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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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SI-8000SD Series Surface Mount, Separate Excitation Step-down Switching Mode

Features

- Surface-mount package (TO263-5)
- Output current: 3.0A
- High efficiency: 79% typ. (SI-8033SD), 84% typ. (SI-8050SD)
- Requires only 4 discrete external components
- Internally-adjusted phase correction and output voltage
- Built-in reference oscillator (60kHz)
- Built-in overcurrent and thermal protection circuits
- Output ON/OFF available
- Soft start available by S.S pin

Lineup

| Part Number | SI-8033SD | SI-8050SD |
|-------------|-----------|-----------|
| Vo (V) | 3.3 | 5.0 |
| Io (A) | 3 | |

Absolute Maximum Ratings

| Parameter | Symbol | Ratings | Unit | Conditions |
|--|------------------|-------------|------|--|
| DC Input Voltage | V _{IN} | 43*1 | V | |
| Power Dissipation*2 | P _D | 3 | W | When mounted on glass-epoxy board 40 x 40 mm (copper area: 100%) |
| Junction Temperature | T _j | +125 | °C | |
| Storage Temperature | T _{stg} | -40 to +125 | °C | |
| Thermal Resistance (Junction to Case) | θ _{J-C} | 3 | °C/W | |
| Thermal Resistance (Junction to Ambient Air) | θ _{J-A} | 33.3 | °C/W | When mounted on glass-epoxy board 40 x 40 mm (copper area: 100%) |

*1: 35V for SI-8033SD

*2: Limited by thermal protection circuit.

Applications

- Power supplies for telecommunication equipment
- Onboard local power supplies

Recommended Operating Conditions

| Parameter | Symbol | Ratings | | Unit |
|--------------------------------------|------------------|-------------|-----------|------|
| | | SI-8033SD | SI-8050SD | |
| DC Input Voltage Range | V _{IN1} | 5.5 to 28 | 7 to 40 | V |
| Output Current Range* | I _O | 0 to 3.0 | | A |
| Operating Junction Temperature Range | T _{jop} | -30 to +125 | | °C |
| Operating Temperature Range* | T _{op} | -30 to +125 | | °C |

*: Limited by Ta-Pd characteristics.

Electrical Characteristics

(T_a=25°C)

| Parameter | Symbol | Ratings | | | | | | Unit |
|---|----------------------------------|---|------|------|---|------|-------|------|
| | | SI-8033SD | | | SI-8050SD | | | |
| | | min. | typ. | max. | min. | typ. | max. | |
| Output Voltage | V _O | 3.17 | 3.3 | 3.43 | 4.8 | 5.0 | 5.2 | V |
| | Conditions | V _{IN} =15V, I _O =1A | | | V _{IN} =20V, I _O =1A | | | |
| Efficiency | η | 79 | | | 84 | | | % |
| | Conditions | V _{IN} =15V, I _O =1A | | | V _{IN} =20V, I _O =1A | | | |
| Oscillation Frequency | f | 60 | | | 60 | | | kHz |
| | Conditions | V _{IN} =15V, I _O =1A | | | V _{IN} =20V, I _O =1A | | | |
| Line Regulation | ΔV _{OLINE} | 25 | | 80 | 40 | | 100 | mV |
| | Conditions | V _{IN} =8 to 28V, I _O =1A | | | V _{IN} =10 to 30V, I _O =1A | | | |
| Load Regulation | ΔV _{OLOAD} | 10 | | 30 | 10 | | 40 | mV |
| | Conditions | V _{IN} =15V, I _O =0.5 to 1.5A | | | V _{IN} =20V, I _O =0.5 to 1.5A | | | |
| Temperature Coefficient of Output Voltage | ΔV _O /ΔT _a | ±0.5 | | | ±0.5 | | mV/°C | |
| Overcurrent Protection Starting Current | I _{S1} | 3.1 | | | 3.1 | | | A |
| | Conditions | V _{IN} =15V | | | V _{IN} =20V | | | |
| Soft Start Pin* | Low-Level Voltage | V _{SSL} | | | 0.2 | | | V |
| | Outflow Current at Low Voltage | I _{SSL} | | | 20 | | | |
| | | | | | V _{SSL} =0.2V | | | μA |

* Pin 5 is a soft start pin. Soft start at power on can be performed with a capacitor connected to this pin.

The output can also be turned ON/OFF with this pin.

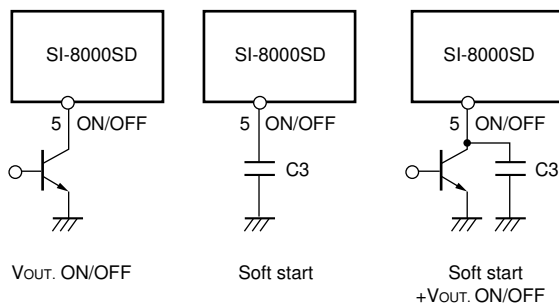
The output is stopped by setting the voltage of this pin to V_{SSL} or lower.

Soft-start pin voltage can be changed with an open-collector drive circuit of a transistor.

When using both the soft-start and ON/OFF functions together, the discharge current from C₃ flows into the ON/OFF control transistor. Therefore, limit the current securely to protect the transistor if C₃ capacitance is large.

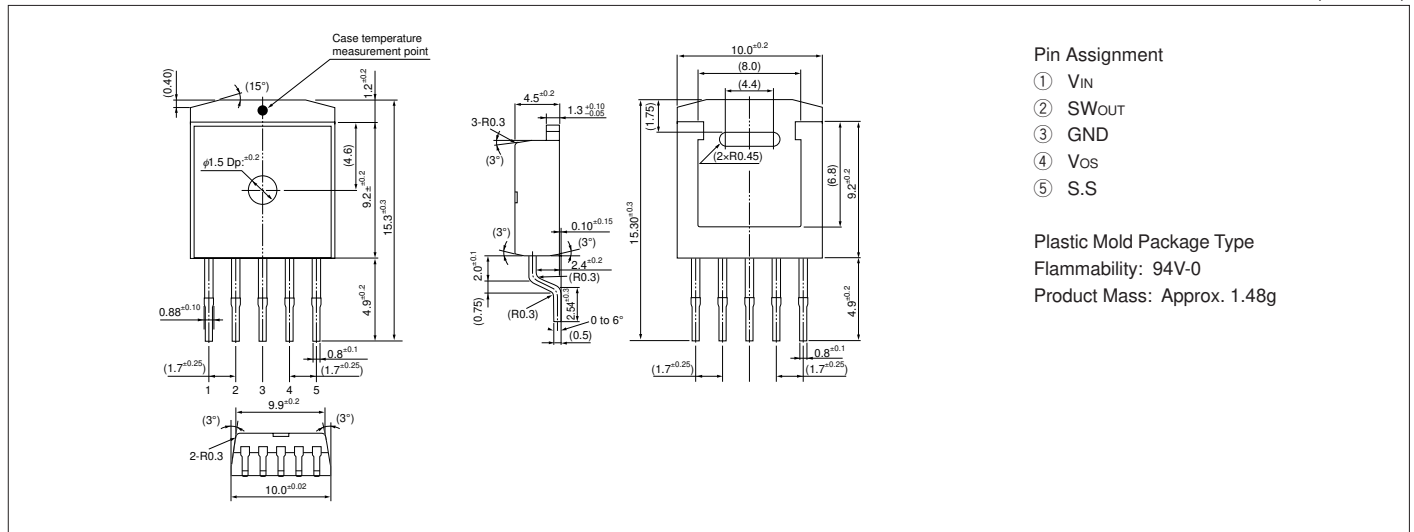
The ON/OFF pin is pulled up to the power supply in the IC, so applying the external voltage is prohibited.

If this pin is not used, leave it open.



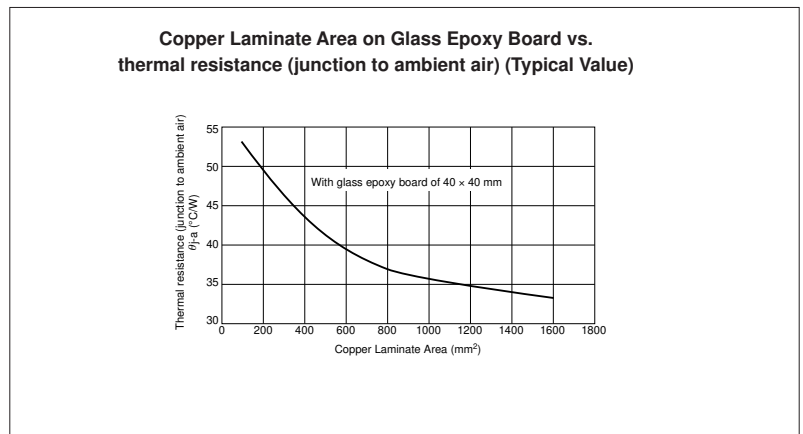
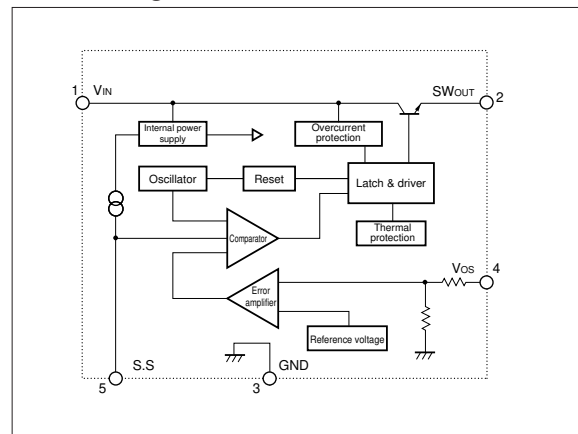
External Dimensions (TO263-5)

(Unit : mm)



Block Diagram

Reference Data



Typical Connection Diagram

