40DC1PW_4 series

40W - Single Output DC-DC Converter

DC-DC Converter 40 Watt

- Wide range input: 200-1500VDC
- No-load power consumption ≤0.15W
- Conversion efficiency (typically 81%)
- Switching frequency: 65kHz
- Protections: short circuit, over current, over voltage protection
- Isolation voltage: 4000VAC
- Complies with CE and RoHS certification standards

Our 40DC1PW_4 series features a wide range input of 200-1500VDC, accommodating diverse application needs. It ensures low no-load power consumption ≤0.15W and offers a typical conversion efficiency of 81%. Operating at a switching frequency of 65KHz, it includes comprehensive protections such as short circuit, over current, and over voltage protection. With an isolation voltage of 4000VAC, it guarantees high safety standards. Additionally, it complies with CE and RoHS certification standards.

Common specifications

Short circuit protection	Input full voltage range - Self-recovery after the short circuit is removed - Hiccup
Over-voltage protection	Input 24VDC ≤30 VDC Input 28VDC ≤35 VDC Input 35VDC ≤45 VDC Input 37VDC ≤45 VDC
Over current protection	Input 800VDC - ≥150% Io self-recovery - Hiccup
Switching frequency	65KHz (typ.)
Operating temperature	-40°C - +70°C
Soldering Temperature	Wave-soldering: 260°C (±4°C), time: 5~10S Manual-welding: 360°C (±8°C), time: 4~7S
Relative humidity	10~90% RH
Vibrate	10-55Hz, 10G, 30Min, along X, Y, Z
Security level	CLASS I
MTBF (MIL-HDBK-217F@25°C)	>300,000 Hours

Input specifications

Item	Operating condition	Min	Typ	Max	Units
Input voltage range	AC input DC input	- 200	- 800	- 1500	- VDC
Input current	200VDC 800VDC			0.2 0.07	A
Inrush current	200VDC 800VDC			180	A
Recommended value of external fuse	2A/1000VAC, must be connected				

Example:
40DC1PW_24S4
40 = 40Watt; DC = DC-DC; 1P = Photovoltaic; W = Wide input;
24 = 24Vout; S = Single Output; 4 = 4000VDC isolation

Output specifications

Item	Operating condition	Min	Typ	Max	Units
Voltage Accuracy	Input full voltage range for any load		±2.0	±3.0	%
Linear adjustment rate	Nominal load			±0.5	%
Load Regulation	Input nominal voltage 10%~100% load			±1.0	%
No-load power consumption	Input 200VDC Input 1500VDC			0.15	W
Minimum load	Single output	0			%
Turn-on delay time	Input nominal voltage (full load)		1000		mS
Power off Holding time	200VDC (full load) 1500VDC (full load)		100 150		mS
Dynamic Response	Overshoot range 25%-50%-25% Recovery time 50%-75%-50%	- 5.0 - 5.0		+ 5.0 + 5.0	% mS
Output overshoot	Input full voltage range		≤10%Vo		%
Drift coefficient			±0.03%	--	%/°C

Isolation specifications

Item	Operating Conditions	Min	Typ	Max	Units
Isolation voltage	Input to output ≤5.0mA/1Min	4000			VAC
Insulation resistance	Input to output - 500VDC	50			MΩ

1. The product should be used under the specification range, otherwise it will cause permanent damage to it.
2. Product's input terminal should connect to fuse;
3. If the product operated below the minimum load request, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
4. If the product worked beyond the load range, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
5. Unless otherwise specified, data in this datasheet are tested under conditions of Ta = 25°C, humidity <75% when inputting nominal voltage and outputting rated load (pure resistance load);
6. All index testing methods in this datasheet are based on our company's corporate standards.
7. 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, please directly contact our technician for specific information;
8. We can provide customized product service;
9. The product specification may be changed at any time without prior notice.

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EMC specifications			
EMS	Electrostatic discharge	IEC/EN61000-4-2	Contact ±6KV Perf.Criteria B
EMS	Radiation immunity	IEC/EN61000-4-3	10V/m Perf.Criteria A
EMS	Surge immunity	IEC/EN61000-4-5	±2KV Perf.Criteria B
EMS	Pulse group immunity	IEC/EN61000-4-4	±4KV Perf.Criteria B
EMS	Conducted disturbance immunity	IEC/EN61000-4-4	±4KV Perf.Criteria B

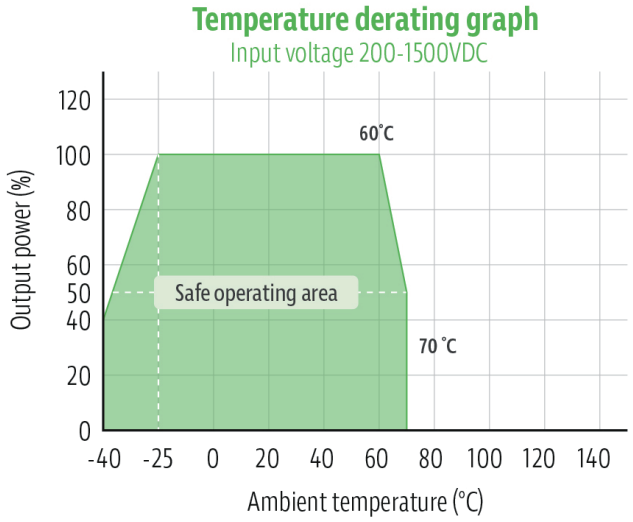
Product Selection Guide

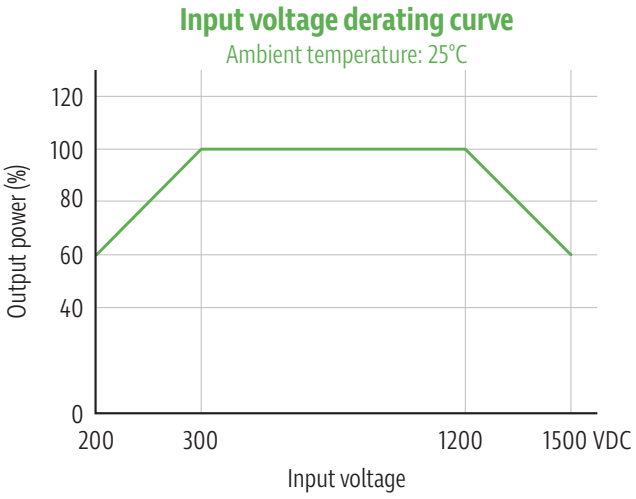
Approval	Part number	Power (W)	Output Voltage Vo (V)	Output Current Io (mA)	Max. Capacitive Load (uF)	Ripple and noise 20MHz (mVp-p)	Efficient @800VDC Typ.(%)
	40DC1PW_24S4	40	24	1667	1000	100	81
	40DC1PW_28S4	40	28	1428	800	100	82
	40DC1PW_35S4	40	35	1150	600	100	84
	40DC1PW_37S4	40	37	1081	400	100	85

Note:

1: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.
2: The fluctuation range of full load efficiency (%,typ) is ±2%, full load output efficiency = total output power/module's input power.
3: The test method of ripple and noise adopts twisted pair test method. Please refer to the following for specific test method and configuration (instructions of ripple & noise test).

Product characteristic curve

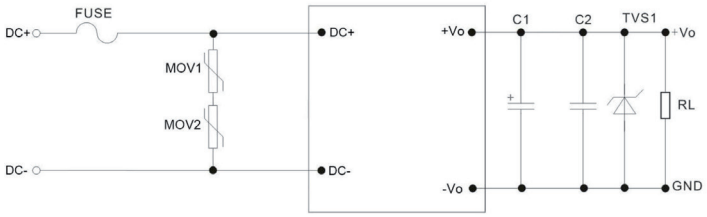




Note:

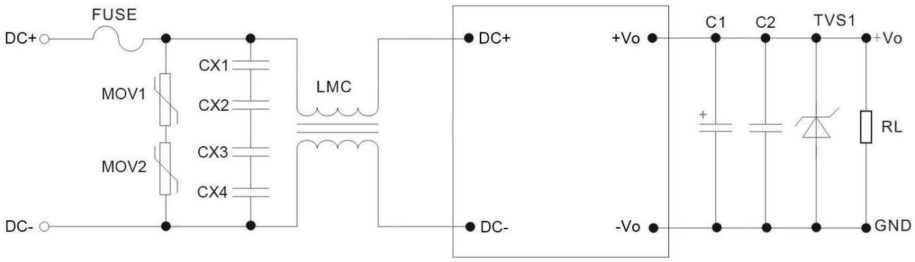
1: The input voltage is 200~300VDC/1200~1500VDC, and it needs to be used for voltage derating on the basis of the input voltage derating curve.
2. This product is suitable for use in a natural air cooling environment. If it is used in a closed environment, please contact our company.

Typical application circuit



Device Tag	Device name	Recommended device value
FUSE	Fuse	2A/1000VAC, must be connected
MOV1, MOV2	Varistor	14D152K
C1	High frequency electrolytic capacitor	10uF/50V
C2	Ceramic capacitors	1uF/50V

EMC external recommended circuit



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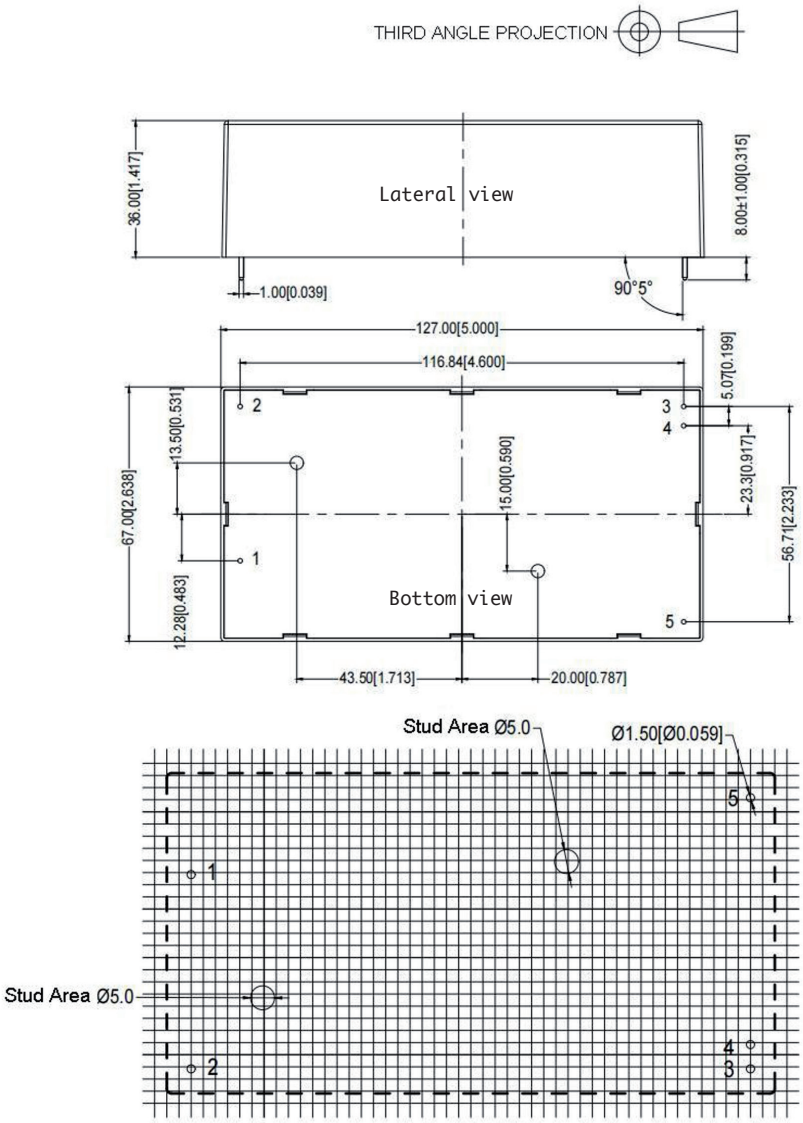
FUSE	Fuse	2A/1000VAC, must be connected
MOV1, MOV2	Varistor	14D152K
C1	High frequency electrolytic capacitor	10uF/50V
C2	Ceramic capacitors	1uF/50V
CX1, CX2, CX3, CX4	X capacitors	104K/275VAC
LMC	Common-mode inductor	7mH/1A

Dimensions and recommended layout



Note:
Grid distance 2.54 * 2.54mm
Size unit: mm[inch]
Terminal diameter tolerance: ±0.10mm [±0.004inch]
Unmarked tolerance: ±1.00mm [±0.039inch]
The product must be fixed with M3 screws in the harsh vibration environment
Refer to the dimensions of the fixed holes

Pin	1	2	3	4	5
Single	-Vin	+Vin	+Vo	-Vo	NC