JVA40 Series

DC-DC Converter

XP Power

40 Watts

- Renewable energy, industrial applications and EV applications
- Ultrawide input range - 200-1500VDC
- Fully encapsulated PCB mount
- Optional DIN rail versions with built in EMI filter 1500VDC fuse
- 4kVAC isolation
- Short circuit protection
- UL1741 and EN62109 safety approvals
- -40 °C to +70 °C operating temperature
- 3 year warranty



The JVA series offers high isolation DC-DC converters with an ultra wide DC input range. Configuration options provide convenient installation choices for renewable energy, industrial and EV applications.

Dimensions:

JVA40: 4.92 x 2.95 x 1.57" (124.9 x 74.9 x 40.0 mm)
JVA40-D: 5.08 x 4.02 x 1.92" (129.0 x 102.0 x 49.0 mm)
JVA40-DF: 5.75 x 5.43 x 2.17" (146.05 x 137.9 x 55.0 mm)

Models & Ratings

Output Power	Input Voltage	Output Voltage	Overvoltage Protection (typical)	Output Current	Input Current[1]	Typical Efficiency[4]	Maximum Capacitive Load	Model Number[3,4]
40 W	200-1500 V	12.0 V	20.0 V	3330 mA	320 mA	76%	2000 µF	JVA401500S12
		15.0 V	20.0 V	2670 mA		78%	1200 µF	JVA401500S15
		24.0 V	30.0 V	1670 mA		80%	470 µF	JVA401500S24

Notes

1. At 200 VDC input
2. For DIN rail mount option, add suffix '-D' e.g. JVA401500S12-D
3. For DIN rail with added EMI filter option, add suffix '-DF' e.g. JVA401500S24-DF
4. At 800 VDC Input

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	200		1500	VDC	
Input Current		320/80/42		mA	200 VDC/800 VDC/1500 VDC input
Inrush Current		50/150		A	200 VDC/1500 VDC input
Input Filter	Pi type				
Undervoltage Lockout	On 180-195 V, Off 170-185 V				
Input Protection	External 15 A/1500 VDC fuse required				This is already included in the optional -DF version

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12		24	V	See Models and Ratings table
Initial Set Accuracy		±2		%	
Minimum Load	0			A	No minimum load required
Start Up Delay		2		s	
Line Regulation		±1		%	
Load Regulation		±1		%	0 - 100% load
Ripple & Noise		150	300	mV pk-pk	20 MHz bandwidth
Short Circuit Protection					Trip & Restart (hiccup mode), auto recovery
Overload Protection	120		320	%	Trip & Restart (hiccup mode)
Overvoltage Protection					See Models and Ratings table
Temperature Coefficient		0.02		%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		72		%	See Models and Ratings table
Isolation	4000			VAC	For 60 s
Switching Frequency		65		kHz	
Operating Altitude			5000	m	Derate from 100% load at 2000 m to 80% load at 5000 m
Mean Time Between Failure	300			kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.95 (434)		lb (g)	JVA40
		1.08 (494)			JVA40-D
		1.64 (744)			JVA40-DF

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+70	°C	See derating curve
Storage Temperature	-40		+85	°C	
Operating Altitude			5000	m	Derate from 100% load at 2000 m to 80% load at 5000 m
Case Temperature			95	°C	
Humidity	5		95	%RH	Non-condensing
Cooling	Natural convection				
Shock	±3 shocks in each plane, total 18 shocks of 30 g : 11 ms halfsine. Conforms to EN60068-2-27 & EN60068-2-47				
Vibration	10-500 Hz at 2 g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6				

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Level A	See application notes. Not required for integrated filter '-DF' versions.
Radiated	EN55032	Level A	

EMC: Immunity

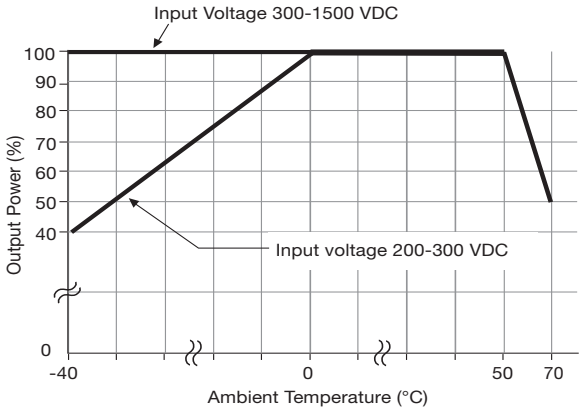
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Immunity	EN55035			
ESD Immunity	EN61000-4-2	±6 kV Contact, ±8 kV Air	B	
Radiated Immunity	EN61000-4-3	10 V/m	A	
EFT/Burst	EN61000-4-4	±2kV	B	See application notes
Surges	EN61000-4-5	±1kV	B	See application notes
Conducted Immunity	EN61000-4-6	10 Vrms	A	
Magnetic Fields	EN61000-4-8	10 A/m	A	

Safety Approvals

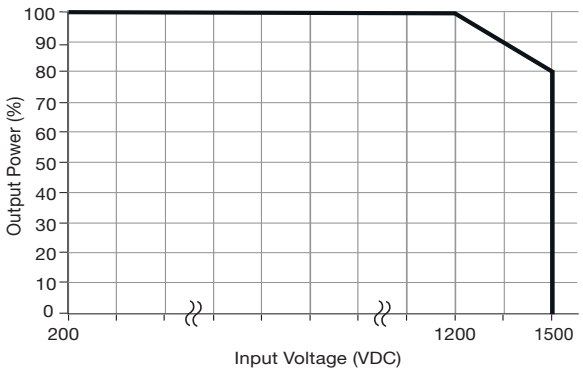
Safety Agency	Safety Standard	Notes & Conditions
EN	EN62109	Photovoltaic Power System
UL	UL1741/CSA-C22.2 No.107-1	Distributed Energy Resources
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Application Notes

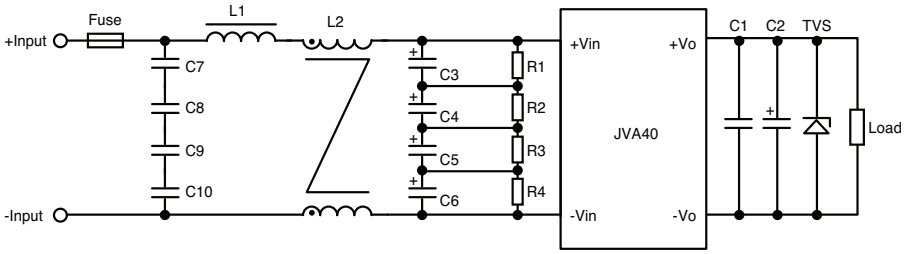
Thermal Derating Curve



Input Derating Curve



EMI Filter for Conducted Emissions

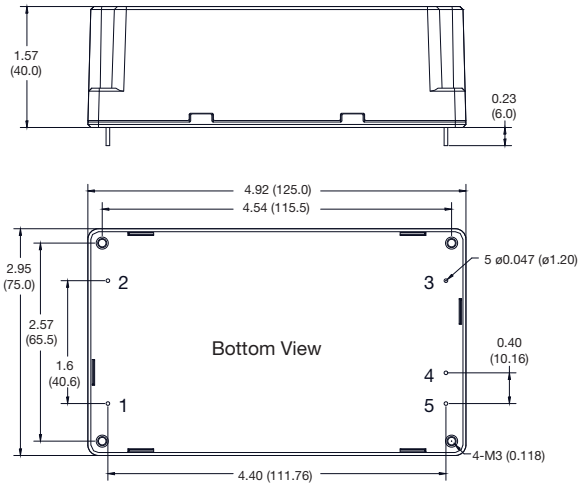


Model	C1 (µF)	C2 (µF)	TVS
JVA401500S12	1	120	SMBJ20A
JVA401500S15		120	SMBJ20A
JVA401500S24		68	SMBJ30A

Element Model	Recommended Value
C7/C8/C9/C10	104K/275 VAC
C3/C4/C5/C6	47 µF/450 VDC
R1/R2/R3/R4	1 MΩ/2 W
L1	330 µH/1 A
L2	7 mH/1 A
Fuse	15 A/1500 VDC

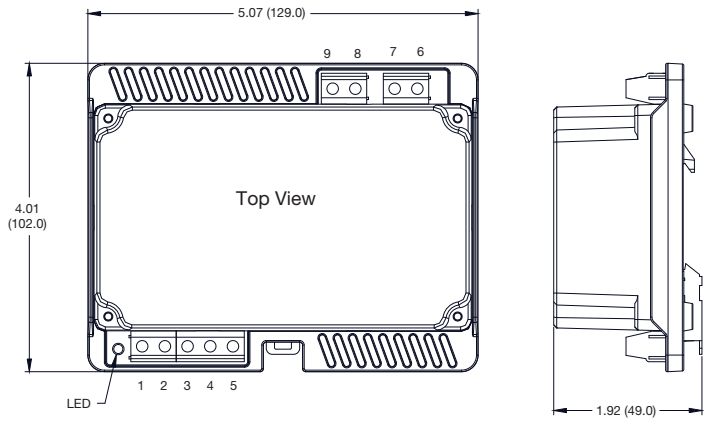
Mechanical Details

Standard PCB Mount



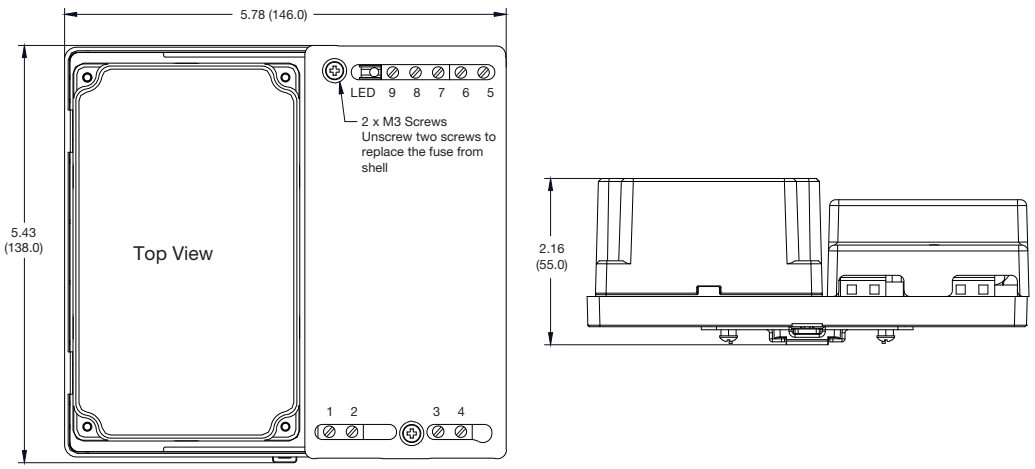
Pin Connections	
Pin	Function
1	-Vin
2	+Vin
3	No Connection
4	-Vo
5	+Vo

Optional DIN rail mount, -D



Pin Connections	
Pin	Function
1	+Vo
2	-Vo
3	No Connection
4	No Connection
5	No Connection
6	+Vin
7	+Vin
8	-Vin
9	-Vin

Optional DIN rail mount with filter, -DF



Pin Connections	
Pin	Function
1	-Vin
2	-Vin
3	+Vin
4	+Vin
5	+Vo
6	-Vo
7	No Connection
8	No Connection
9	No Connection

Notes

1. All dimensions are in inches (mm)

2. Weight: Standard PCB mount: 0.903 lbs (410 g) approx
Optional DIN rail mount, -D: 1.04 lbs (470 g) approx
Optional DIN rail mount with filter, -DF: 1.59 lbs (720 g) approx