO = \frac{1.26[V]}{R_2} \times R_1 + 1.26[V]$$

$$\frac{R_1}{R_2} = \frac{(AUDIO - 1.26)}{1.26}$$

The circuit must be designed in such a way that the R1:R2 ratio satisfies the formula given above for the AUDIO voltage that has been set.

Example : AUDIO = 8.5V setting method

$$\frac{R_1}{R_2} = \frac{(8.5 - 1.26)}{1.26} \cong 5.75$$

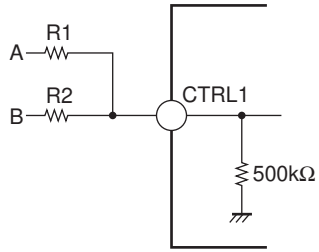
$$\frac{R_1}{R_2} = \frac{27k\Omega}{4.7k\Omega} \cong 5.74$$

$$AUDIO = 1.26V \times 5.74 + 1.26V \cong \boxed{8.49V}$$

Note : In the above, the typical values are given in all instances for the values used and, as such, they will vary due to the effects of production-related variations of the IC and external resistors.

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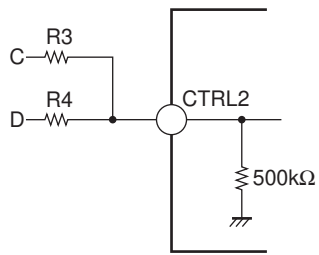
• CTRL1 Application Circuit Example



(1) 3.3V input: $R1 = 4.7k\Omega$, $R2 = 10k\Omega$

| A | B | CTRL1 |
|------|------|-------|
| 0V | 0V | 0V |
| 0V | 3.3V | 1.05V |
| 3.3V | 0V | 2.23V |
| 3.3V | 3.3V | 3.20V |

• CTRL2 Application Circuit Example



(1) 3.3V input: $R3 = R4 = 4.7k\Omega$

| A | B | CTRL2 |
|------|------|-------|
| 0V | 0V | 0V |
| 0V | 3.3V | 1.61V |
| 3.3V | 0V | 1.61V |
| 3.3V | 3.3V | 3.29V |

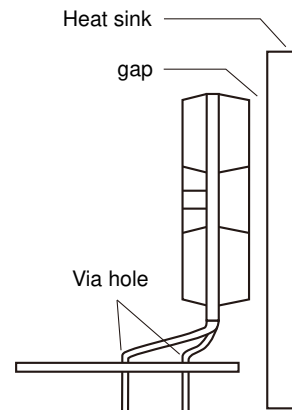
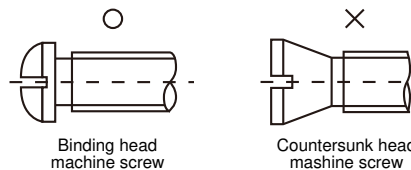
HZIP25 Heat sink attachment

Heat sinks are used to lower the semiconductor device junction temperature by leading the heat generated by the device to the outer environment and dissipating that heat.

- a. Unless otherwise specified, for power ICs with tabs and power ICs with attached heat sinks, solder must not be applied to the heat sink or tabs.

b. Heat sink attachment

- Use flat-head screws to attach heat sinks.
- Use also washer to protect the package.
- Use tightening torques in the ranges 39-59Ncm(4-6kgcm) .
- If tapping screws are used, do not use screws with a diameter larger than the holes in the semiconductor device itself.
- Do not make gap, dust, or other contaminants to get between the semiconductor device and the tab or heat sink.
- Take care a position of via hole .
- Do not allow dirt, dust, or other contaminants to get between the semiconductor device and the tab or heat sink.
- Verify that there are no press burrs or screw-hole burrs on the heat sink.
- Warping in heat sinks and printed circuit boards must be no more than 0.05 mm between screw holes, for either concave or convex warping.
- Twisting must be limited to under 0.05 mm.
- Heat sink and semiconductor device are mounted in parallel.
Take care of electric or compressed air drivers
- The speed of these torque wrenches should never exceed 700 rpm, and should typically be about 400 rpm.



c. Silicone grease

- Spread the silicone grease evenly when mounting heat sinks.
- Recommends YG-6260 (Momentive Performance Materials Japan LLC)

d. Mount

- First mount the heat sink on the semiconductor device, and then mount that assembly on the printed circuit board.
- When attaching a heat sink after mounting a semiconductor device into the printed circuit board, when tightening up a heat sink with the screw, the mechanical stress which is impossible to the semiconductor device and the pin doesn't hang.

e. When mounting the semiconductor device to the heat sink using jigs, etc.,

- Take care not to allow the device to ride onto the jig or positioning dowel.
- Design the jig so that no unreasonable mechanical stress is not applied to the semiconductor device.

f. Heat sink screw holes

- Be sure that chamfering and shear drop of heat sinks must not be larger than the diameter of screw head used.
- When using nuts, do not make the heat sink hole diameters larger than the diameter of the head of the screws used. A hole diameter about 15% larger than the diameter of the screw is desirable.
- When tap screws are used, be sure that the diameter of the holes in the heat sink are not too small. A diameter about 15% smaller than the diameter of the screw is desirable.

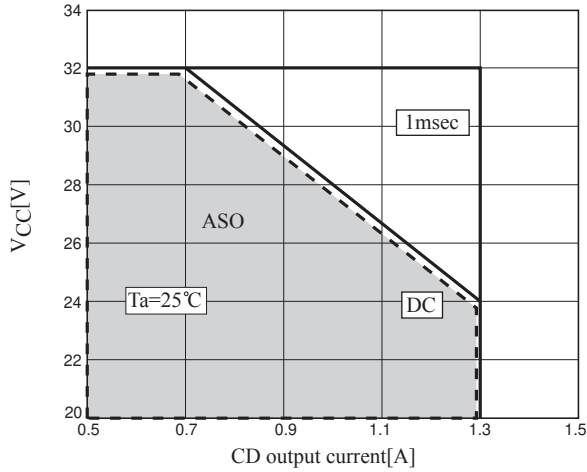
- g. There is a method to mount the semiconductor device to the heat sink by using a spring band. But this method is not recommended because of possible displacement due to fluctuation of the spring force with time or vibration.

LV5682P

Caution for usage

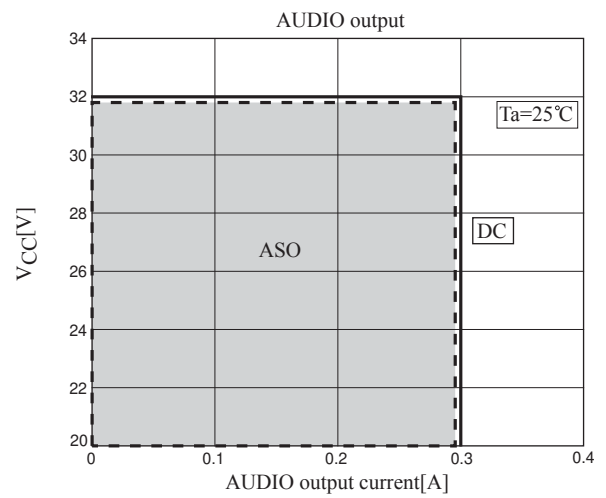
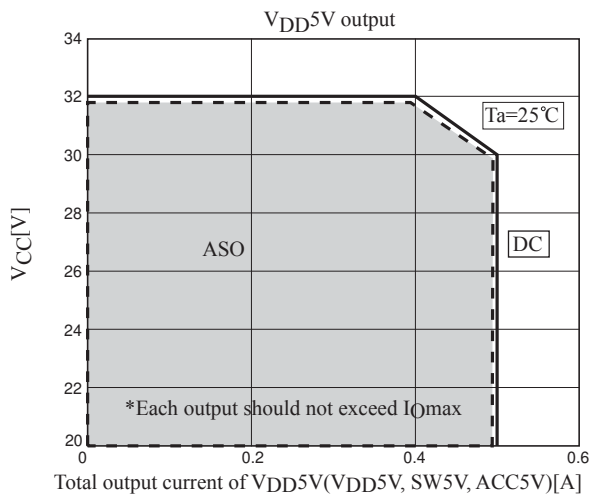
When allowable power dissipation and power supply voltage exceed absolute maximum ratings or depends on usage conditions, LV5682P may be destroyed before Thermal Shut Down circuit operates.

Particularly caution is required for CD output. CD output can output high current and power dissipation is high. Therefore, when electric potential of VCC is high, a risk for IC destruction increases. The following diagram shows Area of Safety Operation (ASO) CD output under the TYP conditions. However, it only shows the case where CD output is used independently. IC destruction may occur due to usage conditions in your system or manufacturing process of the IC. Therefore, your system should be designed with margin for a practical usage.

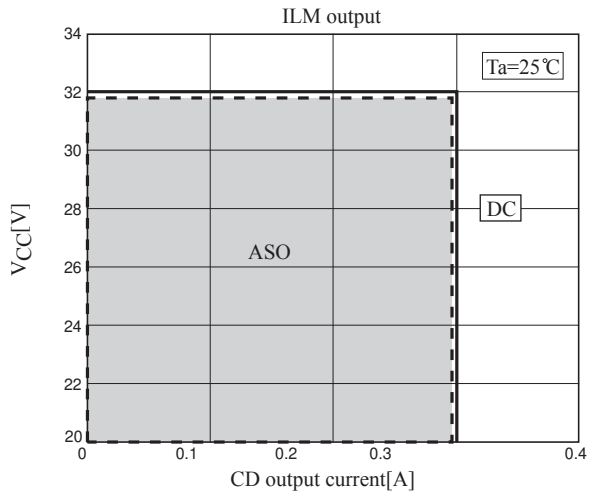


*CD output is used independently with board and without heatsink

Other channel of Area of Safety Operation (ASO)

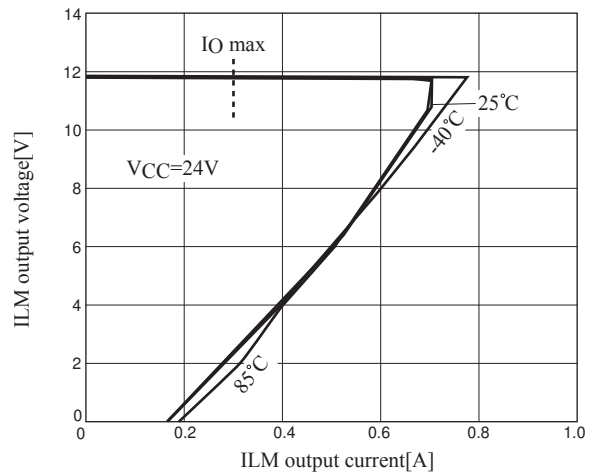
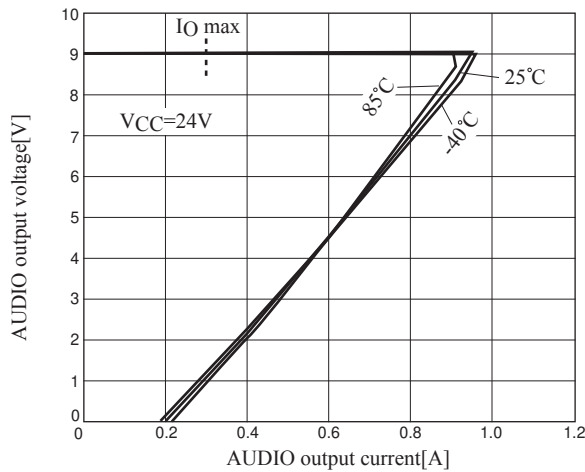
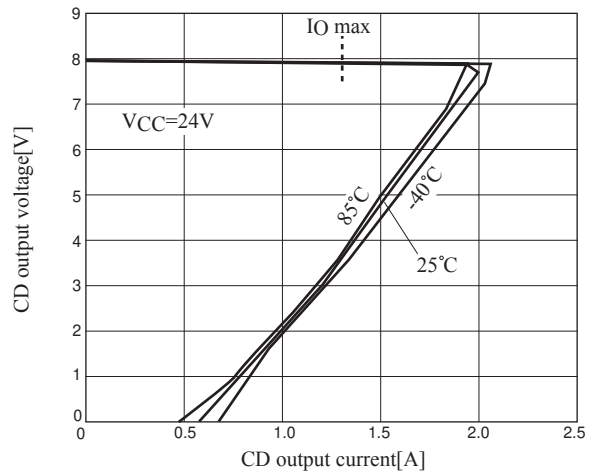
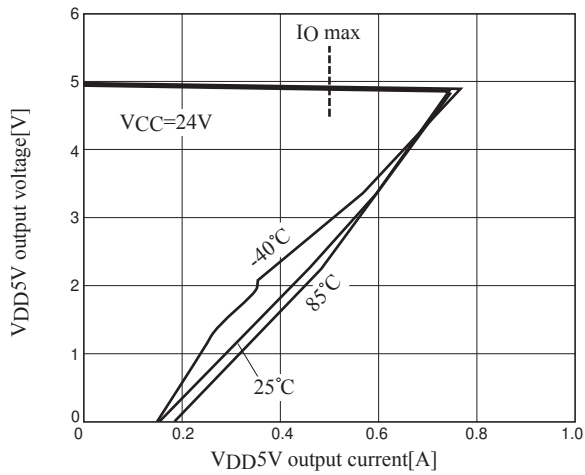


LV5682P

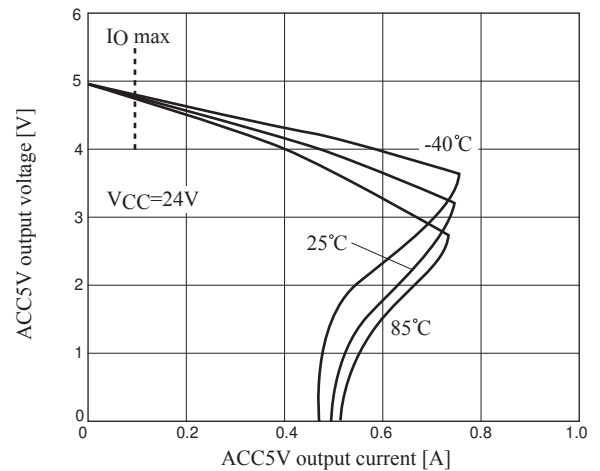
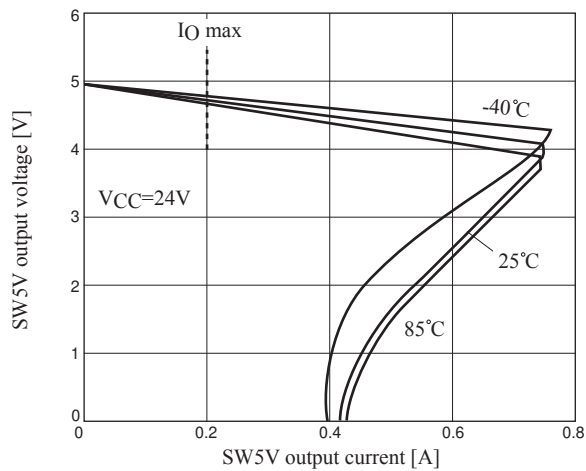
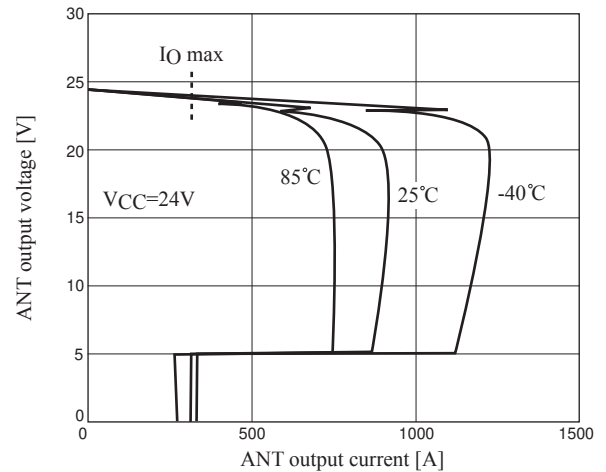
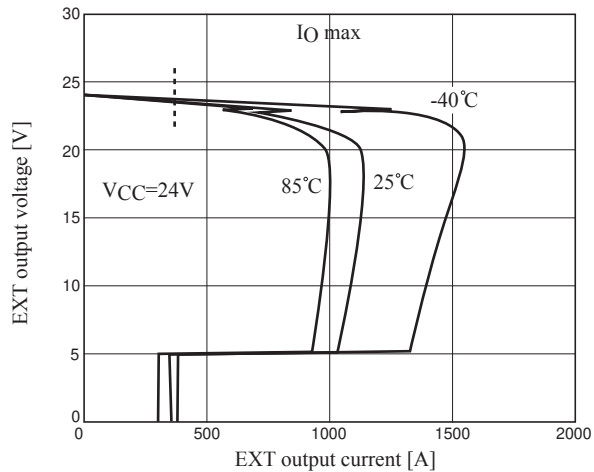


*Characteristics of output current vs. output voltage (output pin).

Evaluation is performed with pulse load so that T_j and T_a become almost equal. Also, the following shows typical characteristics with a standard sample. Characteristics may fluctuate depends on IC manufacturing process.



LV5682P



ORDERING INFORMATION

| Device | Package | Shipping (Qty / Packing) |
|-----------|---------------------|--------------------------|
| LV5682P-E | HZIP25 (Pb-Free) | 15 / Fan-Fold |

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