JWK10 series

10W

DC-DC converters

The 10W JWK10 series is housed in a 25.4 x 25.4mm (1" x 1") PCB mount metal cased package. Featuring a 4:1 input voltage range of 9 to 36VDC for nominal 24VDC or 18 to 75VDC for a nominal 48VDC, ideal for many applications that demand multiple input voltages or where the input voltage varies widely.

Single output models provide 3.3, 5, 12, 15 or 24VDC and dual outputs of ±5, ±12VDC or ±15VDC that can be configured as a single 30VDC.

The JWK10 has a regulated output and provides 1.5kVDC isolation between input and output. The operating temperature range is from -40°C to +100°C, with derating above +60°C. An optional heatsink (suffix -HK) is available.

Features

- Regulated single & dual outputs
- 4:1 input range
- Single outputs 3.3 to 24VDC
- Dual outputs ±5.0, ±12 & ±15VDC
- 25.4 x 25.4mm (1" x 1") PCB mount package
- Optional heatsink
- 1.5kVDC isolation
- Remote On/Off
- -40°C to +100°C operating temperature
- Full power to +60°C
- 3 year warranty

Applications

Autonomous equipment

Industrial electronics & robotics

Technology

Dimensions

25.4 x 25.4 x 10.16mm (1.0" x 1.0 " x 0.40")

Documentation

For further information click the link or scan the code

xppower.com

Models & ratings

Model number[4]	Input voltage	Output voltage	Output current		Efficiency	Input current[1,2]		Maximum capacitive load[3]
			Minimum	Maximum		No load	Full load	
JWK1024S3V3	9-36VDC	3V3VDC	330mA	2.20A	86%	30mA	350mA	560µF
JWK1024S05		5.0VDC	300mA	2.00A	84%		495mA	560µF
JWK1024S5V1		5.1VDC	300mA	2.00A	84%		505mA	560µF
JWK1024S12		12.0VDC	125mA	0.83A	86%		485mA	150µF
JWK1024S15		15.0VDC	100mA	0.66A	87%		475mA	150µF
JWK1024S24		24.0VDC	62mA	0.41A	86%		475mA	68µF
JWK1024D05		±5.0VDC	±150mA	±1.00A	84%		495mA	±220µF
JWK1024D12		±12.0VDC	±62mA	±0.41A	86%		475mA	±100µF
JWK1024D15		±15.0VDC	±50mA	±0.33A	87%		475mA	±100µF

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Notes:

1. Input currents measured at nominal input voltage.
2. Input current is typically 10mA at nominal input voltage when output is turned off using remote on/off.
3. Maximum capacitive load is per output.
4. Add suffix "-HK" for optional heatsink.

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Models & ratings

Model number[4]	Input voltage	Output voltage	Output current		Efficiency	Input current[1,2]		Maximum capacitive load[3]
			Minimum	Maximum		No load	Full load	
JWK1048S3V3	18-75VDC	3V3VDC	330mA	2.20A	85%	20mA	180mA	560µF
JWK1048S05		5.0VDC	300mA	2.00A	84%		250mA	560µF
JWK1048S5V1		5.1VDC	300mA	2.00A	84%		255mA	560µF
JWK1048S12		12.0VDC	125mA	0.83A	86%		240mA	150µF
JWK1048S15		15.0VDC	100mA	0.66A	87%		235mA	150µF
JWK1048S24		24.0VDC	62mA	0.41A	86%		240mA	68µF
JWK1048D05		±5.0VDC	±150mA	±1.00A	84%		250mA	±220µF
JWK1048D12		±12.0VDC	±62mA	±0.41A	86%		240mA	±100µF
JWK1048D15		±15.0VDC	±50mA	±0.33A	87%		235mA	±100µF

Notes:

1. Input currents measured at nominal input voltage.
2. Input current is typically 10mA at nominal input voltage when output is turned off using remote on/off.
3. Maximum capacitive load is per output.
4. Add suffix "-HK" for optional heatsink.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input filter	Internal Pi type				
Remote on/off	ON: Logic high (2.5-50VDC) or open circuit OFF: Logic low (<1.0VDC) or short pin 2 to pin 6				
Undervoltage Lockout	ON at >8.5VDC, OFF at <9VDC				
	ON at >18VDC, OFF at <17VDC				
Input surge			50	VDC for 1s	24VDC models (for 1s)
			100		48VDC models (for 1s)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Initial set accuracy			±2	%	At full load
Output voltage balance		±1	±2	%	For dual output with balanced loads
Minimum load	0			%	No minimum load required
Line regulation			±1.0	%	From minimum to maximum input at full load
Load regulation			±0.5/±1.0	%	Single/dual output, from 0 to full load
Cross regulation			±5	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%
Transient response		3	6	% deviation	Recovery within 1% in less than 600µs for a 25% load change.
Ripple & noise		100		mV pk-pk	20MHz bandwidth. Measured using 0.47µF ceramic capacitor.
Short circuit protection	Continuous trip & restart (hiccup mode), with auto recovery				
Temperature coefficient			0.02	%/˚C	
Overload protection		150		%	
Maximum capacitive load	See models and ratings table				

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		85		%	See models & ratings table
Isolation: input to output	1500/1800			VDC	60s/1s
Isolation capacitance			1500	pF	
Isolation resistance	10^9			Ω	At 500VDC
Switching frequency		450		kHz	
Power density			3.1 (50.8)	W/cm³ (W/in³)	
Mean time between failure		350		khrs	MIL-HDBK-217F, +25°C GB
Weight		15.0 (0.03)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+105	°C	See derating curve
Storage temperature	-50		+125	°C	
Case temperature			+100	°C	
Humidity			95	%RH	Non-condensing
Cooling	Natural convection				

Safety approvals

Safety agency	Standard	Notes & conditions
UL	UL60950-1, UL62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

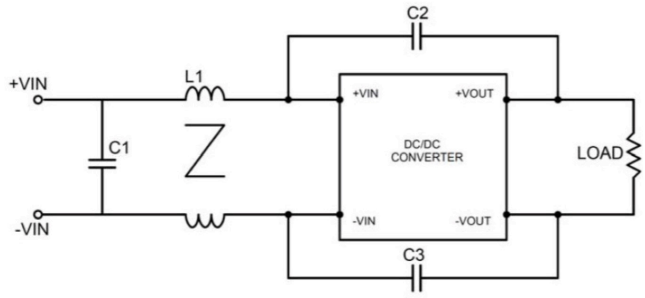
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A/B	See application note

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	±6kV/±8kV	A	Contact discharge/air discharge
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	±2kV	A	With external capacitor, suggested part is CHEMI-CON KY 330µF/100VDC
Surge	EN61000-4-5	±1kV	A	With external capacitor, suggested part is CHEMI-CON KY 330µF/100VDC
Conducted immunity	EN61000-4-6	10Vrms	A	

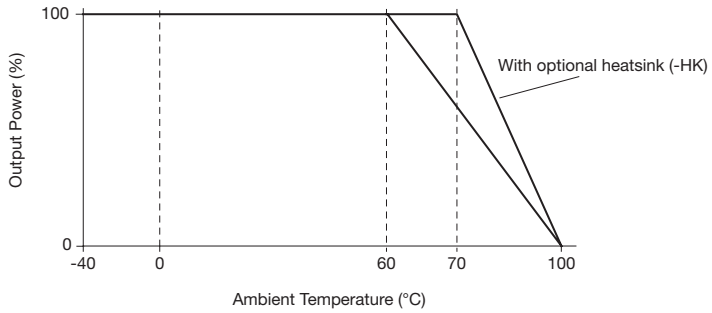
Application notes

EMI filter for conducted & radiated emissions

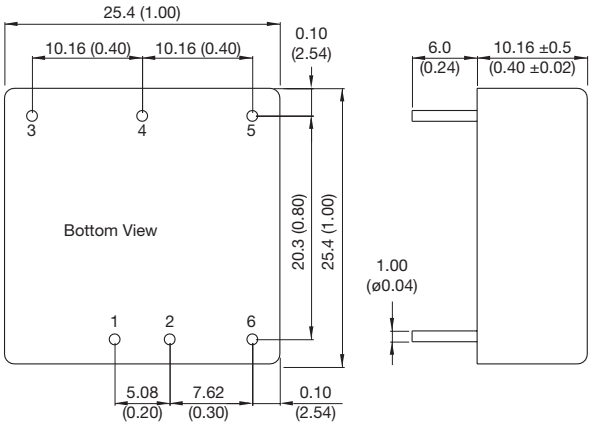


L1	C1	C2	C3
0.4mH/0.4mH 74448014501	3.3µF/100V 1210 X7S MLCC	1000pF/2KV 1206 X7R MLCC	1000pF/2KV 1206 X7R MLCC

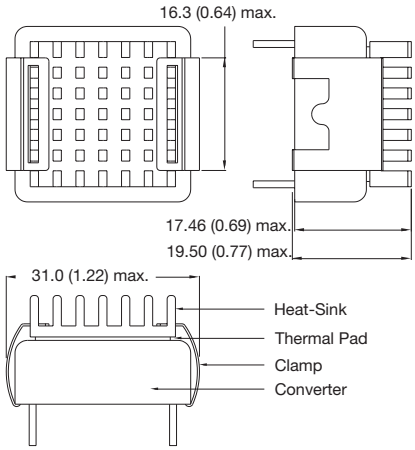
Derating curve



Mechanical details



Optional heatsink (-HK)



Pin connections		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout
6	Remote On/ Off	Remote On/ Off

Notes:

1. All dimensions are in mm (inches).
2. Pin tolerance: ±0.05 (±0.002)
3. Pin pitch tolerance: x.x±0.25 (x.xx±0.01), x.xx±0.13 (x.xxx±0.005)
4. Weight: 16.5g (0.04lb) approx