

F_S-1W Series

DC-DC Power Supply Module/3000V Isolation

Fixed Voltage Input/Unregulated Single Output/1W

Product features:

Isolation voltage: 3000Vdc isolation

Operating temperature: -45℃-85℃

Stable performance, high reliability

MTBF≥2 million hours

Flame-retardant packaging

Meeting UL94-V0 requirements

International standard pinout (Pin 1/2/5/7)

Surface-mount design

No additional components required

Compliant with the RoHS Directive



Numbering

F 05 05 S - 1W

Output power
Small-sized SIP packaging
Output voltage
Input voltage
Single output series

Module selection guide

Model number	Input		Output			Conversion efficiency
	Nominal voltage (V)	Voltage Range (V)	Rated voltage (V)	Minimum Current (mA)	Maximum current (mA)	(%)
F0503S-1W	5	4.5-5.5	3.3	31	303	76
F0505S-1W			5	20	200	81
F0509S-1W			9	12	111	82
F0512S-1W			12	9	83	81
F0515S-1W			15	7	67	82
F0524S-1W			24	5	42	80
F1203S-1W	12	10.8-13.2	3.3	31	303	76
F1205S-1W			5	20	200	79
F1209S-1W			9	12	111	80
F1212S-1W			12	9	83	82
F1215S-1W			15	7	67	82
F1224S-1W			24	5	42	80
F2403S-1W	24	21.6-26.4	3.3	31	303	76
F2405S-1W			5	20	200	78
F2409S-1W			9	12	111	79
F2412S-1W			12	9	83	80
F2415S-1W			15	7	67	80
F2424S-1W			24	5	42	80
B****S-1W	* Tailored model based on client needs. *					

We reserve the right to change the above parameters. Final product specifications will be according to the specific product datasheet provided by our company.

General characteristics

Switching frequency	100KHz	100% load, nominal input voltage
Output short-circuit duration	1s	Additional short-circuit protection feature, indicated by the letter "R" after the model number.
Casing's temperature rise during operation	15°C (Typ.)	25°C (Max)
Temperature coefficient	0.03%/°C	100% full load
Pin soldering temperature	300°C	Soldering time≤3s
Isolation voltage (input and output)	3000VDC	Test time: 1 minute Leakage current: less than 1mA
Insulation resistance	1000MΩ	Insulation voltage: 500V
Operating temperature	-40~+85°C	Operating ambient temperature
Storage temperature	-55~+125°C	
Storage humidity	<95%	Non-condensing
Cooling method	Natural air cooling	
Weight	SIP series: 1.2g	Standard

Input characteristics

Voltage range	≤±10%
Filtering	Ceramic capacitor
No-load power consumption	10% rated power (typical value)

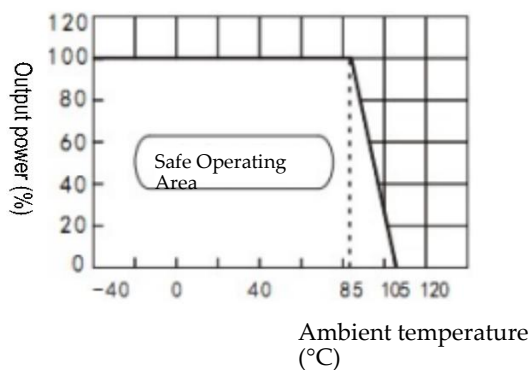
Output characteristics

Item	Value	Test conditions
Linear voltage regulation rate	±1.2 (Max)	Input voltage variation 1%
Load regulation	≤±10% (Typ); ±15% (Max)	10% to 100% load
Output voltage accuracy	Please refer to the Envelope Curve for Errors	100% full load
Ripple and noise	≤75mVp-p (Typ) 100mVp-p (Max)	Bandwidth: 20MHz

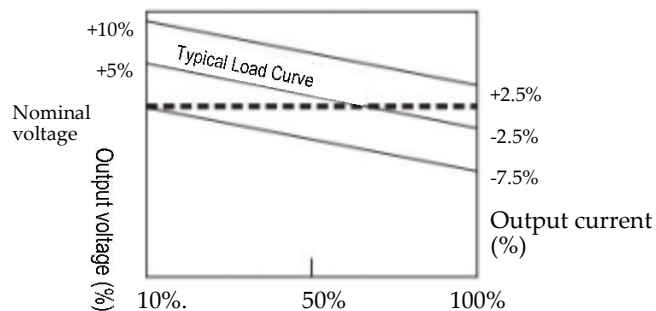
Unless otherwise specified, all parameters are tested under nominal input voltage, resistive load, and at room temperature of 25°C.

Curves for typical characteristics

Temperature Curve



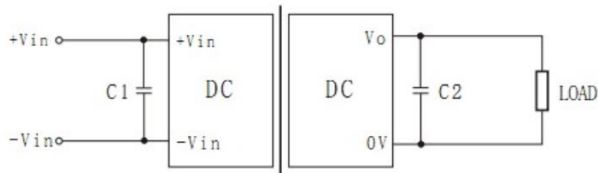
Envelope Curve for Errors



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Recommended circuit for basic application



Capacitive load table:

Input voltage (VDC)	External capacitor (uF)	Output voltage (VDC)	External capacitor (uF)
3.3 or 5	4.7	3.3 or 5	10
12	2.2	9	4.7
15or24	1	12	2.2
		15or24	1 or 0.47

Caution

1. Output load requirements: Avoid no-load operation. When the actual power consumption of the load is less than 10% of the module's rated output power or if there is a no-load condition, it is recommended to connect a dummy load at the output end or choose a module with a smaller rated power. The dummy load (resistor) can be calculated as 5-10% of the module's rated power. Value of the resistance = $U^2 / (10\% \times 1W)$.
2. Overload protection: Under normal operating conditions, the output circuit of this product has no protection against overload conditions. The simplest method is to connect a resettable fuse in series at the input end or to add a circuit breaker to the circuit.
3. The capacitance of the external capacitor at the output end should not be too large; otherwise, it may cause overcurrent or poor startup during module initiation. The specific value of the capacitance should be according to the capacitive load table.
4. For applications with high ripple and noise requirements, an external LC filter circuit should be used (as shown in Figure 1). It is recommended to use ceramic capacitors or high-frequency low-impedance electrolytic capacitors for Cout. Using tantalum capacitors may cause module damage.
5. The simplest method for output voltage regulation, overvoltage protection, and overcurrent protection is to connect a linear regulator with over temperature protection in series at the input or output end (as shown in Figure 2).

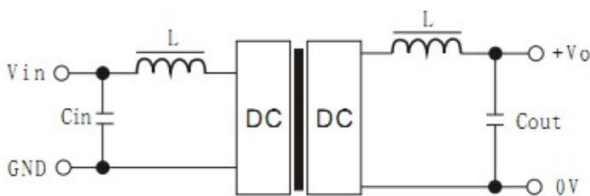


Figure 1

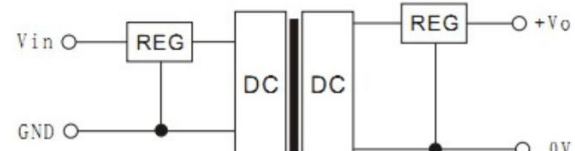
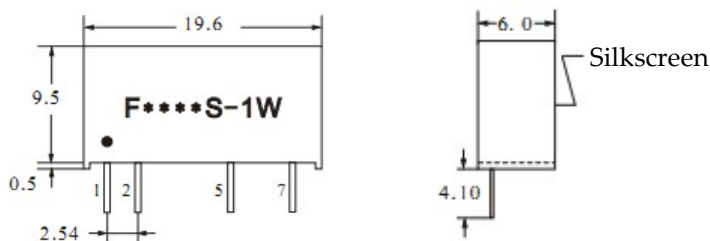


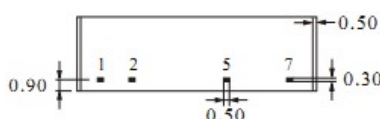
Figure 2

Dimensions and pinout



Front view

Side view



Bottom view

(Unit: mm Tolerance: ± 0.25)

Recommended PCB layout:



Top view

Grid: 2.54mm Hole diameter: 1.00mm

F****S-1W				
Pin	1	2	5	7
Function	-Vin	+Vin	0V	+Vo
Description	Negative input	Positive input	Ground	Output

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