30 Watts
JCL30 Series

- 2:1 Input Range
- Single & Dual Outputs
- High Efficiency up to 91%
- –40 °C to +100 °C Operating Temperature
- Remote On/Off
- Continuous Short Circuit Protection
- 3 Year Warranty

Specification

Input

Input Voltage Range	• 12 VDC (9-18 VDC) 24 VDC (18-36 VDC) 48 VDC (36-75 VDC)
Input Current	• See table
Input Filter	• Pi network
Undervoltage Lockout	• Turn on >71% nominal input, Turn off <63% nominal input
Input Surge	• 12 V models 25 VDC for 100 ms 24 V models 50 VDC for 100 ms 48 V models 100 VDC for 100 ms

Output

Output Voltage	• See table
Output Voltage Trim	• ±10% see application notes
Minimum Load	• No minimum load required
Line Regulation	• ±0.5% max
Load Regulation	• ±0.5% max from 10% to full load
Setpoint Accuracy	• ±1.0% max
Cross Regulation	• ±5.0%, see note 2
Ripple & Noise	• 75 mV pk-pk max, see note 3
Transient Response	• 3% max deviation, recovery to within 1% in 200 µs for a 25% load change
Temperature Coefficient	• 0.02%/°C
Overvoltage Protection	• 3.3 V models 3.9 V typical, 5.0 V models 6.2 V typical, 12.0 V models 15.0 V typical, 15.0 V models 18.0 V typical, ±12.0 V models ±15.0 V typical, ±15.0 V models ±18.0 V typical
Overcurrent Protection	• 120% typical
Short Circuit Protection	• Trip & restart (Hiccup mode)
Remote On/Off	• ON >2.5 VDC or open circuit OFF <0.8 VDC or short circuit pin 2 & 3
Thermal Protection	• Shuts down when case measures +110 °C typical

General

Efficiency	• See table
Isolation Voltage	• 1500 VDC Input to Output 1000 VDC Input to Case 1000 VDC Output to Case
Isolation Capacitance	• 1200 pF typical
Switching Frequency	• 270 kHz typical
MTBF	• 1 MHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -40 °C to +100 °C (see derating curve)
Case Temperature	• +100 °C max
Storage Temperature	• -40 °C to +125 °C
Cooling	• Convection-cooled
Operating Humidity	• Up to 90%, non-condensing
Shock	• 30 g, half sine wave 18 ms pulse applied 3 times on each of 6 axes
Vibration	• 5-500 Hz, 3 g, for 10 mins on each of 3 axes

EMC

Emissions	• EN55022, Level A conducted & radiated with external components - see application note
ESD Immunity	• EN61000-4-2, Level 2 Perf Criteria B
Radiated Immunity	• EN61000-4-3, 3 V/m Perf Criteria A
EFT/Burst	• EN61000-4-4, Level 3 Perf Criteria A*
Surge	• EN61000-4-5, Level 3 Perf Criteria A*
Conducted Immunity	• EN61000-4-6, 3 V rms Perf Criteria A
Magnetic Fields	• EN61000-4-8, 1 A/m Perf Criteria A

**External input capacitor required 1000 µF/100 V*

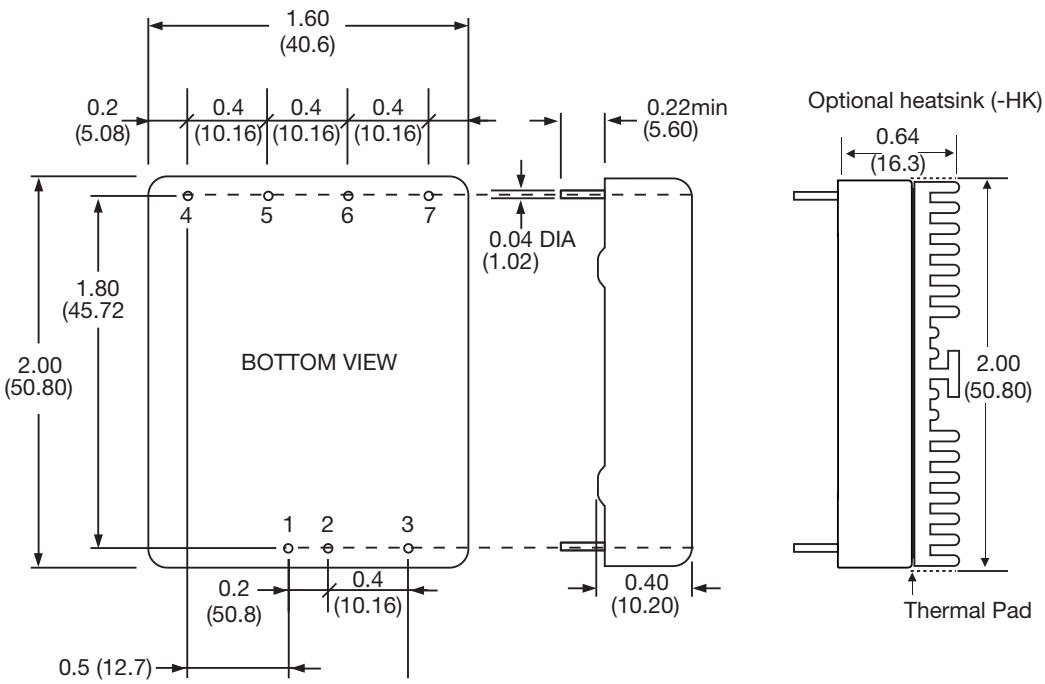
Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current[1]		Efficiency	Max Capacitive Load	Model Number
			No Load	Full Load			
9-18 VDC	3.3 VDC	5.50 A	30 mA	1.87 A	83%	15000 µF	JCL3012S3V3
	5.0 VDC	5.00 A	30 mA	2.48 A	86%	10000 µF	JCL3012S05
	12.0 VDC	2.50 A	30 mA	2.84 A	90%	2200 µF	JCL3012S12
	15.0 VDC	2.00 A	30 mA	2.84 A	90%	1000 µF	JCL3012S15
	±12.0 VDC	±1.25 A	30 mA	2.84 A	90%	±1000 µF	JCL3012D12
	±15.0 VDC	±1.00 A	30 mA	2.84 A	90%	±680 µF	JCL3012D15
18-36 VDC	3.3 VDC	5.50 A	25 mA	0.92 A	84%	15000 µF	JCL3024S3V3
	5.0 VDC	5.00 A	25 mA	1.23 A	87%	10000 µF	JCL3024S05
	12.0 VDC	2.50 A	25 mA	1.40 A	91%	2200 µF	JCL3024S12
	15.0 VDC	2.00 A	25 mA	1.40 A	91%	1000 µF	JCL3024S15
	±12.0 VDC	±1.25 A	25 mA	1.40 A	91%	±1000 µF	JCL3024D12
	±15.0 VDC	±1.00 A	25 mA	1.40 A	91%	±680 µF	JCL3024D15
36-75 VDC	3.3 VDC	5.50 A	20 mA	0.46 A	84%	15000 µF	JCL3048S3V3
	5.0 VDC	5.00 A	20 mA	0.61 A	87%	10000 µF	JCL3048S05
	12.0 VDC	2.50 A	20 mA	0.70 A	91%	2200 µF	JCL3048S12
	15.0 VDC	2.00 A	20 mA	0.70 A	91%	1000 µF	JCL3048S15
	±12.0 VDC	±1.25 A	20 mA	0.71 A	91%	±1000 µF	JCL3048D12
	±15.0 VDC	±1.00 A	20 mA	0.71 A	91%	±680 µF	JCL3048D15

Notes

1. Input currents specified at nominal 12 V, 24 V or 48 V input.
2. Cross regulation is ±5% when one output is at 100% and other is varied between 25% and 100%.
3. Measured with 20 MHz bandwidth and 1 µF ceramic capacitor.
4. For heatsink option add ' -HK' to the end of the part number.

Mechanical Details



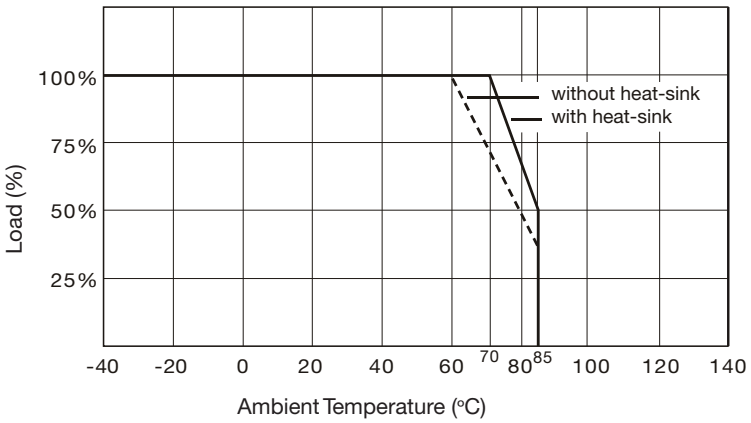
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	No Pin	+Vout
5	+Vout	Com
6	-Vout	-Vout
7	Trim	Trim

Notes

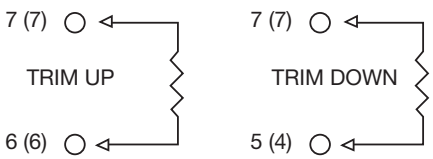
1. All dimensions are in inches (mm).
2. Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
3. Pin pitch tolerance: ±0.014 (±0.35)
4. Case tolerance: ±0.02 (±0.5)
5. Weight: 0.11 lbs (48 g)

Application Notes

Derating Curve



External Output Trim



Pins in brackets ( ) are for dual output versions

Remote On/Off Control

Standard ROF logic is positive.
Output On >2.5 VDC or open circuit
Output Off <0.8 VDC or short circuit pins 2 & 3

Input Filter