

SI-8000S Series

Full-Mold, Separate Excitation Step-down Switching Mode

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
Vo(V)	3.3	5.0	9.0	12.0	15.0
Io(A)	3.0				

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
DC Input Voltage	VIN	43*	V
Power Dissipation	Pd1	18(With infinite heatsink)	W
	Pd2	1.5(Without heatsink, stand-alone operation)	W
Junction Temperature	Tj	+125	°C
Storage Temperature	Tstg	−40 to +125	°C
SW Terminal Applied Reverse Voltage	Vsw	−1	V
Thermal Resistance(junction to case)	θj-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	VIN	5.5 to 28	7 to 40	12 to 40	15 to 40	18 to 40	V
Output Current Range	Io	0 to 3.0					A
Operating Junction Temperature Range	Tjop	−30 to +125					°C

Electrical Characteristics

(Ta=25°C)

Parameter		Symbol	Ratings															Unit
			SI-8033S			SI-8050S			SI-8090S			SI-8120S			SI-8150S			
Output Voltage	SI-8000S*1	Vo	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	V
	SI-8000SS		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	
			Conditions	VIN=15V, Io=1.0A			VIN=20V, Io=1.0A			VIN=21V, Io=1.0A			VIN=24V, Io=1.0A			VIN=25V, Io=1.0A		
Efficiency		η		79			84			88			90			91		%
		Conditions	VIN=15V, Io=1.0A			VIN=20V, Io=1.0A			VIN=21V, Io=1.0A			VIN=24V, Io=1.0A			VIN=25V, Io=1.0A			
Oscillation Frequency		f		60			60			60			60			60		kHz
		Conditions	VIN=15V, Io=1.0A			VIN=20V, Io=1.0A			VIN=21V, Io=1.0A			VIN=24V, Io=1.0A			VIN=25V, Io=1.0A			
Line Regulation		ΔV _{OLINE}		25	80		40	100		50	120		60	130		60	130	mV
		Conditions	VIN=8 to 28V, Io=1.0A			VIN=10 to 30V, Io=1.0A			VIN=15 to 30V, Io=1.0A			VIN=18 to 30V, Io=1.0A			VIN=21 to 30V, Io=1.0A			
Load Regulation		ΔV _{OLOAD}		10	30		10	40		10	40		10	40		10	40	mV
		Conditions	VIN=15V, Io=0.5 to 1.5A			VIN=20V, Io=0.5 to 1.5A			VIN=21V, Io=0.5 to 1.5A			VIN=24V, Io=0.5 to 1.5A			VIN=25V, Io=0.5 to 1.5A			
Temperature Coefficient of Output Voltage		ΔVo/ΔTa		±0.5			±0.5			±1.0			±1.0			±1.0		mV/°C
Overcurrent Protection Starting Current		Is1	3.1			3.1			3.1			3.1			3.1			
		Conditions	VIN=15V			VIN=20V			VIN=21V			VIN=24V			VIN=25V			A
Soft Start Pin*2	Low-Level Voltage	VSSL		0.2			0.2			0.2			0.2			0.2		
	Outflow Current at Low Voltage	ISSL	15	25	35	15	25	35	15	25	35	15	25	35	15	25	35	
		Conditions	VSSL=0.2V															μA

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

*2: 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 VSSL 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.



