DMV20

2:1 Input, Isolated Regulated Output
20W DC-DC Module Power Supply

Product Family Features

Wide voltage input 2:1

No external element required

Continuous short circuit protection and self-recovery

Operating temperature range: -40°C~+85°C

Isolation Voltage:1500VDC

Metal shield package

nternational standard pin mode

100% full load aging

Models

Model	Inputvoltage (Vdc)	Outputvoltage (Vdc)	Outputcurrent (mA)	Efficiency Typ.	Capacitive Load [Max](uF)
DMV20-1221	12(9-18)	±5	±2000	85	4700
DMV20-1222	12(9-18)	±9	±1111	87	2200
DMV20-1223	12(9-18)	±12	±833	88	1000
DMV20-1224	12(9-18)	±15	±667	88	680
DMV20-1225	12(9-18)	±24	±417	88	330
DMV20-1210	12(9-18)	3.3	5000	85	10000
DMV20-1211	12(9-18)	5	4000	87	10000
DMV20-1212	12(9-18)	9	2222	87	4700
DMV20-1213	12(9-18)	12	1667	88	2200
DMV20-1214	12(9-18)	15	1333	89	1000
DMV20-1215	12(9-18)	24	833	88	680
DMV20-2421	24(18-36)	±5	±2000	85	4700
DMV20-2422	24(18-36)	±9	±1111	87	2200
DMV20-2423	24(18-36)	±12	±833	88	1000
DMV20-2424	24(18-36)	±15	±667	88	680
DMV20-2425	24(18-36)	±24	±417	88	330
DMV20-2410	24(18-36)	3.3	5000	85	10000
DMV20-2411	24(18-36)	5	4000	87	10000
DMV20-2412	24(18-36)	9	2222	87	4700
DMV20-2413	24(18-36)	12	1667	88	2200
DMV20-2414	24(18-36)	15	1333	89	1000
DMV20-2415	24(18-36)	24	833	89	680

Product Datasheet

Models

Model	Inputvoltage (Vdc)	Outputvoltage (Vdc)	Outputcurrent (mA)	Efficiency Typ.	Capacitive Load [Max](uF)
DMV20-4821	48(36-72)	±5	±2000	85	4700
DMV20-4822	48(36-72)	±9	±1111	87	2200
DMV20-4823	48(36-72)	±12	±833	88	1000
DMV20-4824	48(36-72)	±15	±667	89	680
DMV20-4825	48(36-72)	±24	±417	89	330
DMV20-4810	48(36-72)	3.3	5000	85	10000
DMV20-4811	48(36-72)	5	4000	87	10000
DMV20-4812	48(36-72)	9	2222	88	4700
DMV20-4813	48(36-72)	12	1667	89	2200
DMV20-4814	48(36-72)	15	1333	89	1000
DMV20-4815	48(36-72)	24	833	89	680

Input Specifications

Parameter	Min.	Typ.	Max.	Note
Input Undervoltage Protection	6.6 Vdc	7.3 Vdc	-	Input voltage 12Vdc
	13.5 Vdc	14.8 Vdc	-	Input voltage 24Vdc
	27 Vdc	30 Vdc	-	Input voltage 48Vdc
Starting Voltage	-	8.2 Vdc	9 Vdc	Input voltage 12Vdc
	-	16.2 Vdc	18 Vdc	Input voltage 24Vdc
	-	33 Vdc	36 Vdc	Input voltage 48Vdc
Impulse Voltage (1sec.max)	-0.7 Vdc	-	25 Vdc	Input voltage 12Vdc
	-0.7 Vdc	-	50 Vdc	Input voltage 24Vdc
	-0.7 Vdc	-	100 Vdc	Input voltage 48Vdc
No-load Current	-	10 mA	20 mA	Input voltage 12Vdc
	-	5 mA	10 mA	Input voltage 24Vdc
	-	5 mA	10 mA	Input voltage 48Vdc

Output Specifications

Parameter	Min.	Typ.	Max.	Note
Output Power	0W		20W	
Output Positive Voltage Accuracy	-	±1%	±2%	
Output Negative Voltage Accuracy	-	±2%	±3%	
Line Voltage Regulation	-	±0.2%	±0.5%	
Load Regulation	-	±0.5%	1%	
Ripple & Noise	-	-	100	
Output Short Circuit Protection	Sustainable and automatic restoration			

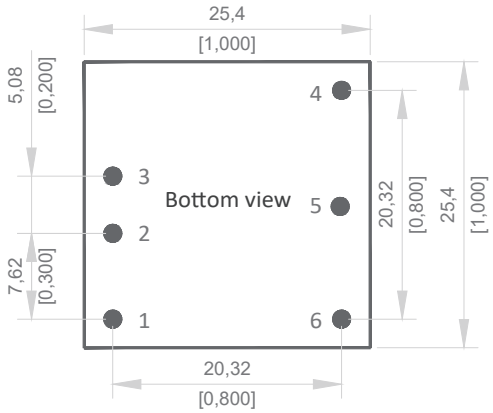
General Specifications

Parameter	Min.	Typ.	Max.	Note
Storage Humidity	5%	-	95%	
Operating Temps	-40℃	-	85℃	
Storage Temps	-55℃	-	125℃	
Operating Case Temps	-	20℃	35℃	
Pin Welding Temps	-	-	300℃	
Temps Drift Coefficient	-	-	±0.03%/℃	
Switching Frequency	-	320	350	Khz
Input Filter	π-type filtering			
Hot Plug	not supported			
MTTF	1000K h			MIL-HDBK-217@25°C
Weight		18g		
Cooling	Free air convection			
Case Material	Black metal shell			

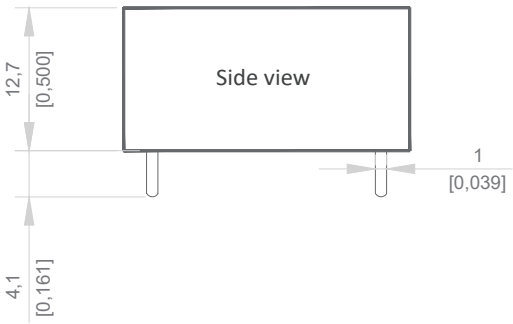
Safety&EMC Compliance

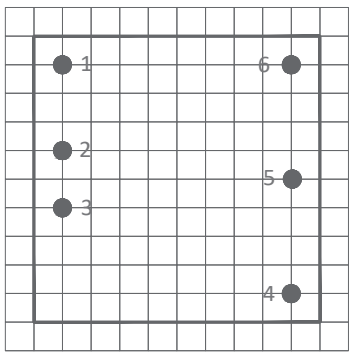
Isolation Voltage 1 minute, leakage current 1mA max	Ip to Op:1.5kV	
	Ip/Op-FG:1KV	
Isolation Resistance	1000M Ω	
EMI	CE	CISPR32/EN55032 CLASS B（see EMI recommended circuit）
	RE	CISPR32/EN55032 CLASS B（see EMI recommended circuit）
EMS	ESD	IEC/EN61000-4-2 CONTACT ±4KV perf. Criteria B
	RS	IEC/EN61000-4-3 10V/M perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV（see EMS recommended circuit）
	Surge	IEC/EN61000-4-5 Line-Line ±2KV （see EMS recommendedcircuit)
	CS	IEC/EN61000-4-6 3 VR.M.S perf. Criteria A
	Voltage sag, drop and short-time interrupt immunity	IEC/EN61000-4-29 0%， 70%

Dimensions & Lnterface Definition



UNIT: mm [Inth]





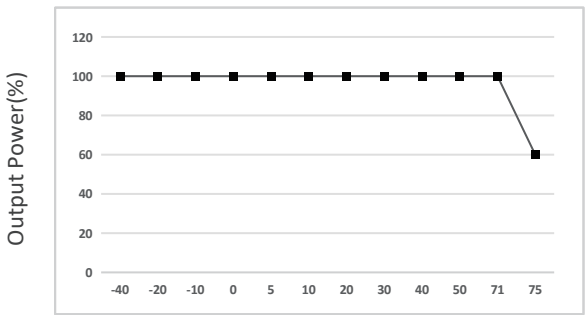
Recommended PCBA diagram

NO	Single	Double
1	NP	NP
2	GND	GND
3	VIN	VIN
4	+Vo	+Vo
5	NP	0V
6	0V	-Vo

NP: No such pin
Tolerance:±0.5mm[0.020inth]

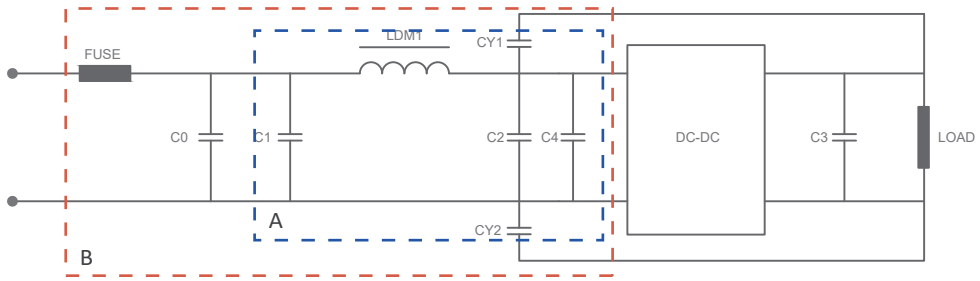
Performance Curve

Ambient Temperature Derating Curve



Ambient Temperature(˚C)

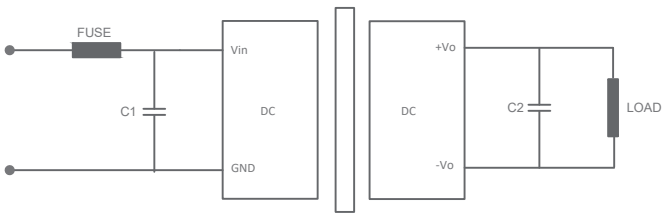
EMC Recommended Circuit

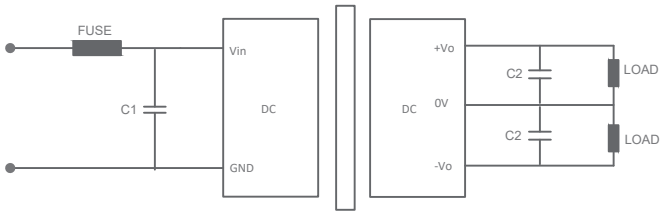


For the part selected by the frame line, Part A is used for EMI performance enhancement, and Part B is used for EMS testing.

Inputvoltage	Fuse	C0,C4	C1,C2	C3	LDM1	CY1,CY2
12Vdc	Select based on the actual input current of the customer	330uF/50V	4.7uF/50V	Refer to the output parameters in the application circuit	2.2uH/4A	1nF/2kV
24Vdc		330uF/50V	4.7uF/50V		2.2uH/4A	1nF/2kV
48Vdc		330uF/100V	4.7uF/100V		2.2uH/2A	1nF/2kV

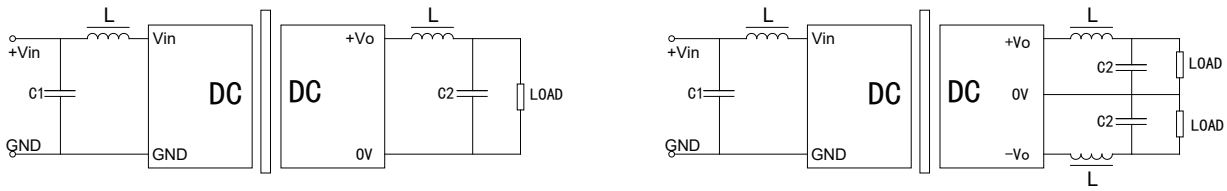
Recommended Application Circuit





Input Voltage	External Capacitance C1	Single Output Voltage	External Capacitance C2	Double Output Voltage	External Capacitance C2
12	100uF/25V	3.3VDC	100uF/16V	±5VDC	100uF/16V
24	100uF/50V	5VDC	100uF/16V	±9VDC	100uF/16V
48	100uF/100V	9VDC	100uF/16V	±12	100uF/25V
		12VDC	100uF/25V	±15VDC	100uF/25V
		15VDC	100uF/25V	±24VDC	47uF/50V
		24VDC	47uF/50V		

Application Precautions



Avoid Excessive Output External Capacitance: The capacity value of the output external capacitor C2 should not be too large, otherwise it is easy to cause overcurrent or bad startup when the module is started. The specific value should be selected according to the external capacitor table.

The input of this series does not support parallel use of hot plug and output.

For situations requiring high ripple noise, external LC filter circuit should be connected, and the resonant frequency of LC filter should be far less than the switching frequency of DC/DC module to prevent mutual interference, resulting in output ripple increase or module damage, as shown in the figure: