

Typical Features

- ◆ Wide input voltage range 80-750VDC
- ◆ No load Power Consumption ≤1.2W
- ◆ Transfer Efficiency up to (typ. 83%)
- ◆ Switching frequency: 65KHz
- ◆ Protection: Input anti-reverse connection, under voltage, output over voltage, short circuit, over current
- ◆ Isolation voltage:4000Vac
- ◆ Conform to UL1741
- ◆ Plastic case, UL94 V-0 class
- ◆ Meet to 5000m altitude requirement



DD50-380SXXG2N4 is a compact size, high efficiency DC/DC Converter by Aipu, it conform to UL1741, EN62109 standard, It has the advantages of wide input voltage range, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, high safety isolation, and good EMC performance. This series is widely used in fields such as PV power generation and home appliance energy storage, and their multiple protection functions can improve the safety performance of the power supply and its load when the power supply works abnormally. When the product is used in a harsh electromagnetic compatibility environment, please refer to the application circuit provided by our company.

Typical Product List

Certificate	Part No	Output Specifications			Max. Capacitive Load	Ripple & Noise 20MHz (MAX)	Efficiency (%)
		Power	Voltage	Current			
		(W)	Vo(V)	Io(mA)			
-	DD50-380S12G2N4	50	12	4167	820	200	83
-	DD50-380S24G2N4	50	24	2083	820	200	85

Note 1: The typical value of output efficiency is based on the product aging for half an hour at full load.

Note 2: The fluctuation range of the full-load efficiency (% , TYP) in the table is ±2%. The full-load output efficiency is equal to the total output power divided by the input power of the power module.

Note 3: The test method for ripple and noise is twisted pair test method. Please see the following (ripple & noise test instructions) for specific test methods and combinations.

Note 4: Due to limited space, the above is only a partial product list. If you need products other than the list, please contact our sales department.

Input Specification

Items	Working Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	DC Input	80	300	750	VDC
Input Current	150VDC	-	-	0.9	A
	750VDC	-	-	0.3	
Surge Current	750VDC	-	80	-	

No Load Power Consumption	500VDC	-	-	1.2	W
Input Under Voltage Protection	Under voltage protection start	35	-	45	VDC
	Under voltage protection release	70	-	80	
External fuse	-	3.15A/1000VDC necessary			
Hot plug	-	N/A			

Output Specification

Item		Operating Conditions		Min.	Ty.	Max.	Unit
Output Voltage Accuracy		Full input voltage, any load	Vo	-	±2.0	-	%
Line Regulation		Nominal load	Vo	-	±1.0	-	
Load Regulation		Nominal input voltage, 0%~100% load	Vo	-	±2.0	-	
Minimum Load		Single output		0	-	-	%
Turn-on delay time		Input 300VDC		-	-	3000	mS
Power-off holding time		Input 750VDC		-	10	-	mS
Dynamic Response	Overshoot range	25%~50%~25%		-5.0	-	+5.0	%
	Recovery time	50%~75%~50%		-5.0	-	+5.0	mS
Output Overshoot		Full input voltage range		≤10%Vo			%
Short Circuit Protection				continuous, self-recovery			Hiccup
Drift Coefficient		-		-	±0.02%	-	%/°C
Over Current Protection		Full input voltage range		≥110% Io self-recovery			Hiccup
Over Voltage Protection		Output 12VDC		≤20			V
		Output 24VDC		≤32			

General Specification

Item		Operating Conditions		Min.	Ty.	Max.	Unit
Switching Frequency		-		-	65	-	KHz
Operating Temperature		-		-40	-	+70	°C
		necessary to perform temperature derating based on the temperature derating curve. See the derating curve below (product characteristic curve).					
Storage Temperature		-		-40	-	+85	KHz
Soldering Temperature		Wave soldering		260±4°C, time 5-10S			
		Manual soldering		360±8°C, time 4-7S			
Relative Humidity		-		10	-	90	%RH
Isolation Voltage	I/P-O/P	Test 1min, leakage current ≤10mA		4000	-	-	VAC

Insulation Resistand	I/P-O/P	@ DC500V	50	-	-	MΩ
Safety Standard		-	EN62109-1、UL1714			
Vibration		-	10-55Hz,10G,30Min,alongX,Y,Z			
Safety Class		-	CLASS II			
Case Class		-	UL94 V-0			
MTBF			MIL-HDBK-217F 25°C>300,000H			

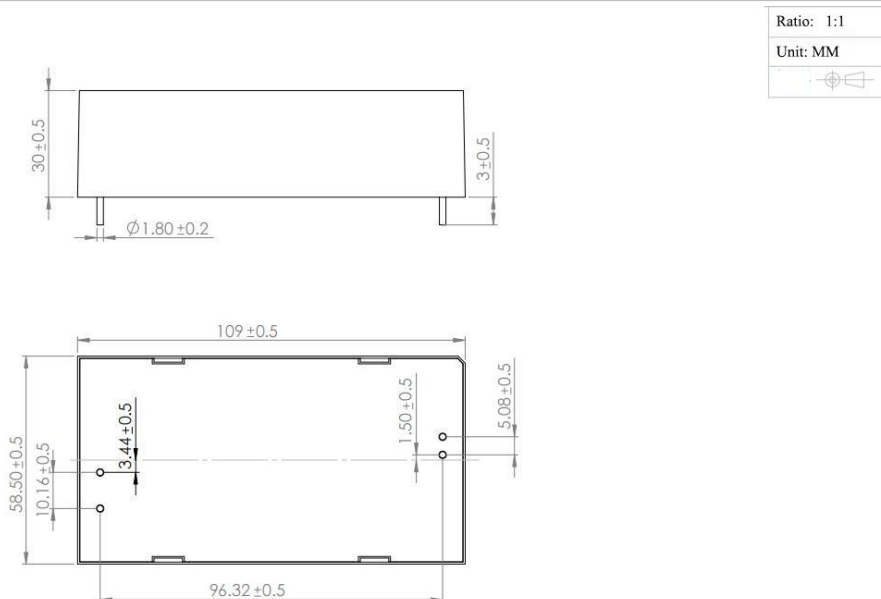
Physical Characteristics

Case Material	Black flame-retardant and heat-resistant plastic (UL94V-0)					
Dimension	Horizontal	109.00x 58.50 x 30.00mm				
Product Weight		260g (TYP)				
Cooling Method	Natural air cooling					

EMC Characteristics

Total-item	Sub-item	Standard	Class	
EMC	EMI	CE	CISPR22/EN55032	
		RE	CISPR22/EN55032	
	EMS	RS	IEC/EN61000-4-3	10V/m perf.Criteria A
		CS	IEC/EN61000-4-6	10Vr.m.s perf.Criteria A
		ESD	IEC/EN61000-4-2	±6KV/ Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	line to line ±1KV / line to line ±2KV Perf.Criteria B see recommended circuit Photo 2
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B

Dimension



Packing Code	L x W x H	
G2	109.00 x 58.50 x 30.00 mm	4.291x 2.303x1.181inch

Pin Definition

Pin-Out	1	2	3	4
Single(S)	-VIN	+VIN	-V0	+V0

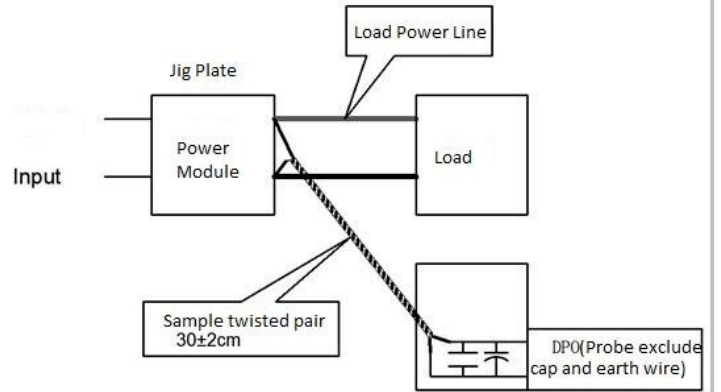
Ripple & Noise Test(Twisted Pair Method 20MHz bandwidth)

Test Method:

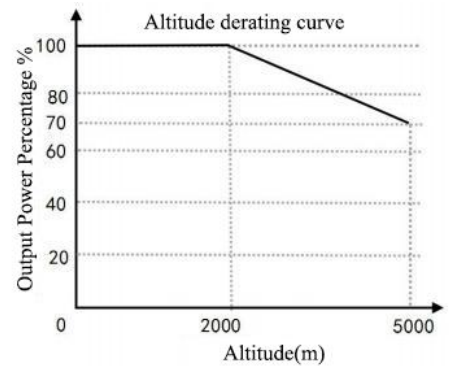
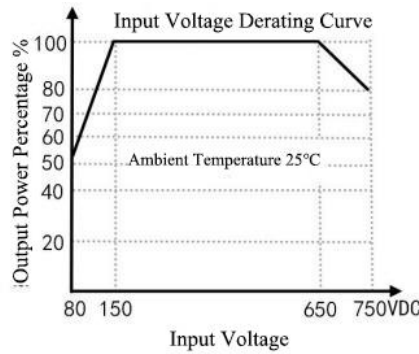
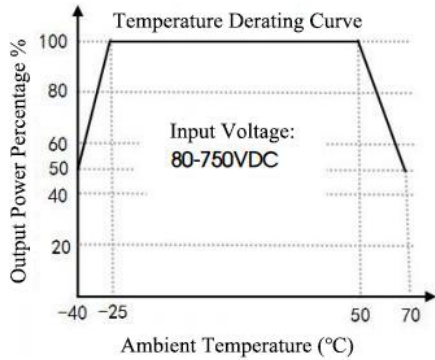
1. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

2. Output Ripple& Noise Test Method:

Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Product characteristic curve



Note 1: The input voltage is 80~150VDC/650~750VDC, voltage derating is required based on the input voltage derating curve.

Note 2: This product is suitable for use in a natural wind cooling environment. If it is used in a closed environment, please contact our company.

Design and Application Reference

1. Typical Application Circuit

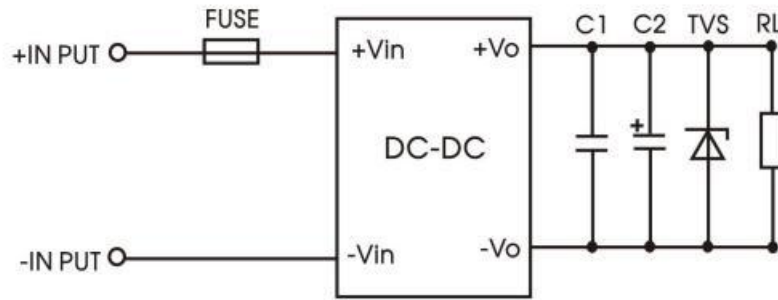


Photo 1

Model	FUSE	C1	C2	TVS
DD50-380S12G2N4	3.15A/1000VDC necessary	1UF/25V	10UF/25V	SMBJ20A

2. EMC solutions and recommended circuits

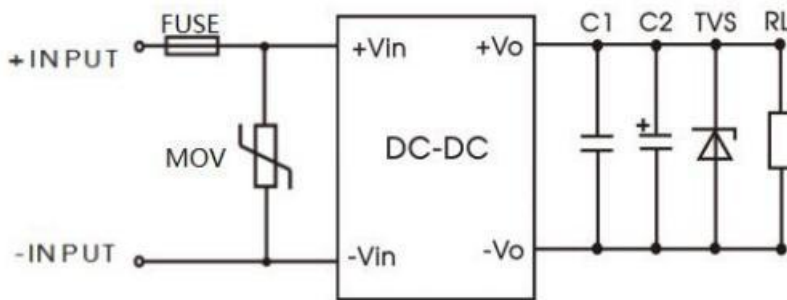


Photo 2

Model	FUSE	C1	C2	TVS	MOV
DD50-380S12G2N4	3.15A/1000VDC necessary	1UF/25V	10UF/25V	SMBJ20A	10D102K

Application Reference :

1. The product should be used under the specification range, otherwise it will cause permanent damage to it.
2. Fuse is required at Input terminal.
3. If the product worked beyond the load range or below the minimum load, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
4. Unless otherwise specified, data in this datasheet should be tested under conditions of Ta=25 °C, humidity<75% when inputting nominal voltage and outputting rated load(pure resistance load);
5. All index testing methods in this datasheet are based on our Company's corporate standards
6. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technician for specific information;
7. We can provide customized product service;
8. The product specification may be changed at any time without prior notice.