GAPTEC®
GREEN TECHNOLOGY

20DBW8_1.5 Series

20W - Single Output - Ultra wide Input - Isolated & Regulated DC-DC Converter



DC-DC Converter 20 Watt

- **Efficiency up to 90%**
- **8:1 wide input voltage range**
- **Short circuit protection (SCP)**
- **Output over voltage protection**
- **Output over current protection**
- **Input under voltage protection**
- **1.5KVDC isolation**
- **Operating temperature range: -40°C ~ +85°C**
- **Six-sided metal shield**
- **Industry standard pinout**
- **Meet CISPR22/EN55022 CLASS A**

The 20DBW8_1.5 series offers 20W of output, with 8:1 ultra wide input voltage of 6-50VDC and features 1500VDC isolation, input over-voltage and under-voltage protection, over current, over voltage and short-circuit protection.

These products are widely used in fields such as industrial control, electric power, instruments and communication.

SHORT CIRCUIT PROTECTED

100% RoHS compliant

Common specifications

Short circuit protection:	Hiccup, continuous, automatic recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C~+125°C
Lead temperature:	300°C max, 1.5mm from case for 10 sec
Storage humidity range:	5% min, 95% max
Switching frequency (PWM mode)*:	300kHz typ
Vibration:	10-55Hz, 10G, 30 Min. along X, Y and Z
Case material:	Aluminium alloy
MTBF (MIL-HDBK-217F@25°C):	1000 K hours min
Weight:	40g

* This series of products using reduced frequency technology, the switching frequency is test value of full load. When the load is reduced to below 50%, the switching frequency decreases with decreasing load.

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (full load / no-load)			1016/ 8	1042/ 15	mA mA
Reflected ripple current			30		mA
Surge voltage (1sec. max.)		-0.7		70	VDC
Input under-voltage protection	• Starting voltage • Under voltage shutdown	2		6	VDC VDC
Input over-voltage protection	• Starting voltage • Over voltage shutdown	50		58	VDC VDC
Starting time	Nominal input & constant resistance load		10		ms
Input filter	Pi filter				
IHot plug	Unavailable				

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and leakage current less than 1 mA	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	100KHz/0.1V		2000		pF

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy			±1	±3	%
Line regulation	Full load, Input voltage from low to high		±0.2	±0.5	%
Load regulation	5% to 100% load		±0.5	±1	%
Transient recovery time	25% load step change		300	500	μs
Transient response deviation	25% load step change		±5	±8	%
Temperature drift	100% full load		±0.02		%/°C
Ripple & Noise*	20MHz Bandwidth		70	120	mVp-p
Over current protection	Input voltage range	110		190	%Vo
Output Over Voltage Protection	Input voltage range	110		160	%Vo

* Ripple and noise tested by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

Model selection:
WCTV_xxyyN##
W= Watt; **C=**Case; **T=** Type; **V=** Voltage Variation (omitted ± 10%);
xx= Vin; **yy=** Vout; **N=** Numbers of Output; **##=** Isolation (kVDC)

Example:
20DBW8_2415S1.5
20=20Watt; D= DIP; B=series; W8= wide input (8:1) 6-50Vin; 15Vout; S=single output; 1.5=1500VDC

Note:
1. Min. load shouldn't be less than 5%, otherwise ripple maybe increase dramatically. Operation under minimum load will not damage the converter, however, they may not meet all specification listed.
2. Max. Capacitive Load tested at nominal input voltage and constant resistive load.
3. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on our corporate standards.
5. All characteristics are for listed model, non-standard models may perform differently, please contact our technical person for more detail.
6. Contact us for your specific requirement.
7. Specifications subject to change without prior notice.

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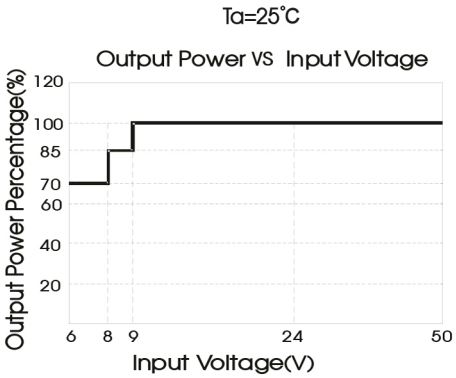
20DBW8_1.5 Series

20W - Single Output - Ultra wide Input - Isolated & Regulated
DC-DC Converter

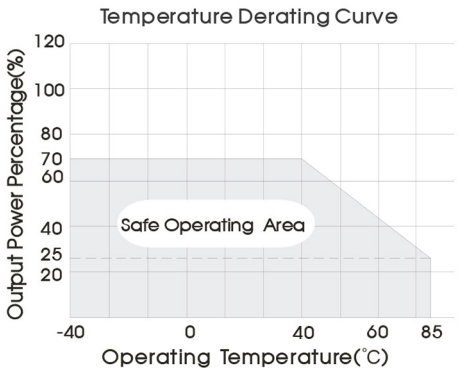
Part Number	Input Voltage [VDC] Nominal[1]	Range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency[2] [%, typ.]	Capacitive load [µF, max]
20DBW8_2405S1.5	24	6-50	5	4000	82	2000

1. The input voltage to work in low-voltage power derating power, specific reference products derating chart;
2. Efficiency is measured In nominal input voltage and rated output load.

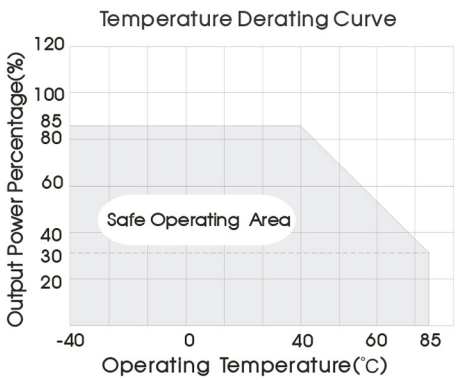
Typical characteristics



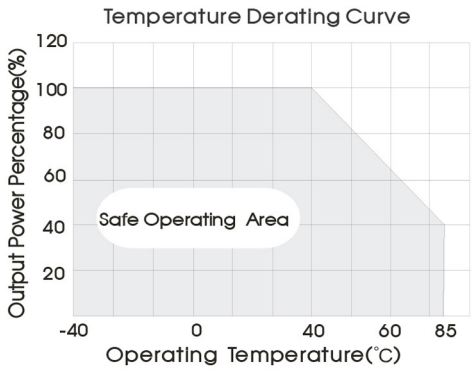
6-8VDC input voltage



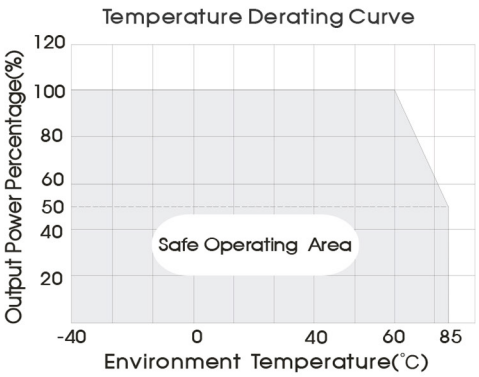
8-9VDC input voltage



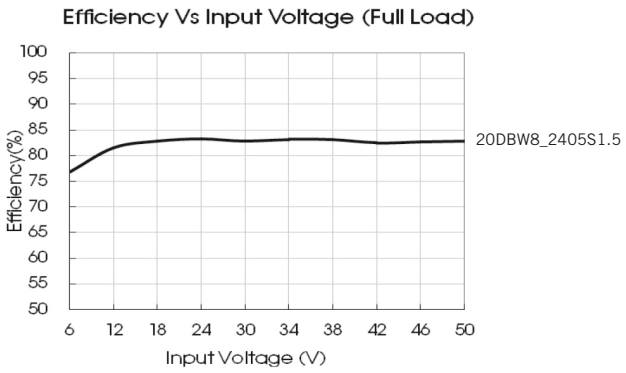
9-18VDC input voltage

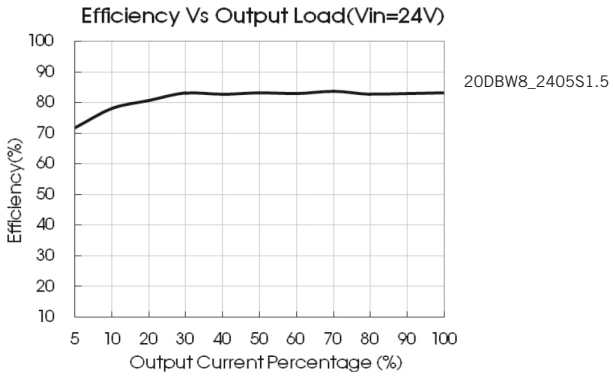


18-50VDC input voltage



Efficiency curves





Typical application

All the DC/DC converters of this series are tested according to the recommended circuit (see Fig. 1) before delivery.
If it is required to further reduce input and output ripple, properly increase the input & output of additional capacitors Cin and Cout or select capacitors of low equivalent impedance provided that the capacitance is no larger than the max. capacitive load of the product.

It is not allowed to connect modules output in parallel to enlarge the power.

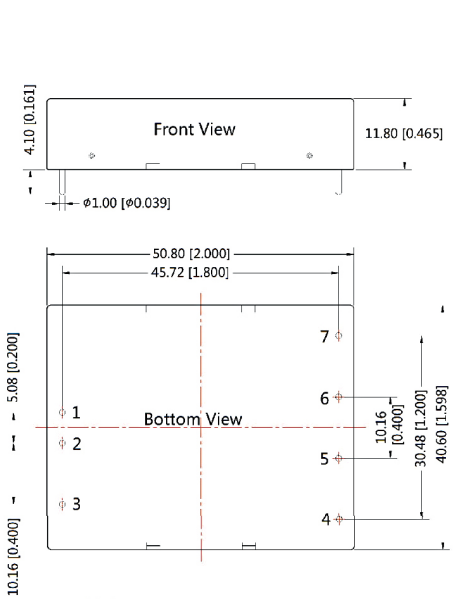


Figure 1

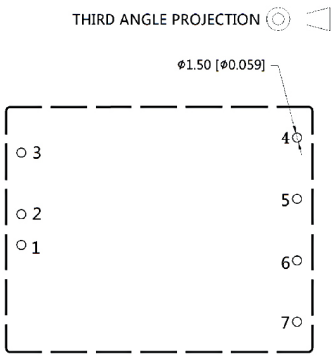
Table 1

Vout(VDC)	Cin(μF)	Cout(μF)
5	100	470

Mechanical dimensions



Note:
Unit: mm[inch]
Pin diameter tolerances: ±0.10mm [±0.004inch]
General tolerances: ±0.50mm [±0.020inch]



Note : Grid 2.54*2.54mm

Pin-Out	
Pin	Function
1	Vin
2	GND
3	No Pin
4	0V
5	+Vo
6	No Pin
7	No Pin