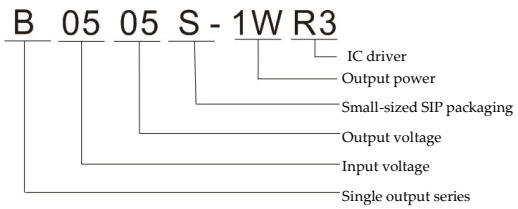
B-S-1WR3 Series

DC-DC Power Supply Module/1000V Isolation
Fixed Voltage Input/Unregulated Single Output/1WR3

Numbering



Product features:
Isolation voltage: 1000Vdc isolation
Operating temperature: -45℃-85℃
Stable performance, high reliability
MTBF≥2 million hours
Flame-retardant packaging
Meeting UL94-V0 requirements
International standard pinout (Pin 1/2/3/4)
Surface-mount design
No additional components required
Compliant with the RoHS Directive

Module selection guide

Model number	Input		Output			Conversion efficiency
	Nominal voltage (V)	Voltage Range (V)	Rated voltage (V)	Minimum Current (mA)	Maximum current (mA)	(%)
B0503S-1WR3	5	4.5-5.5	3.3	31	303	76
B0505S-1WR3			5	20	200	81
B0509S-1WR3			9	12	111	82
B0512S-1WR3			12	9	83	81
B0515S-1WR3			15	7	67	82
B0524S-1WR3			24	5	42	80
B1203S-1WR3	12	10.8-13.2	3.3	31	303	76
B1205S-1WR3			5	20	200	79
B1209S-1WR3			9	12	111	80
B1212S-1WR3			12	9	83	82
B1215S-1WR3			15	7	67	82
B1224S-1WR3			24	5	42	80
B1503S-1WR3	15	13.5-16.5	3.3	31	303	76
B1505S-1WR3			5	20	200	78
B1509S-1WR3			9	12	111	79
B1512S-1WR3			12	9	83	80
B1515S-1WR3			15	7	67	80
B1524S-1WR3			24	5	42	80
B****S-1WR3	* Tailored model based on client needs. *					

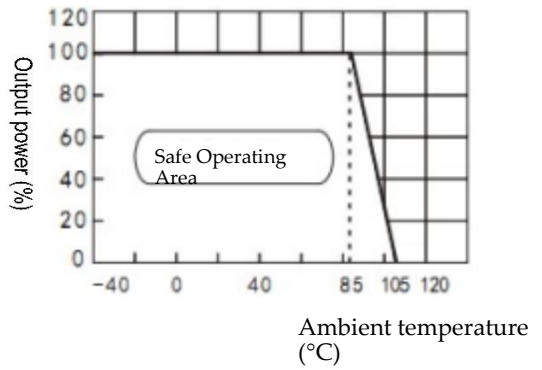
General characteristics		
Switching frequency	100KHz	100% load, nominal input voltage
Output short-circuit duration		Long duration, resettable
Casing's temperature rise during operation	15℃ (Typ.)	25℃ (Max)
Temperature coefficient	0.03%/℃	100% full load
Pin soldering temperature	300℃	Soldering time≤3s
Isolation voltage (input and output)	1000VDC	Test time: 1 minute Leakage current: less than 1mA
Insulation resistance	1000MΩ	Insulation voltage: 500V
Operating temperature	-40～+85℃	Operating ambient temperature
Storage temperature	-55～+125℃	
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)

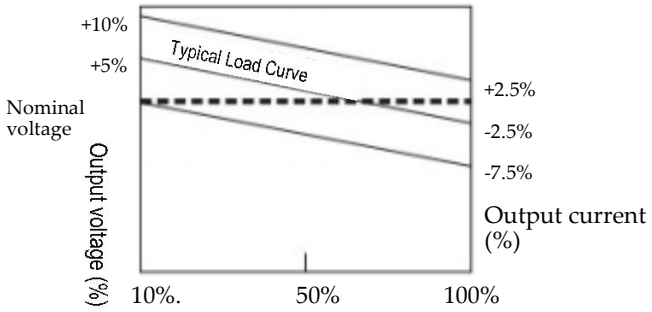
Output characteristics		
Item	Value	Test conditions
Linear voltage regulation rate	±1.2 (Max)	Input voltage variation 1%
Load regulation	≤±10% (Typ); ±15% (Max)	10% to 100% load
Output voltage accuracy	Please refer to the Envelope Curve for Errors	100% full load
Ripple and noise	≤75mVp-p (Typ) 100mVp-p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

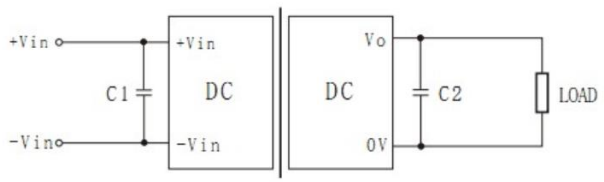
Temperature Curve



Envelope Curve for Errors



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 = U2 / (10%×1WR3).
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).

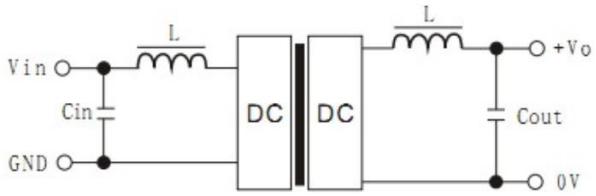


Figure 1

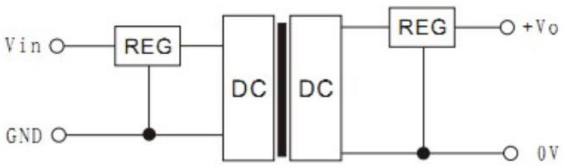
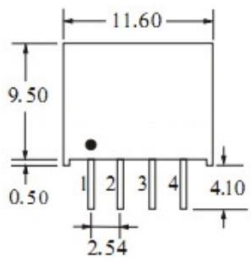
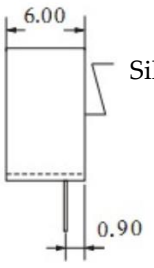


Figure 2

Dimensions and pinout

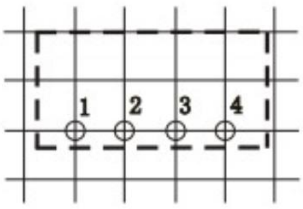


Front view



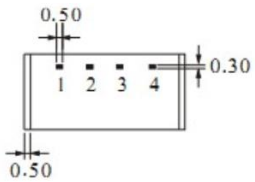
Side view

Recommended PCB layout:



Top view

Grid: 2.54mm Hole diameter: 1.00mm



Bottom view

(Unit: mm Tolerance: ±0.25)

B****S-1WR3				
Pin	1	2	3	4
Function	-Vin	+Vin	0V	+Vo
Description	Negative input	Positive input	Ground	Output

