DC-DC Converter
PBK200-800SXXG1N6 Series

Patron
Passive Elektronic

Typical Features

- Wide input voltage range 250-1500VDC
- No load power consumption ≤2W
- Efficiency 90% (Typ.)
- Input anti-reverse, under-voltage & over-temperature protections
- Output over-voltage, over-current & short circuit protections
- Isolation voltage 4000VAC
- Input voltage up to 1700VDC (transient, duration 2S)
- Compliant with UL1741, IEC/EN/BS 62109
- Altitude during operating 5000m Max

Application Field

PBK200-800SXXG1N6 Series *------ Compact size, high efficiency DC-DC modular power supplies with compliance with UL1741, EN/IEC/BS 62109 standards, wide input voltage range, low ripple, low temperature rise, low standby power consumption, high efficiency, high reliability and safety isolated. This series of products can be widely used in the fields of solar power generation, energy storage, industrial control, etc. The multiple protection functions can keep the power supply and the load safety under abnormal operating conditions.*

Typical Product List

Certificate	Part No.	Output Specifications			Max Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency@ full load/850VDC (Typ.)
		Power	Voltage	Current			
		(W)	Vo(V)	Io(mA)	u F	mVp-p	%
-	PBK200-800S24G1N6	200	24	8330	5000	300	91
-	PBK200-800S28G1N6	200	28	7143	3500	300	91

Note 1 - The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 2 - The full load efficiency should be in ±2% of the typical value in this table. The efficiency is calculated by the way that the full output power is divided by the input power.

Note 3 - The ripple and noise are tested by the twisted pair method, please refer to the following Ripple & Noise Test Instructions.

Note 4 - Please contact sales for other output voltages requirement in this series but not in this table.

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	DC Input	250	850	1500	VDC
Input Current	300VDC	-	-	1.2	A
	850VDC	-	-	0.45	
Surge Current	850VDC	-	-	150	
	1500VDC	-	-	280	
No-load Power Consumption	1500VDC	-	-	2	W

Under voltage Protection	Start Protection	110	-	240	VDC
	Recovery	120	-	250	
Recommended External Fuse	-	6A/1500VDC, necessary			
Input Anti-reverse	-	Available			
Hot Plug	-	N/A			

Output Specifications

Item		Operating Condition		Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage range, any load	Vo	-	±1.0	±2.0	%
Line regulation		Rated load	Vo	-	±1.0	-	
Load regulation		Rated input voltage, 0%-100% load	Vo	-	±1.0	-	
Minimum Load		Single Output		0	-	-	%
Turn-on Delay Time		Input 800VDC		-	-	2000	mS
Power-off Hold up Time		Input 800VDC		-	20	-	mS
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%		-5.0	-	+5.0	%
	Recovery time			-5.0	-	+5.0	mS
Output Overshoot		Full input voltage range		≤10%Vo			%
Short Circuit Protection				Continuous short circuit, self-recovery			Hiccup
Drift Coefficient		-		-	±0.02%	-	%/℃
Over Current Protection		Full input voltage range		≥110% Io, Self recovery			Hiccup
Over Voltage Protection		Output 24VDC		≤32			V
		Output 28VDC		≤35			

General Specifications

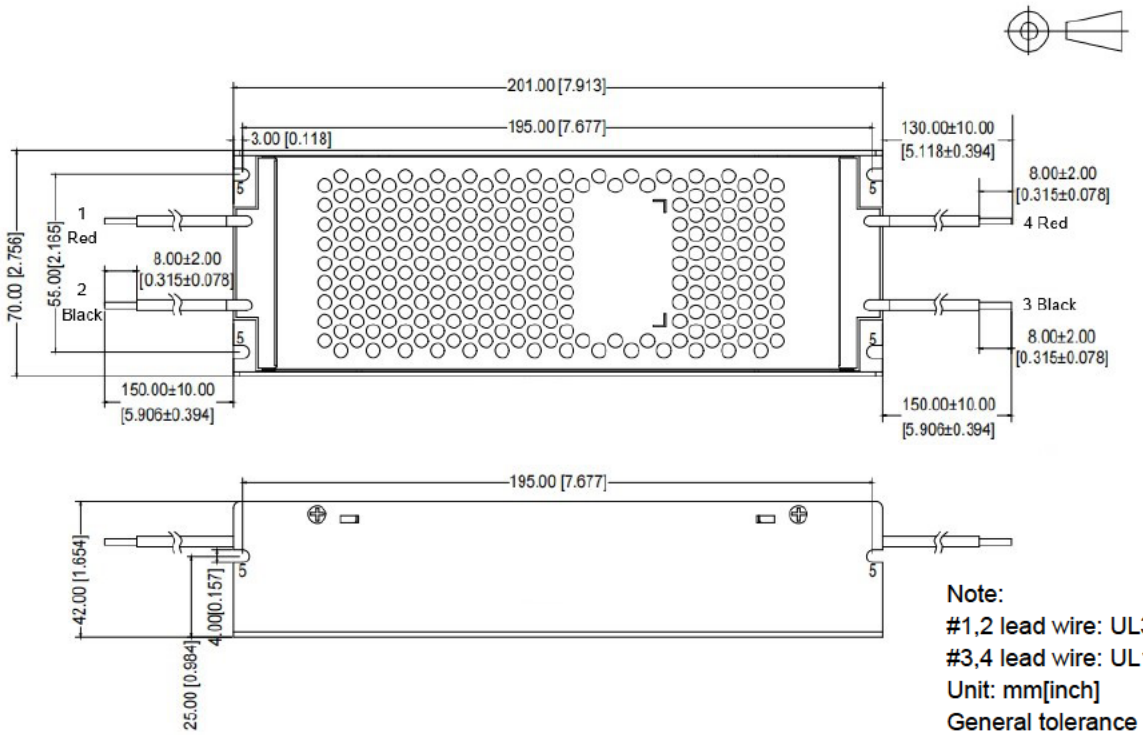
Item		Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency		-	-	65	-	KHz
Operating Temperature		Refer to the temperature derating curve	-40	--	+70	℃
Storage Temperature		-	-40	--	+85	℃
Soldering Temperature		Wave-soldering	260±4℃, time 5-10S			
		Manual-welding	360±8℃, time 4-7S			
Storage Humidity		-	-	-	95	%RH
Isolation Voltage	I/P-O/P	Test 1min, leakage current≤10mA	4000	-	-	VAC
	Input-PE		4000	-	-	
	Output-PE		4000	-	-	

Insulation resistance	I/P-O/P	@500VDC	100	-	-	MΩ
	Input-PE		100	-	-	
	Output-PE		100	-	-	
Safety Standard		-	UL1714, EN/IEC/BS 62109-1			
Vibration		-	10-55Hz,10G, 30Min, along X,Y,Z			
Safety Class		-	CLASS II			
MTBF		-	MIL-HDBK-217F@25℃ >300,000H			

Physical Characteristics

Case Material		Metal
Dimension	Horizontal packaging	201.00x 70.00 x 42.00mm
Weight		600g (TYP)
Cooling Method		Nature air

Mechanical Dimensions



Note:
#1,2 lead wire: UL3239 18AWG
#3,4 lead wire: UL1015 14AWG
Unit: mm[inch]
General tolerance ±1.0[±0.039]

Packaging code	Dimensions L x W x H	
G	201.00x 70.00 x 42.00 mm	7.913 × 2.756 × 1.654 inch

Terminals Definition

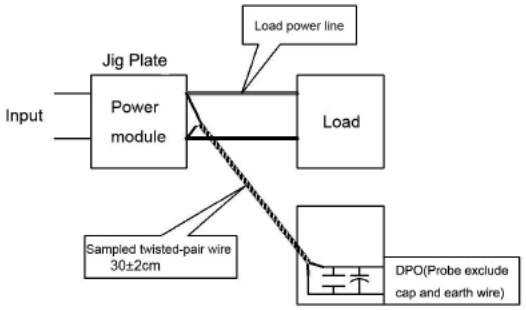
Terminal	1 (Red)	2 (Black)	3 (Black)	4 (Red)	5 (Case)
Single	+Vin	-Vin	-Vo	+Vo	PE

Ripple & Noise Test Instructions (Twisted Pair Method, 20MHz Bandwidth)

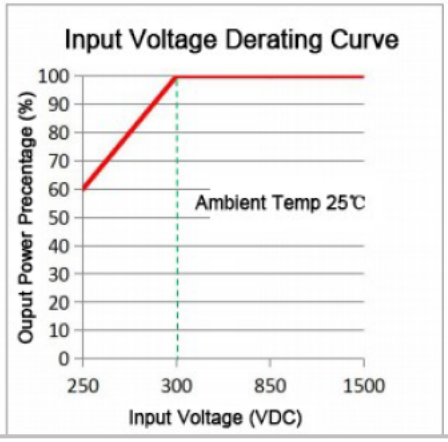
Test Method:

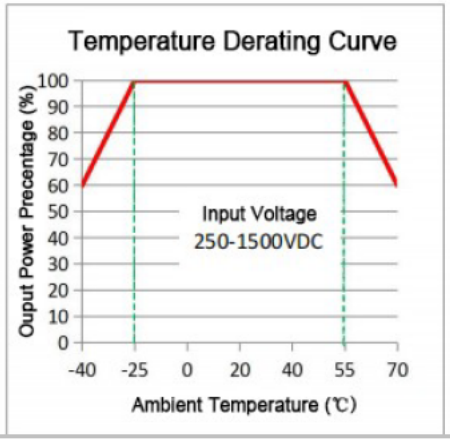
1) The Ripple & noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.

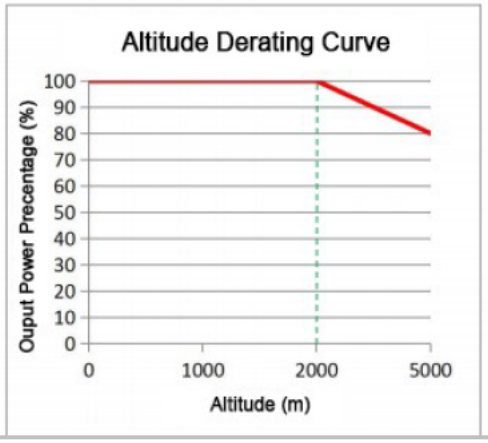
2) The test diagram is shown on the right. The converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.



Product Performance Curves





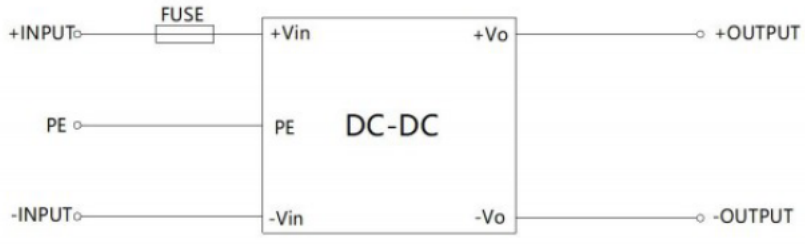


Note 1 - The output power should be derated based on the input voltage derating curve at 250~300VDC.

Note 2 - This product should operate at a natural air condition, please contact us if it need be used at a closed space.

Recommended Circuit for Application

Typical application circuit



Circuit 1

Component	Recommended Value
FUSE	6A/1500VDC, necessary

Application Notice

1.The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.

2. A fuse should be connected at input.

3. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.

4. The product performance in this datasheet cannot be guaranteed if it works under over-load condition.

5. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25℃, humidity<75%RH, rated input voltage and rated load (pure resistance load).