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

■Features

- Surface-mount package (SOP8)
- Output current: 0.6A
- High efficiency: 75 to 80%
- Requires only 4 discrete components
- Internally-adjusted phase correction and output voltage adjustment performed internally
- Built-in reference oscillator (60kHz)
- Built-in overcurrent and thermal protection circuits

■Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
DC Input Voltage	V_{IN}	35	V
Power Dissipation	P_D	1	W
Junction Temperature	T_j	–30 to +125	°C
Storage Temperature	T_{stg}	–40 to +125	°C
Thermal Resistance (Junction to 7-Pin Lead)	$\theta_{j\text{-}L}$	22	°C/W
Thermal Resistance (Junction to Ambient Air)*1	$\theta_{j\text{-}a}$	100	°C/W

*1: Glass-epoxy board of 40 × 40mm (copper laminate area 4.3%)

■Applications

- Power supplies for telecommunication equipment
- Onboard local power supplies

■Recommended Operating Conditions

Parameter	Symbol	Ratings		Unit
		SI-8033W	SI-8050W	
DC Input Voltage Range	V_{IN}	5.3 to 28	7 to 33	V
Output Current Range	I_O	0 to 0.6		A
Operating Junction Temperature Range	T_{jop}	–30 to +125		°C

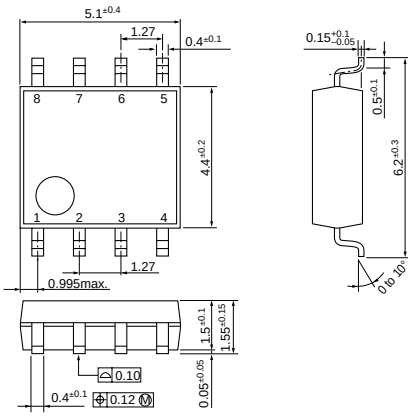
■Electrical Characteristics

(T_a=25°C)

Parameter	Symbol	Ratings						Unit
		SI-8033W			SI-8050W			
		min.	typ.	max.	min.	typ.	max.	
Output Voltage	V_O	3.17	3.30	3.43	4.80	5.00	5.20	V
	Conditions	V_{IN}=15V, I_O=0.3A			V_{IN}=20V, I_O=0.3A			
Efficiency	η		75			80		%
	Conditions	V_{IN}=15V, I_O=0.3A			V_{IN}=20V, I_O=0.3A			
Oscillation Frequency	f		60			60		kHz
	Conditions	V_{IN}=15V, I_O=0.3A			V_{IN}=20V, I_O=0.3A			
Line Regulation	ΔV_{OLINE}		60	80		80	100	mV
	Conditions	V_{IN}=8 to 28V, I_O=0.3A			V_{IN}=10 to 30V, I_O=0.3A			
Load Regulation	ΔV_{OLOAD}		20	30		30	40	mV
	Conditions	V_{IN}=15V, I_O=0.1 to 0.4A			V_{IN}=20V, I_O=0.1 to 0.4A			
Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T_a$		±0.5			±0.5		mV/°C
Ripple Rejection	R_{REJ}		45			45		dB
	Conditions	f=100 to 120Hz			f=100 to 120Hz			
Overcurrent Protection Starting Current	I_{S1}	0.61			0.61			A
	Conditions	V_{IN}=15V			V_{IN}=20V			

■External Dimensions (SOP8)

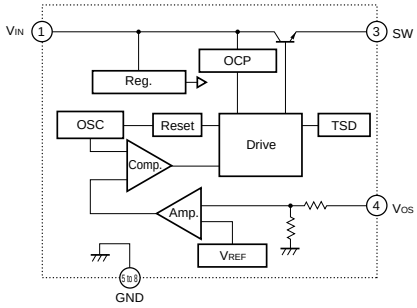
(Unit : mm)



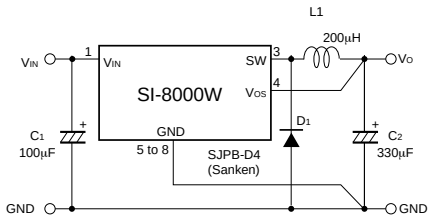
Pin Assignment
① V_{IN}
② N.C
③ SW
④ V_{OS}
⑤ GND
⑥ GND
⑦ GND
⑧ GND

Plastic Mold Package Type
Flammability: UL94V-0
Product Mass: Approx. 0.1g

■Block Diagram

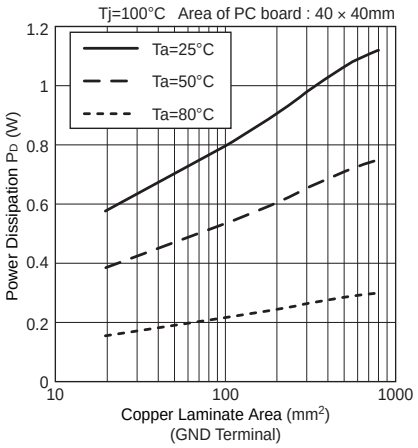


■Typical Connection Diagram



■Reference Data

Copper Laminate Area vs. Power Dissipation



Copper Laminate Area vs. Thermal Resistance $\theta_{j\text{-}a}$