



FEATURES

- Industry Standard 7 pin SIP or 14 pin DIP Package
- 2 Watts Isolated Output
- Regulated Outputs
- 3k VDC Isolation
- Up to 87 % Efficiency
- -40°C to +105°C operating temperature range
- Continuous Short Circuit Protection
- UL 94V-0 package material
- Meets 2004/108/EC

PRODUCT OVERVIEW

This SS/SD series offers 2 watt of isolated output power in a SIP or DIP standard package. These converters have wide input voltage range and provides precise regulated output voltage ranging from 3.3 to 24 volts. The output voltage can be single or dual depending on the model. Other output voltages are also available and please contact DATEL if your application requires such modification.

This series features high efficiency up to 87%; 3000 Volts of DC of isolation and can operate over the ambient temperature range of -40°C to +105°C. These modules are fully protected against output short circuit.

APPLICATIONS:

- Distributed Power Architectures
- Mobile telecommunication
- Industrial applications
- Battery operated equipment

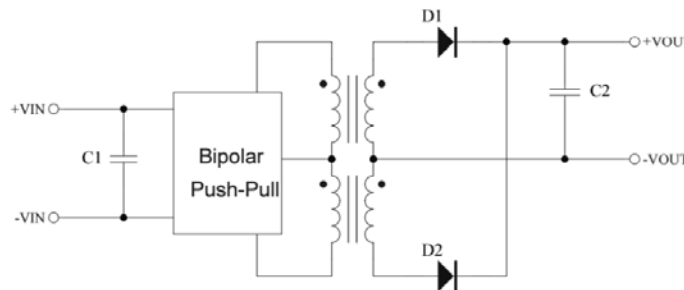
AVAILABLE OPTIONS

- Customizable Input/ Output voltages

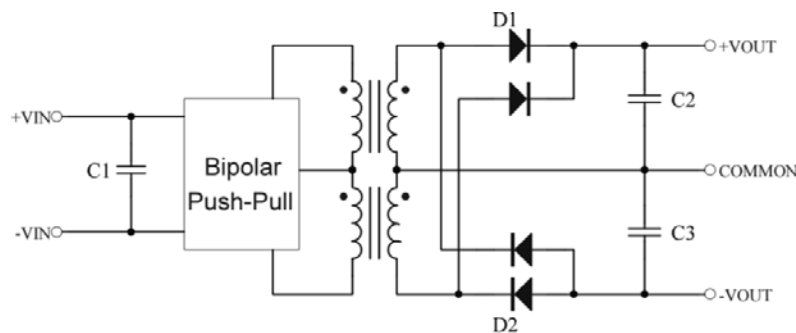
Contact DATEL for other series in SIP or DIP Package

- Cost saving, lower / higher power, other output voltages etc.

BLOCK DIAGRAM



Single Output model



Dual Output model

MODEL DESIGNATIONS

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT MAX	EFFICIENCY %	LOAD REGULATION % MAX	Package
SS3.3S3.3-0.6	2.9-3.6V	3.3VDC	606 mA	82	7.3	SIP
SS3.3S5-0.4	2.9-3.6V	5.0 VDC	400 mA	82	7.3	SIP
SS5S3.3-0.6	4.5-5.5V	3.3 VDC	606 mA	82	7.3	SIP
SS5S5-0.4	4.5-5.5V	5.0 VDC	400 mA	82	7.3	SIP
SS5S9-0.22	4.5-5.5V	9.0 VDC	222 mA	86	5.8	SIP
SS5S12-0.16	4.5-5.5V	12 VDC	167 mA	86	5.0	SIP
SS5S15-0.13	4.5-5.5V	15 VDC	133 mA	87	4.5	SIP
SS5D5-0.2	4.5-5.5V	±5.0 VDC	±200 mA	82	6.4	SIP
SS5D9-0.11	4.5-5.5V	±9.0 VDC	±111 mA	86	5.5	SIP
SS5D12-0.08	4.5-5.5V	±12 VDC	±83 mA	86	4.8	SIP
SS5D15-0.06	4.5-5.5V	±15 VDC	±67 mA	87	5.4	SIP
SS12S5-0.4	11-13V	5.0 VDC	400 mA	82	5.0	SIP
SS12S9-0.22	11-13V	9.0 VDC	222 mA	79	3.0	SIP
SS12S12-0.16	11-13V	12 VDC	167 mA	82	3.0	SIP
SS12S15-0.13	11-13V	15 VDC	133 mA	89	2.5	SIP
SS12D5-0.2	11-13V	±5.0 VDC	±200 mA	82	4.0	SIP
SS12D9-0.11	11-13V	±9.0 VDC	±111 mA	86	3.0	SIP
SS12D12-0.08	11-13V	±12 VDC	±83 mA	87	2.8	SIP
SS12D15-0.06	11-13V	±15 VDC	±67 mA	87	2.5	SIP
SS15S15-0.13	13.4-16.4V	15 VDC	133 mA	84	2.5	SIP
SS15D15-0.06	13.4-16.4V	±15 VDC	±67 mA	87	2.5	SIP
SS24S5-0.4	22-26V	5.0 VDC	400 mA	82	5.0	SIP
SS24S9-0.22	22-26V	9.0 VDC	222 mA	86	5.0	SIP
SS24S12-0.16	22-26V	12 VDC	167 mA	87	2.8	SIP
SS24S15-0.13	22-26V	15 VDC	133 mA	87	2.5	SIP
SS24S24-0.08	22-26V	24 VDC	83 mA	83	5.0	SIP
SS24D5-0.2	22-26V	±5.0 VDC	±200 mA	82	4.0	SIP
SS24D9-0.11	22-26V	±9.0 VDC	±111 mA	86	3.0	SIP
SS24D12-0.08	22-26V	±12 VDC	±83 mA	87	2.8	SIP
SS24D15-0.06	22-26V	±15 VDC	±67 mA	87	2.5	SIP
SS24D24-0.04	22-26V	±24 VDC	±41 mA	83	5.0	SIP
SD3.3S5-0.4	2.9-3.6V	5.0 VDC	400 mA	82	7.2	DIP
SD5S5-0.4	4.5-5.5V	5.0 VDC	400 mA	82	7.2	DIP
SD5S9-0.22	4.5-5.5V	9.0 VDC	222 mA	86	5.8	DIP
SD5S12-0.16	4.5-5.5V	12 VDC	167 mA	86	5.0	DIP
SD5S15-0.13	4.5-5.5V	15 VDC	133 mA	87	4.6	DIP
SD5D5-0.2	4.5-5.5V	±5.0 VDC	±200 mA	82	6.4	DIP
SD5D9-0.11	4.5-5.5V	±9.0 VDC	±111 mA	86	5.5	DIP
SD5D12-0.08	4.5-5.5V	±12 VDC	±83 mA	86	4.8	DIP
SD5D15-0.06	4.5-5.5V	±15 VDC	±67 mA	87	5.3	DIP
SD12S5-0.4	11-13V	5.0 VDC	400 mA	82	5.0	DIP
SD12S9-0.22	11-13V	9.0 VDC	222 mA	79	3.0	DIP
SD12S12-0.16	11-13V	12 VDC	167 mA	82	3.0	DIP
SD12S15-0.13	11-13V	15 VDC	133 mA	89	2.5	DIP
SD12D5-0.2	11-13V	±5.0 VDC	±200 mA	82	4.0	DIP
SD12D9-0.11	11-13V	±9.0 VDC	±111 mA	86	3.0	DIP
SD12D12-0.08	11-13V	±12 VDC	±83 mA	87	2.8	DIP
SD12D15-0.06	11-13V	±15 VDC	±67 mA	87	2.5	DIP
SD15S15-0.13	13.4-16.4V	15 VDC	133 mA	84	2.5	DIP
SD15D15-0.06	13.4-16.4V	±15 VDC	±67 mA	87	2.5	DIP
SD24S5-0.4	22-26V	5.0 VDC	400 mA	82	5.0	DIP
SD24S12-0.16	22-26V	12 VDC	167 mA	84	5.0	DIP
SD24S24-0.08	22-26V	24 VDC	83 mA	83	5.0	DIP
SD24D5-0.2	22-26V	±5.0 VDC	±200 mA	82	4.0	DIP
SD24D12-0.08	22-26V	±12 VDC	±83 mA	87	2.8	DIP
SD24D24-0.04	22-26V	±24 VDC	±41 mA	83	5.0	DIP

ABSOLUTE MAXIMUM RATINGS

PARAMETER	CONDITIONS	MODEL	Min.	Typical	Max.	Units
Input Voltage						
Continuous	DC	3.3V _{in}	0		5.5	Volts
		5.0V _{in}	0		7	
		12V _{in}	0		15	
		15V _{in}	0		18	
		24V _{in}	0		28	
Lead Temperature 1.5mm from case for 10s		All			+300	°C
Internal Power Dissipation		All			650	mW
Storage Temperature		All	-50		+150	°C
Case Temperature above Ambient					+30	°C
Input / Output Isolation Voltage	1 minute	All	3000			Volts

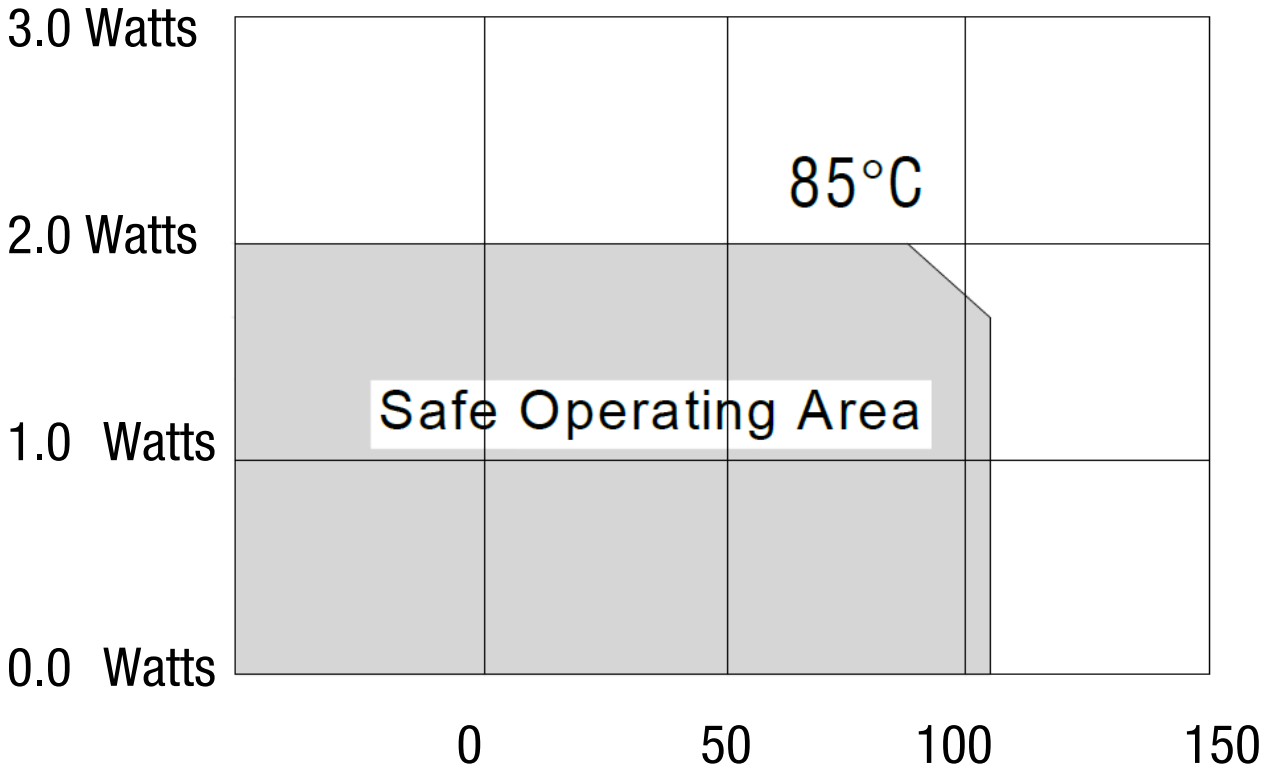
CHARACTERISTICS

Note: All specifications are typical at nominal input, full load at 25°C unless otherwise noted

PARAMETER	CONDITIONS	MODEL	Min.	Typical	Max.	Units
Operating Input Voltage		3.3V _{in}	2.9	3.3	3.6	Volts
		5V _{in}	4.5	5	5.5	
		12V _{in}	11	12	13	
		15V _{in}	13.4	15	16.4	
		24V _{in}	22	24	26	
Output Voltage Set Point	V _{in} =Nominal V _{in} , I _o = I _{o,max} , T _C =25°C	V _o =3.3	3.168	3.3	3.366	Volts
		V _o =5.0	4.800	5	5.100	
		V _o =9.0	8.64	9	9.18	
		V _o =12	11.52	12	12.24	
		V _o =15	14.4	15	15.30	
		V _o =24	23.04	24	24.48	
		V _o =±5.0	±4.800	±5	±5.100	
		V _o =±9.0	±8.64	±9	±9.18	
		V _o =±12	±11.52	±12	±12.24	
		V _o =±15	±14.4	±15	±15.30	
V _o =±24	±23.04	±24	±24.48			
Output Voltage Regulation						
Line Regulation	V _{in} =High line to Low line Full Load	Single Dual		±1% ±1%	±1.2 ±1.2	% %
Operating Output Current Range		V _o =3.3V	0		606	mA
		V _o =5V	0		400	
		V _o =9V	0		222	
		V _o =12V	0		167	
		V _o =15V	0		133	
		V _o =24V	0		83	
		V _o =±5V	0		±200	
		V _o =±9V	0		±111	
		V _o =±12V	0		±83	
		V _o =±15V	0		±67	
		V _o =±24V	0		±41.6	
ISOLATION CHARACTERISTICS						
Input to Output	1 minutes	All	3000			Volts
Isolation Resistance		All	1000			MΩ
Switching Frequency				65		KHz
Continuous short circuit Protection						

Power De-Rating Curves for SS Series

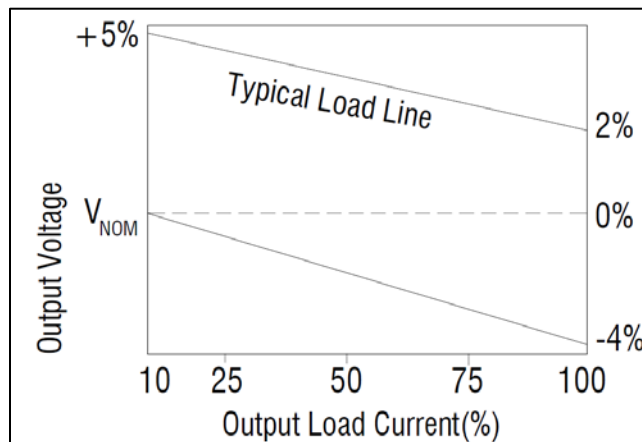
Note that operating ambient temperature range is -40°C to + 85°C without derating.



Continuous Short Circuit Protection

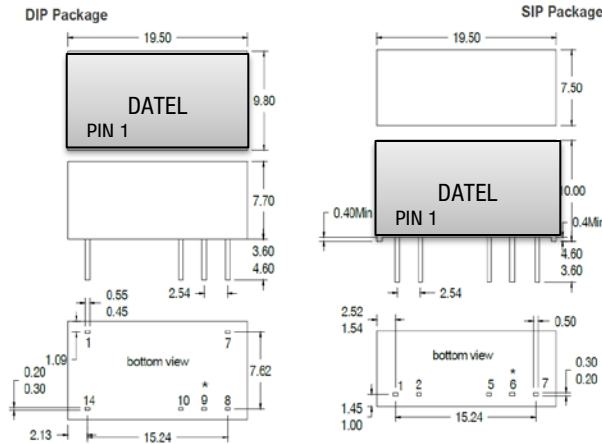
All models have internal continuous short circuit protection. The unit operates normally once the fault condition is removed.

Voltage SET Point Accuracy



MECHANICAL SPECIFICATIONS

Note: All dimensions are in millimeters ($\pm 0.25\text{mm}$). Pins are at 2.54mm pitch and within $\pm 0.25\text{mm}$ of position.



PIN CONNECTIONS

PIN CONNECTIONS SS Series (SIP)				PIN CONNECTIONS SD Series (DIP)			
PIN	SINGLE OUTPUT	PIN	DUAL OUTPUTS	PIN	SINGLE OUTPUT	PIN	DUAL OUTPUTS
1	+ V Input	1	+ V Input	1	- V Input	1	- V Input
2	-V Input	2	-V Input	7	NC	7	NC
5	-V Output	5	-V Output	8	+V Output	8	+V Output
6	No Pin	6	0 Volts	9	No Pin	9	0 Volts
7	+V Output	7	+V Output	10	-V Output	10	-V Output
				14	+V Input	14	+V Input

PART NUMBER ORDERING INFORMATION

