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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.

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

■Features

- Surface-mount package (TO263-5)
- Output current: 1.5A
- High efficiency: 77 to 88%
- Requires only 4 discrete components
- Internally-adjusted phase correction and output voltage
- Capable of downsizing a choke-coil due to IC's high switching frequency (125 kHz). (Compared with conventional Sanken devices)
- Built-in foldback-overcurrent and thermal protection circuits
- Output ON/OFF available (Circuit current at output OFF: 200 μ A max)
- Soft start available by ON/OFF pin Conditions

■Lineup

Part Number	SI-8033JD	SI-8050JD	SI-8090JD	SI-8120JD
V _o (V)	3.3	5.0	9.0	12.0
I _o (A)	1.5			

■Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit	Conditions
DC Input Voltage	V _{IN}	43	V	
Output Current	I _o	1.5	A	
Power Dissipation*	P _d	3	W	When mounted on glass-epoxy board 40 × 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 × 40 mm (copper area 100%)

*: Limited by thermal protection circuit

■Applications

- Power supplies for telecommunication equipment
- Onboard local power supplies, etc.

■Recommended Operating Conditions

Parameter	Symbol	Ratings				Unit	Conditions
		SI-8033JD	SI-8050JD	SI-8090JD	SI-8120JD		
DC Input Voltage Range	V _{IN1}	5.3 to 40	7 to 40	11 to 40	14 to 40	V	I _o =0 to 1A
	V _{IN2}	6.3 to 40	8 to 40	12 to 40	15 to 40		I _o =0 to 1.5A
DC Output Current Range*	I _o	0 to 1.5				A	V _{IN} ≥V _o +3V
Operating Junction Temperature Range	T _{top}	-30 to +125				°C	
Operating Temperature Range*	T _{op}	-30 to +125				°C	

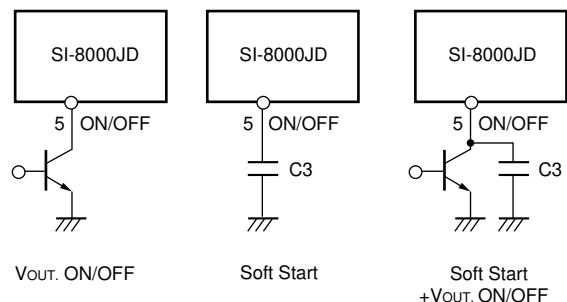
*: Limited by Ta–Pd characteristics

■Electrical Characteristics

(T_a=25°C)

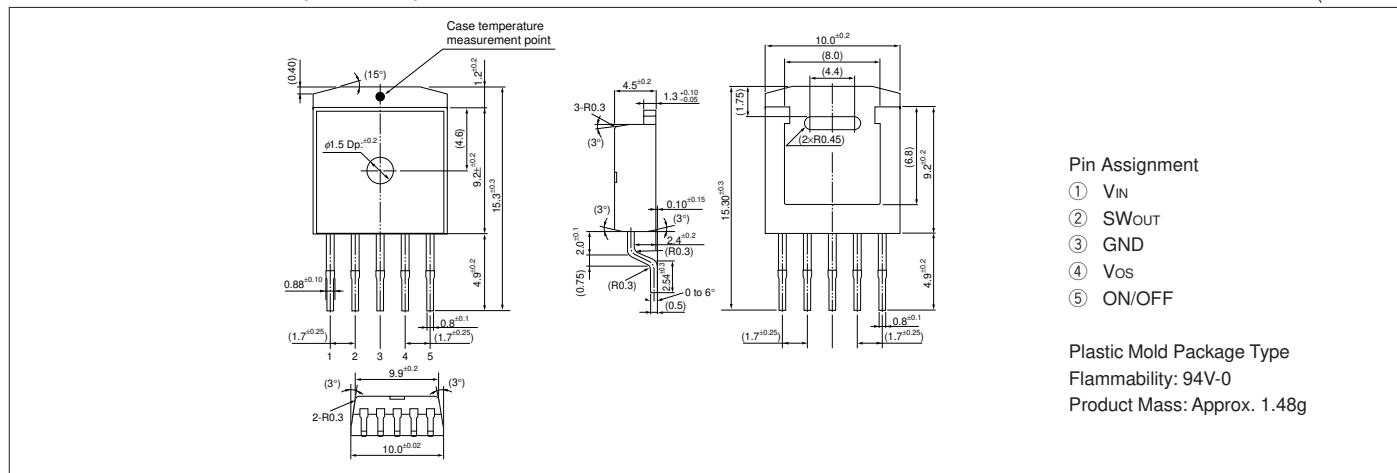
Parameter	Symbol	Ratings												Unit	
		SI-8033JD			SI-8050JD			SI-8090JD			SI-8120JD				
		min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.		
Output Voltage	V _o	3.234	3.30	3.366	4.90	5.00	5.10	8.82	9.00	9.18	11.76	12.00	12.24	V	
	Conditions	V _{IN} =15V, I _o =0.5A			V _{IN} =20V, I _o =0.5A			V _{IN} =21V, I _o =0.5A			V _{IN} =24V, I _o =0.5A				
Efficiency	η	77			82			86			88			%	
	Conditions	V _{IN} =15V, I _o =0.5A			V _{IN} =20V, I _o =0.5A			V _{IN} =21V, I _o =0.5A			V _{IN} =24V, I _o =0.5A				
Oscillation Frequency	f	125			125			125			125			kHz	
	Conditions	V _{IN} =15V, I _o =0.5A			V _{IN} =20V, I _o =0.5A			V _{IN} =21V, I _o =0.5A			V _{IN} =24V, I _o =0.5A				
Line Regulation	Δ V _{oLINE}	25 80			40 100			50 120			60 130			mV	
	Conditions	V _{IN} =8 to 30V, I _o =0.5A			V _{IN} =10 to 30V, I _o =0.5A			V _{IN} =15 to 30V, I _o =0.5A			V _{IN} =18 to 30V, I _o =0.5A				
Load Regulation	Δ V _{oLOAD}	10 30			10 40			10 40			10 40			mV	
	Conditions	V _{IN} =15V, I _o =0.2 to 0.8A			V _{IN} =20V, I _o =0.2 to 0.8A			V _{IN} =21V, I _o =0.2 to 0.8A			V _{IN} =24V, I _o =0.2 to 0.8A				
Temperature Coefficient of Output Voltage	Δ V _o /ΔT _a	±0.5			±0.5			±1.0			±1.0			mV/°C	
Overcurrent Protection Starting Current	I _{st}	1.6			1.6			1.6			1.6			A	
	Conditions	V _{IN} =15V			V _{IN} =20V			V _{IN} =21V			V _{IN} =24V				
ON/OFF* Pin	Low Level Voltage	V _{SSL}			0.5			0.5			0.5			V	
	Outflow Current at Low Voltage	I _{SSL}			100			100			100				
Quiescent Circuit Current	I _q	7			7			7			7			mA	
		Conditions			V _{IN} =15V, I _o =0A			V _{IN} =20V, I _o =0A			V _{IN} =21V, I _o =0A				V _{IN} =24V, I _o =0A
	I _{q(OFF)}	200			200			200			200			μ A	
		Conditions			V _{IN} =15V, V _{ON/OFF} =0.3V			V _{IN} =20V, V _{ON/OFF} =0.3V			V _{IN} =21V, V _{ON/OFF} =0.3V				V _{IN} =24V, V _{ON/OFF} =0.3V

*: Pin 5 is the ON/OFF 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.
 ON/OFF-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.

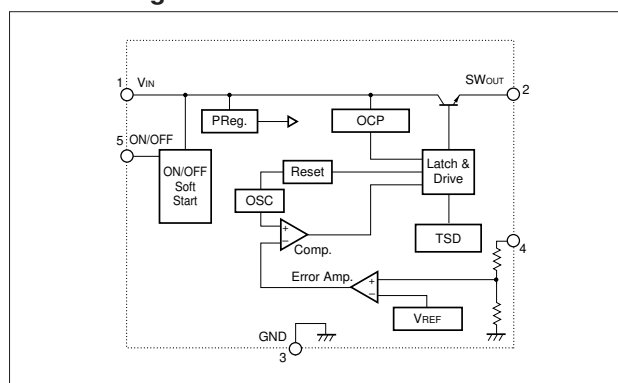


External Dimensions (TO263-5)

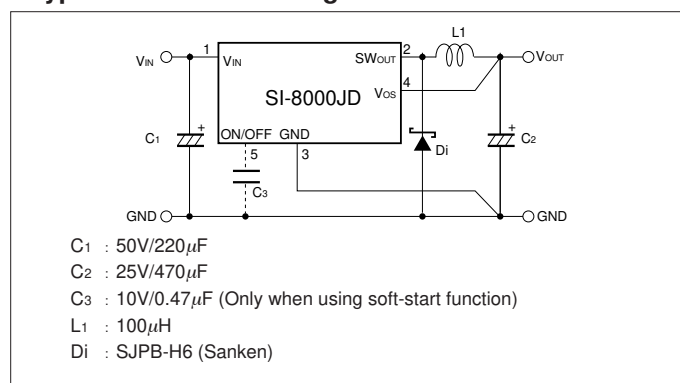
(Unit : mm)



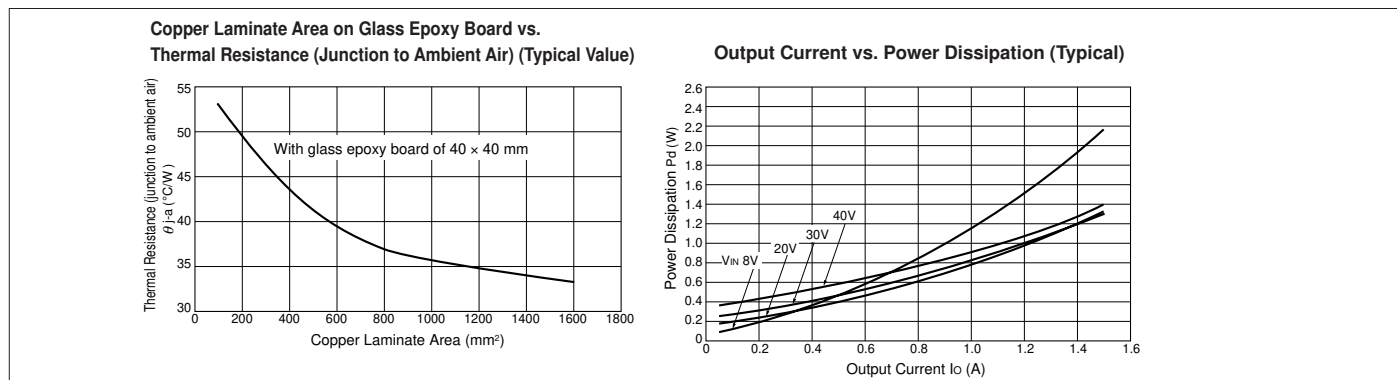
Block Diagram



Typical Connection Diagram



Reference Data



Ta-Pd Characteristics

