

SI-8000S Series Full-Mold, Separate Excitation Step-down Switching Mode Regulator ICs

Features

- Compact full-mold package (equivalent to TO220)
- Output current: 3.0A
- High efficiency: 79 to 91%
- Requires only 4 discrete components
- Internally-adjusted phase correction and output voltage
- Built-in reference oscillator (60kHz)
- Built-in overcurrent and thermal protection circuits
- Built-in soft start circuit (Output ON/OFF available)

Lineup

Part Number	SI-8033S	SI-8050S	SI-8090S	SI-8120S	SI-8150S
V _o (V)	3.3	5.0	9.0	12.0	15.0
I _o (A)	3.0				

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
DC Input Voltage	V _{IN}	43*	V
Power Dissipation	P _{D1}	18(With infinite heatsink)	W
	P _{D2}	1.5(Without heatsink, stand-alone operation)	W
Junction Temperature	T _j	+125	°C
Storage Temperature	T _{stg}	-40 to +125	°C
SW Terminal Applied Reverse Voltage	V _{SW}	-1	V
Thermal Resistance(junction to case)	θ _{J-C}	5.5	°C/W

*35V for SI-8033S

Applications

- Power supplies for telecommunication equipment
- Onboard local power supplies

Recommended Operating Conditions

Parameter	Symbol	Ratings					Unit
		SI-8033S	SI-8050S	SI-8090S	SI-8120S	SI-8150S	
DC Input Voltage Range	V _{IN}	5.5 to 28	7 to 40	12 to 40	15 to 40	18 to 40	V
Output Current Range	I _o	0 to 3.0					A
Operating Junction Temperature Range	T _{top}	-30 to +125					°C

Electrical Characteristics

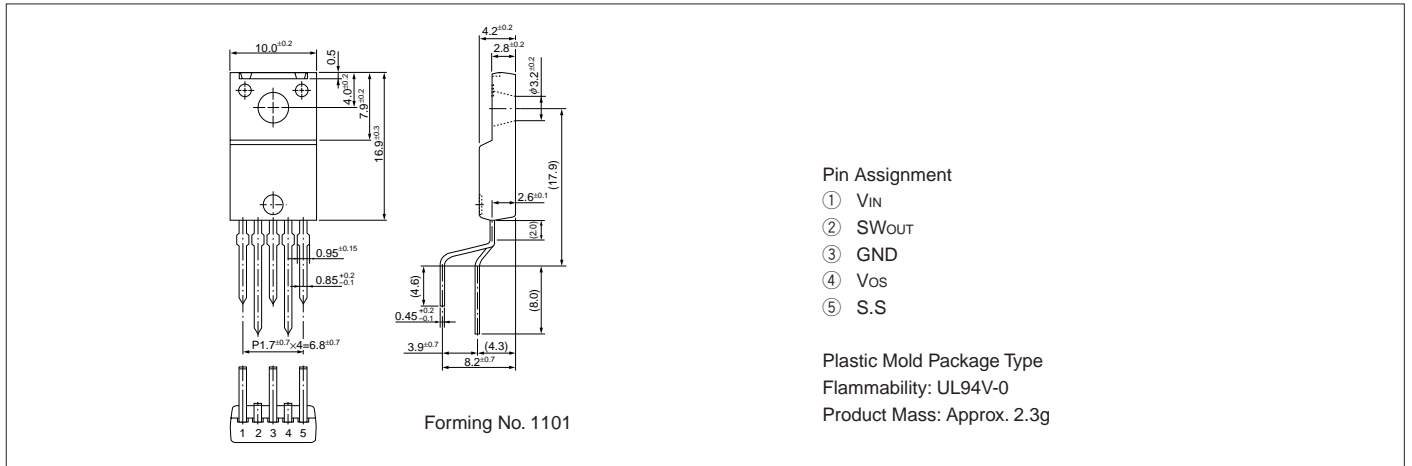
(T_a=25°C)

Parameter	Symbol	Ratings															Unit
		SI-8033S			SI-8050S			SI-8090S			SI-8120S			SI-8150S			
		min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	
Output Voltage	SI-8000S*1	3.17	3.30	3.43	4.80	5.00	5.20	8.55	9.00	9.45	11.50	12.00	12.50	14.25	15.00	15.75	V
	SI-8000SS	3.234	3.30	3.366	4.90	5.00	5.10										
Efficiency	η	V _{IN} =15V, I _o =1.0A			V _{IN} =20V, I _o =1.0A			V _{IN} =21V, I _o =1.0A			V _{IN} =24V, I _o =1.0A			V _{IN} =25V, I _o =1.0A			%
	Conditions	79			84			88			90			91			
Oscillation Frequency	f	V _{IN} =15V, I _o =1.0A			V _{IN} =20V, I _o =1.0A			V _{IN} =21V, I _o =1.0A			V _{IN} =24V, I _o =1.0A			V _{IN} =25V, I _o =1.0A			kHz
	Conditions	60			60			60			60			60			
Line Regulation	ΔV _{OLINE}	25	80		40	100		50	120		60	130		60	130		mV
	Conditions	V _{IN} =8 to 28V, I _o =1.0A			V _{IN} =10 to 30V, I _o =1.0A			V _{IN} =15 to 30V, I _o =1.0A			V _{IN} =18 to 30V, I _o =1.0A			V _{IN} =21 to 30V, I _o =1.0A			
Load Regulation	ΔV _{OLOAD}	10	30		10	40		10	40		10	40		10	40		mV
	Conditions	V _{IN} =15V, I _o =0.5 to 1.5A			V _{IN} =20V, I _o =0.5 to 1.5A			V _{IN} =21V, I _o =0.5 to 1.5A			V _{IN} =24V, I _o =0.5 to 1.5A			V _{IN} =25V, I _o =0.5 to 1.5A			
Temperature Coefficient of Output Voltage	ΔV _o /ΔT _a		±0.5			±0.5			±1.0			±1.0			±1.0		mV/°C
Overcurrent Protection Starting Current	I _{s1}	3.1			3.1			3.1			3.1			3.1			A
	Conditions	V _{IN} =15V			V _{IN} =20V			V _{IN} =21V			V _{IN} =24V			V _{IN} =25V			

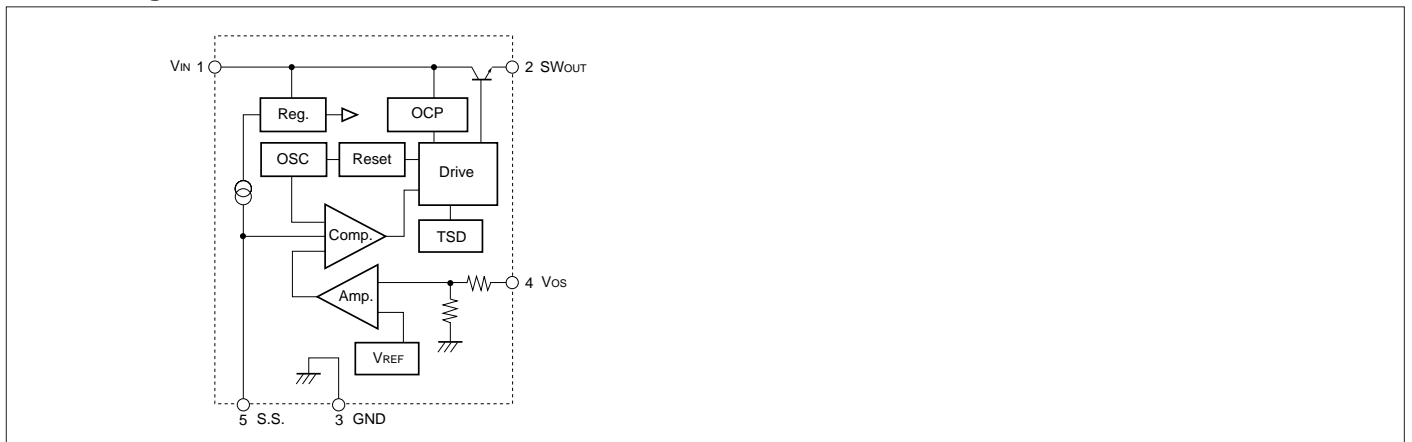
*1: "S" may be printed to the right of the marking (except SI-8090S, SI-8120S, SI-8150S).

External Dimensions (TO220F-5)

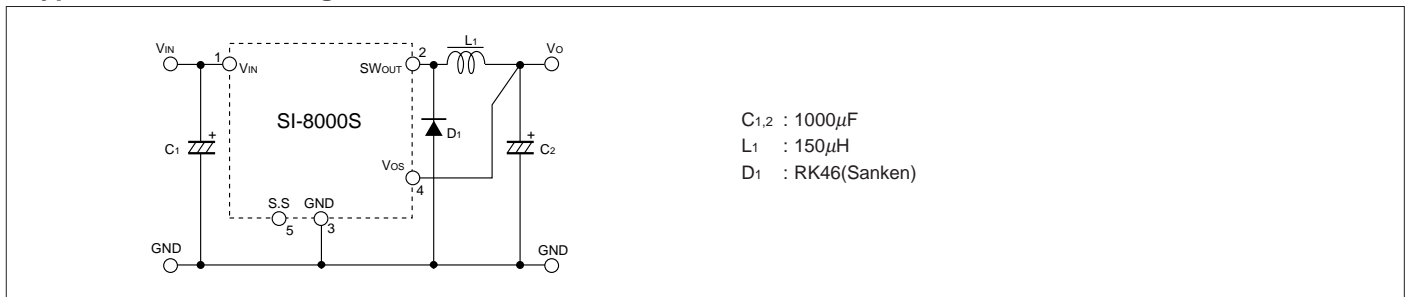
(Unit : mm)



Block Diagram



Typical Connection Diagram



Ta-Pd Characteristics

