

DC/DC Converter

FV-H1200-24-E



AMV ELECTRONICA SL - C/ NAVA N°7 BAJO - 33207 - GIJÓN - ASTURIAS
 TFN 985 31 91 71 - FAX 985 34 67 95 - amv@amvelectronica.com
 www.amvelectronica.com

New energy 100-1200VDC overwide and overhigh input voltage isolation converter



FEATURES

- Input voltage up to 1200VDC
- 12:1 ultra-wide input voltage range: 100 ~ 1200VDC
- Industrial grade operating temperature: -25°C ~ 70°C
- 4000VDC high isolation voltage
- High efficiency, Low ripple & noise
- Over output voltage protection (automatic recovery)
- Short circuit protection (automatic recovery)
- Input against reverse protection
- MTBF > 300 K hours
- High reliability, long life, three years warranty
- Offer custom products

FV-H1200-24-E is a 60W efficient environmental-protection DC-DC module power supply, which has advantages such as high surge resistance, high efficiency, high reliability, low power consumption and high safety isolation. The series products are widely used in industries such as industrial control and electricity. Application circuits should be referred to the conditions with weak electromagnetic compatibility.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range		100	--	1200	VDC
Input current	200VDC	--	--	92	mA
	600VDC	--	--	31	
	1200VDC	--	--	17	
Inrush current	200VDC	--	7	--	A
	600VDC	--	23	--	
	1200VDC	--	50	--	
External input fuse		3.15A Slow fusing			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		--	±1	±2	%
Linear Regulation	Full load	--	±0.5	±1	
Load Regulation	5%-100% load	--	±0.5	±1	
Output Ripple & Noise*	20MHz bandwidth (peak-peak value)	--	100	200	mV
Temperature Drift Coefficient		--	±0.02	--	%/°C
Short Circuit Protection		Continuous, self-recovery			
Over-voltage Protection	PV15-27B12	(Feedback-clamp) Voltage limited < 15V			
	PV15-27B15	(Feedback-clamp) Voltage limited < 19V			
	PV15-27B24	(Feedback-clamp) Voltage limited < 27V			
Min. Load		0	--	--	%
Delay time	200~1200VDC	--	--	1	s

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Note: *Parallel line test method is adopted to test the ripple and noise, please see *DC-DC Product Application Notes* for specific operation methods.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	Test time: 1min	4000	--	--	VDC
Operating Temperature			-25	--	+70	°C
Storage Temperature			-25	--	+105	
Storage Humidity			--	--	95	%RH
Welding Temperature	Wave-soldering		260±5°C; time:5~10s			
	Manual-welding		360±10°C; time:3~5s			
Switching Frequency			--	65	--	kHz
Power Derating	+50°C to +70°C		3	--	--	%/°C
Hot Plug	Unavailable					
MTBF	MIL-HDBK-217F@25°C > 300,000 h					

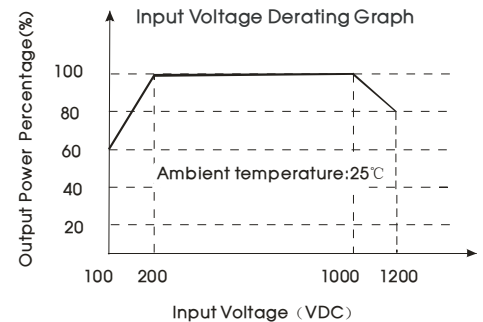
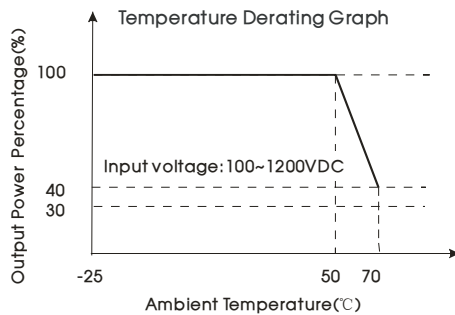
Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic (UL94-V0)	
Package Dimensions	Horizontal package	70.00*48.00*23.50 mm
	A2 wiring package	96.10*54.00*32.00 mm
	A3 wiring package	99.00*54.00*32.00 mm
	A4 rail package	96.10*54.00*36.60 mm
Weight	Horizontal package/ A2 wiring package/ A3 wiring package/ A4 rail package	113 g /170 g /170 g /210 g(Typ)
Cooling method	Free air convection	

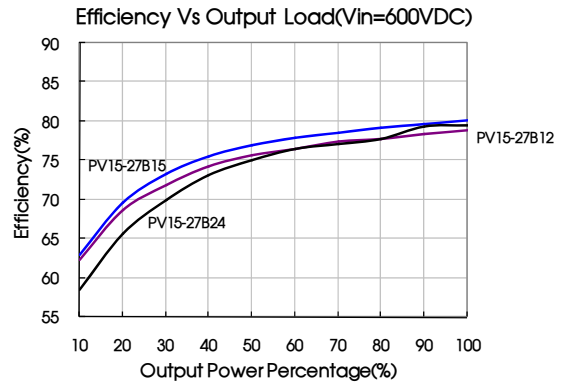
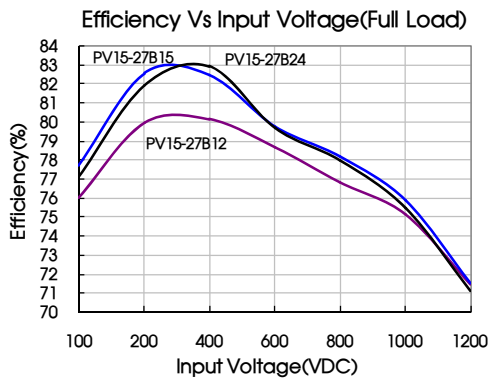
EMC Specifications

EMI	Conducted Disturbance	CISPR22/EN55022, CLASS A(See Fig. 2 for recommended circuit)	
	Radiated Emission	CISPR22/EN55022, CLASS A(See Fig. 2 for recommended circuit)	
EMS	Electrostatic Discharge	IEC/EN61000-4-2	±6KV/±8KV Perf. Criteria B
	Radiation Immunity	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV (See Fig. 2 for recommended circuit) perf. Criteria B
	Surge Immunity	IEC/EN61000-4-5	±2KV (See Fig. 2 for recommended circuit) perf. Criteria B
	Conducted Disturbance Immunity	IEC/EN61000-4-6	10 Vr.m.s perf. Criteria A
	Immunity for Power frequency magnetic field	IEC/EN61000-4-8	10A/m perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-11	0%-70% perf. Criteria B

Product Characteristic Curve



Note: Input voltage should be derated based on temperature derating when it is 100~1200VDC.



Design Reference

1. Typical application circuit

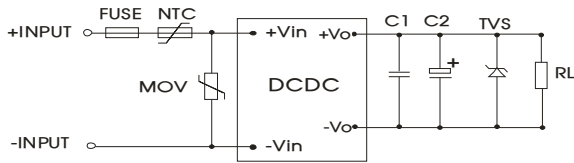


Fig. 1: Typical application circuit

Model	C1(μF)	C2(μF)	TVS tube
PV15-27B12	0.22MF/50V	120μF/25	SMCJ15A
PV15-27B15	0.22μF/50V	120MF/2	SMCJ20A
PV15-27B24	0.22μF/50V	68MF/35	SMCJ33A

Note:

Output filtering capacitor C2 is electrolytic capacitor, it is recommended to apply electrolytic capacitor with high frequency and low resistance. For capacitance and current of capacitor please refer to manufacture's datasheet. Capacitance withstand voltage derating should be 80% or above. C1 is ceramic capacitor, which is used to filter high-frequency noise. TVS is a recommended component to protect post-circuits if converter fails.

2. EMC solution-recommended circuit

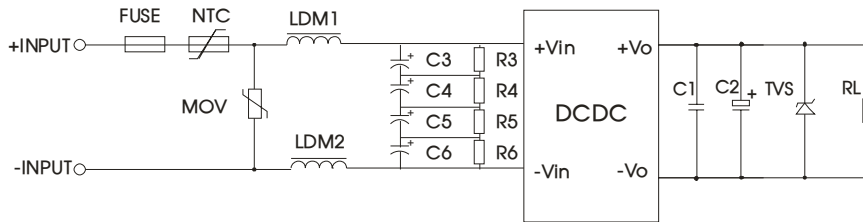


Fig 2: EMC application circuit with higher requirements

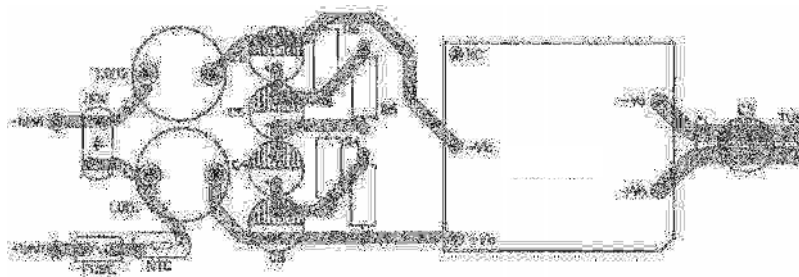


Fig 3: Recommended EMC circuit-PCB layout

Suggestions for safety regulation and wiring width: wire width $\geq 3\text{mm}$, distance between wires $\geq 6\text{mm}$, and distance between wire and ground $\geq 6\text{mm}$

Element model	Recommended value
MOV	S14K1000
C3, C4, C5, C6	22μF/400VDC
R3, R4, R5, R6	1MΩ/2W
NTC	5D-9
LDM1, LDM2	1.2mH/0.5A
FUSE	3.15A, necessary

3. For more information Please find the application note on www.mornsun-power.com

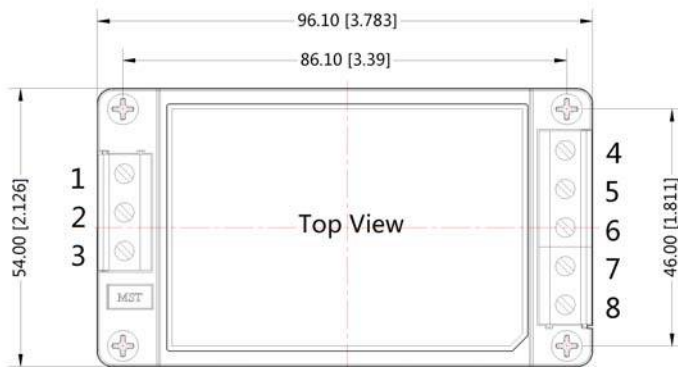
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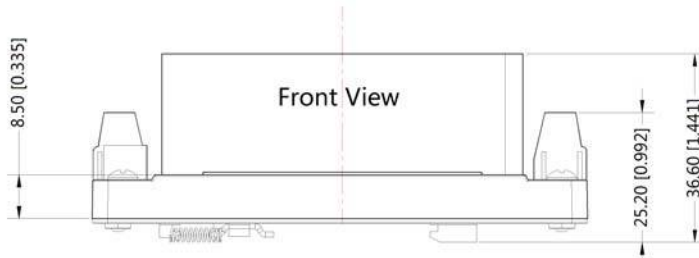
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Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Pin	Function
1	-Vin
2	NC
3	+Vin
4	-Vo
5	NC
6	NC
7	NC
8	+Vo



Note:
Unit:mm[inch]
Installed on DIN rail TS35
Wire range : 24~12 AWG
General tolerances:±0.50[±0.020]

1100100607-A0



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GARANTIA

TODOS LOS EQUIPOS FABRICADOS POR **AMV ELECTRÓNICA** SALEN DE NUESTROS TALLERES AJUSTADOS, NUMERADOS Y CON DOCUMENTACIÓN TÉCNICA, **SIENDO LA GARANTIA TOTAL DE 3 AÑOS.**

LA GARANTÍA CUBRE LAS SITUACIONES DE DAÑO INTRÍNSECO, Y NO LAS PROVOCADAS POR CAUSAS EXTERNAS O LA MANIPULACIÓN POR PARTE DEL USUARIO.

LA GARANTÍA SE ENTIENDE EN NUESTROS TALLERES, SIENDO POR CUENTA DEL USUARIO LOS COSTES DEL TRANSPORTE.

AMV ELECTRONICA

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