

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 | <ul style="list-style-type: none"> • 12 VDC (9-18 VDC) • 24 VDC (18-36 VDC) • 48 VDC (36-75 VDC) |
| Input Current | <ul style="list-style-type: none"> • See table |
| Input Filter | <ul style="list-style-type: none"> • Pi network |
| Undervoltage Lockout | <ul style="list-style-type: none"> • Turn on >71% nominal input, Turn off <63% nominal input |
| Input Surge | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • See table |
| Output Voltage Trim | <ul style="list-style-type: none"> • $\pm 10\%$ see application notes |
| Minimum Load | <ul style="list-style-type: none"> • No minimum load required |
| Line Regulation | <ul style="list-style-type: none"> • $\pm 0.5\%$ max |
| Load Regulation | <ul style="list-style-type: none"> • $\pm 0.5\%$ max from 10% to full load |
| Setpoint Accuracy | <ul style="list-style-type: none"> • $\pm 1.0\%$ max |
| Cross Regulation | <ul style="list-style-type: none"> • $\pm 5.0\%$, see note 2 |
| Ripple & Noise | <ul style="list-style-type: none"> • 75 mV pk-pk max, see note 3 |
| Transient Response | <ul style="list-style-type: none"> • 3% max deviation, recovery to within 1% in 200 μs for a 25% load change |
| Temperature Coefficient | <ul style="list-style-type: none"> • 0.02%/°C |
| Overvoltage Protection | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 120% typical |
| Short Circuit Protection | <ul style="list-style-type: none"> • Trip & restart (Hiccup mode) |
| Remote On/Off | <ul style="list-style-type: none"> • ON >2.5 VDC or open circuit • OFF <0.8 VDC or short circuit pin 2 & 3 |
| Thermal Protection | <ul style="list-style-type: none"> • Shuts down when case measures +110 °C typical |

General

| | |
|-----------------------|---|
| Efficiency | <ul style="list-style-type: none"> • See table |
| Isolation Voltage | <ul style="list-style-type: none"> • 1500 VDC Input to Output • 1000 VDC Input to Case • 1000 VDC Output to Case |
| Isolation Capacitance | <ul style="list-style-type: none"> • 1200 pF typical |
| Switching Frequency | <ul style="list-style-type: none"> • 270 kHz typical |
| MTBF | <ul style="list-style-type: none"> • 1 Mhrs to MIL-HDBK-217F at 25 °C, GB |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | <ul style="list-style-type: none"> • -40 °C to +100 °C (see derating curve) |
| Case Temperature | <ul style="list-style-type: none"> • +100 °C max |
| Storage Temperature | <ul style="list-style-type: none"> • -40 °C to +125 °C |
| Cooling | <ul style="list-style-type: none"> • Convection-cooled |
| Operating Humidity | <ul style="list-style-type: none"> • Up to 90%, non-condensing |
| Shock | <ul style="list-style-type: none"> • 30 g, half sine wave 18 ms pulse applied 3 times on each of 6 axes |
| Vibration | <ul style="list-style-type: none"> • 5-500 Hz, 3 g, for 10 mins on each of 3 axes |

EMC

| | |
|--------------------|---|
| Emissions | <ul style="list-style-type: none"> • EN55022, Level A conducted & radiated with external components - see application note |
| ESD Immunity | <ul style="list-style-type: none"> • EN61000-4-2, Level 2 Perf Criteria B |
| Radiated Immunity | <ul style="list-style-type: none"> • EN61000-4-3, 3 V/m Perf Criteria A |
| EFT/Burst | <ul style="list-style-type: none"> • EN61000-4-4, Level 3 Perf Criteria A* |
| Surge | <ul style="list-style-type: none"> • EN61000-4-5, Level 3 Perf Criteria A* |
| Conducted Immunity | <ul style="list-style-type: none"> • EN61000-4-6, 3 V rms Perf Criteria A |
| Magnetic Fields | <ul style="list-style-type: none"> • EN61000-4-8, 1 A/m Perf Criteria A |

*External input capacitor required 1000 μ F/100 V

| 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

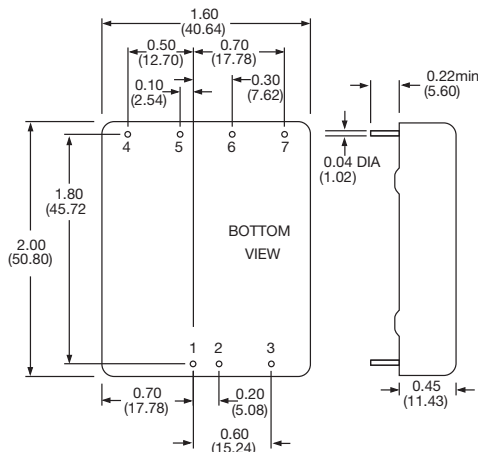
- Input currents specified at nominal 12 V, 24 V or 48 V input.
- Cross regulation is ±5% when one output is at 100% and other is varied between 25% and 100%.
- Measured with 20 MHz bandwidth and 1 µF ceramic capacitor.

† Available from Farnell. See pages 266-269.

^ Available from Newark. See pages 270-272.

Mechanical Details

Weight: 0.11 lbs (48 g)



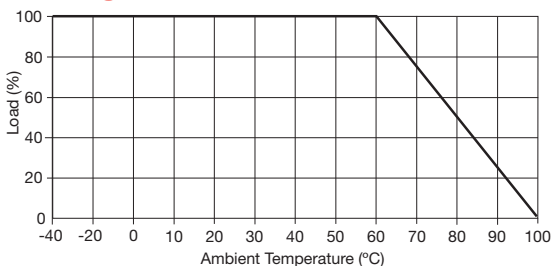
| PIN CONNECTIONS | | |
|-----------------|---------------|---------------|
| Pin | Single | Dual |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 3 | Remote On/Off | Remote On/Off |
| 4 | No Pin | +Vout |
| 5 | +Vout | Com |
| 6 | -Vout | -Vout |
| 7 | Trim | Trim |

Notes

- All dimensions are in inches (mm).
- Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
- Pin pitch tolerance: ±0.014 (±0.35)
- Case tolerance: ±0.02 (±0.5)

Application Notes

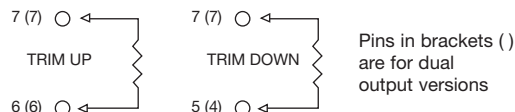
Derating Curve



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

External Output Trim



Input Filter

