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JCK15 series

XP Power

15W Convection cooled

DC-DC converters

The 15W JCK15 series is housed in a 50.8 x 25.4 x 10.2 mm (2" x 1" x 0.4") PCB mount metal case. Featuring a 2:1 input voltage range of 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 12 & 15VDC and dual outputs ±3.3, ±5, ±12 or ±15VDC.

The JCK15 has 1.6kVDC isolation between input and output, overload & short circuit protection is standard, an optional heatsink (suffix -HK) can be specified. Operating temperature range is from -40°C to +100°C, with derating above +70°C.



Features

- Regulated single outputs 3.3, 5, 12 & 15VDC
- Regulated dual outputs ±3.3, ±5, ±12 & ±15VDC
- 2:1 input range
- 50.8 x 25.4mm (2" x 1") footprint, 10.2mm profile
- 1.6kVDC isolation
- Continuous short circuit protection
- Optional heatsink
- -40°C to +100°C operating temperature
- Full power to +70°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

Dimensions

50.8 x 25.4 x 10.2 mm (2.0" x 1.0" x 0.4")

More resources

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCK1512S3V3	9-18VDC	3.3VDC	3.00A	82%	30mA	1.03A	33,000µF
JCK1512S05		5.0VDC	3.00A	84%	30mA	1.52A	33,000µF
JCK1512S12		12.0VDC	1.250A	88%	30mA	1.45A	1,000µF
JCK1512S15		15.0VDC	1.000A	89%	30mA	1.44A	680µF
JCK1512D03		±3.3.0VDC	±1.500A	82%	30mA	1.03A	±1000µF
JCK1512D05		±5.0VDC	±1.500A	85%	30mA	1.50A	±1000µF
JCK1512D12		±12.0VDC	±0.625A	88%	30mA	1.45A	±470µF
JCK1512D15		±15.0VDC	±0.500A	88%	30 mA	1.45A	±330µF

Continued on page 2

Notes:

1. Measured at nominal input voltage.
2. When one output is set at 100% load and other varied between 25% and 100% load.
3. Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
4. For optional 3.5kV isolation version, add suffix -H to part number eg. JCK1524S12-H.
5. For heatsink option add '-HK' to the end of the part number.

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCK1524S3V3	18-36 VDC	3.3VDC	3.00A	82%	25mA	0.52A	33,000µF
JCK1524S05		5.0VDC	3.00A	85%	25mA	0.75A	33,000µF
JCK1524S12		12.0VDC	1.250A	89%	25mA	0.72A	1,000µF
JCK1524S15		15.0VDC	1.000A	89%	25mA	0.72A	680µF
JCK1524D03		±3.3.0VDC	±1.500A	82%	25mA	0.52A	±1000µF
JCK1524D05		±5.0VDC	±1.500A	85%	25mA	0.75A	±1000µF
JCK1524D12		±12.0VDC	±0.625A	88%	25mA	0.72A	±470µF
JCK1524D15		±15.0VDC	±0.500A	88%	25mA	0.72A	±330µF
JCK1548S3V3	36-75 VDC	3.3VDC	3.00A	82%	20mA	0.26A	33,000µF
JCK1548S05		5.0VDC	3.00A	85%	20mA	0.38A	33,000µF
JCK1548S12		12.0VDC	1.250A	89%	20mA	0.36A	1,000µF
JCK1548S15		15.0VDC	1.000A	89%	20mA	0.36A	680µF
JCK1548D03		±3.3.0VDC	±1.500A	82%	20mA	0.26A	±1000µF
JCK1548D05		±5.0VDC	±1.500A	85%	20mA	0.38A	±1000µF
JCK1548D12		±12.0VDC	±0.625A	88%	20mA	0.36A	±470µF
JCK1548D15		±15.0VDC	±0.500A	88%	20mA	0.36A	±330µF

Notes:

1. Measured at nominal input voltage.
2. When one output is set at 100% load and other varied between 25% and 100% load.
3. Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
4. For optional 3.5kV isolation version, add suffix -H to part number eg. JCK1524S12-H.
5. For heatsink option add '-HK' to the end of the part number.

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output	1600			VDC	For optional 3.5kV isolation version, add suffix -H to part number eg. JCK1524S12-H.
Isolation: input to case	1600			VDC	
Isolation: output to case	1600			VDC	
Isolation capacitance		1200		pF	
Isolation resistance	10^9			Ω	
Switching frequency		300		kHz	
Power density		307.3 (18.75)		W/cm³ (W/in³)	
Mean time between failure		>1.1		Mhrs	MIL-HDBK-217F, +25°C GB

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		18	VDC	12VDC nominal
	18		36		24VDC nominal
	36		75		48VDC nominal
Input current	See models & ratings table				
Input surge		30		VDC	12VDC models (for 1000ms)
		50			24VDC models (for 1000ms)
		100			48VDC models (for 1000ms)
Undervoltage lockout	On at 8.6VDC Off at 7.9VDC				12VDC models
	On at 17.8VDC Off at 16VDC				24VDC models
	On at 33.5VDC Off at 30.5VDC				48VDC models

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Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage trim		±10		%	Single outputs models only
Minimum load	0			%	No minimum load required
Line regulation			±0.5	%	
Load regulation			±0.5	%	Single output
			±1		Dual outputs
Setpoint accuracy			±1	%	
Cross regulation			±1.0	%	On dual outputs (see note 2, models and ratings)
Start up delay		<20		ms	
Start up rise time		<5		ms	
Ripple & noise		75		mV	Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		0.02		%/˚C	
Overload protection		>140		%	Of full load at nominal input

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derate from 100% load at +70°C to 0% load at +100°C
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				
Operating humidity			95	%	RH, non condensing

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Safety approvals

Safety agency	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class A	With external components
Radiated	EN55022	Class A	

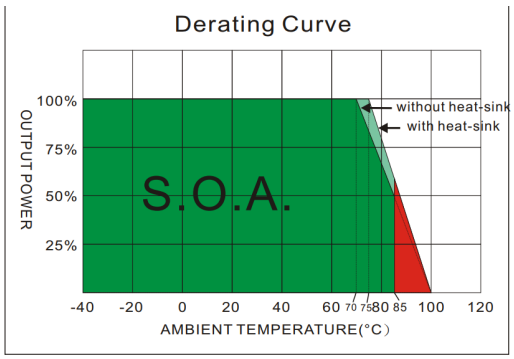
Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2		A	8kV air, 6kV contact
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	3	B	External input capacitor required, 220µF/100V.
Surge	EN61000-4-5	2	B	External input capacitor required, 220µF/100V.
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

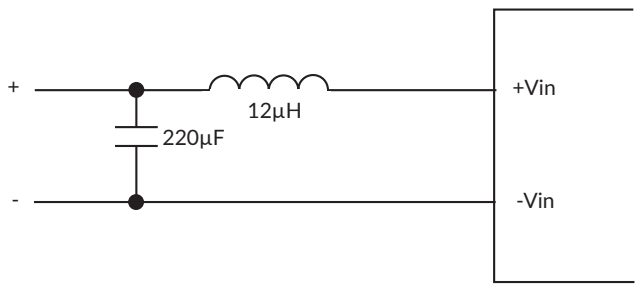
Application notes

Derating curve

12VDC input



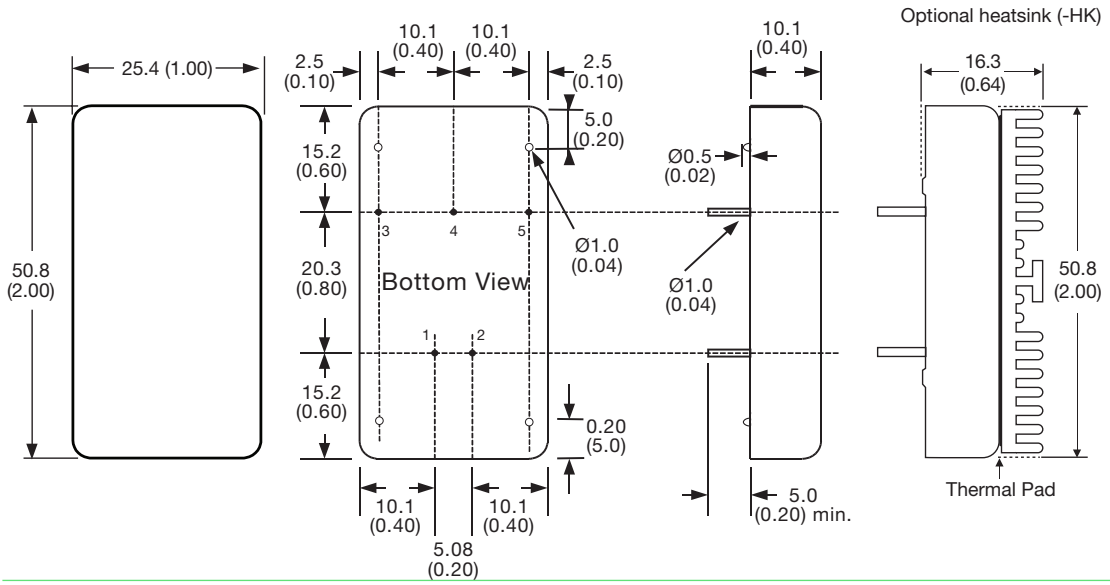
Input filter



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Mechanical details



Pin connections		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No pin	Com
5	-Vout	-Vout

Notes:

1. All dimensions are in (mm (inches).
2. Weight: 30g (0.07lbs) approx
3. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)