

30 Watts

- Single and Dual Outputs
- 2:1 Input Range
- 1" x 1" Footprint
- -40 °C to +105 °C Operation
- Full Load at 55 °C Ambient
- 1600 VDC Isolation
- Output Trim $\pm 10\%$
- Remote On/Off
- MTBF 370 kHrs
- 3 Year Warranty



Dimensions:

JCM30:

1.0 x 1.0 x 0.41" (25.4 x 25.0 x 10.4 mm)

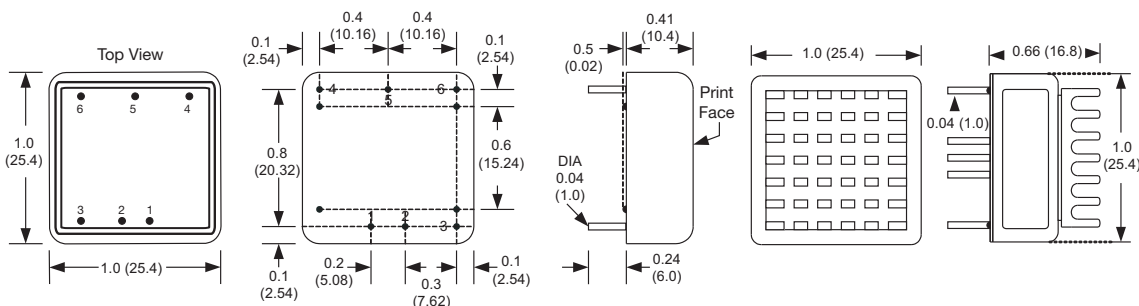
Models & Ratings

| Input Voltage | Output Voltage | Output Current | Input Current ⁽¹⁾ | | OVP setting | Efficiency | Max. capacitive load | Model Number ⁽³⁾ |
|---------------|----------------|----------------|------------------------------|-----------|--------------|------------|----------------------|-----------------------------|
| | | | No Load | Full Load | | | | |
| 9-18 V | 3.3 V | 7.0 A | 10 mA | 2215 mA | 3.9 V | 87% | 10000 μ F | JCM3012S3V3 |
| | 5.0 V | 6.0 A | 10 mA | 2810 mA | 6.2 V | 89% | 7200 μ F | JCM3012S05 |
| | 12.0 V | 2.5 A | 12 mA | 2810 mA | 15.0 V | 89% | 1200 μ F | JCM3012S12 |
| | 15.0 V | 2.0 A | 12 mA | 2810 mA | 18.0 V | 89% | 1000 μ F | JCM3012S15 |
| | ± 12.0 V | ± 1.25 A | 12 mA | 2810 mA | ± 15.0 V | 89% | ± 750 μ F | JCM3012D12 |
| 18-36 V | ± 15 V | ± 1.0 A | 14 mA | 2780 mA | ± 18.0 V | 90% | ± 500 μ F | JCM3012D15 |
| | 3.3 V | 7.0 A | 10 mA | 1105 mA | 3.9 V | 87% | 10000 μ F | JCM3024S3V3 |
| | 5 V | 6.0 A | 10 mA | 1390 mA | 6.2 V | 90% | 7200 μ F | JCM3024S05 |
| | 12 V | 2.5 A | 10 mA | 1375 mA | 15.0 V | 91% | 1200 μ F | JCM3024S12 |
| | 15 V | 2.0 A | 10 mA | 1375 mA | 18.0 V | 91% | 1000 μ F | JCM3024S15 |
| 36-75 V | ± 12 V | ± 1.25 A | 10 mA | 1375 mA | ± 15.0 V | 91% | ± 750 μ F | JCM3024D12 |
| | ± 15 V | ± 1.0 A | 10 mA | 1375 mA | ± 18.0 V | 92% | ± 500 μ F | JCM3024D15 |
| | 3.3 V | 7.0 A | 8 mA | 545 mA | 3.9 V | 88% | 10000 μ F | JCM3048S3V3 |
| | 5 V | 6.0 A | 8 mA | 695 mA | 6.2 V | 90% | 7200 μ F | JCM3048S05 |
| | 12 V | 2.5 A | 8 mA | 695 mA | 15.0 V | 90% | 1200 μ F | JCM3048S12 |
| 36-75 V | 15 V | 2.0 A | 8 mA | 685 mA | 18.0 V | 91% | 1000 μ F | JCM3048S15 |
| | ± 12 V | ± 1.25 A | 8 mA | 685 mA | ± 15.0 V | 91% | ± 750 μ F | JCM3048D12 |
| | ± 15 V | ± 1.0 A | 8 mA | 680 mA | ± 18.0 V | 92% | ± 500 μ F | JCM3048D15 |

Notes

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Add suffix '-HK' for optional Heat Sink.

Mechanical Details



| Pin Connections | | |
|-----------------|---------------|---------------|
| Pin | Single | Dual |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 3 | Remote On/Off | Remote On/Off |
| 4 | +Vout | +Vout |
| 5 | Trim | Common |
| 6 | -Vout | -Vout |

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.042 lbs (19 g) approx.
3. Pin diameter: 0.04 \pm 0.002 (1.0 \pm 0.05)
4. Pin pitch tolerance: ± 0.014 (± 0.35)
5. Case tolerance: ± 0.02 (± 0.5)

Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|--------------------------------|---------|---------|---------|----------------|--|
| Input Voltage Range | 9 | | 18 | VDC | 12 V nominal |
| | 18 | | 36 | VDC | 24 V nominal |
| | 36 | | 75 | VDC | 48 V nominal |
| Input Reflected Ripple Current | | 30 | | mA pk-pk | Through 12 μ H inductor and 47 μ F capacitor |
| Input Surge | | | 25 | VDC for 100 ms | 12 V models |
| | | | 50 | VDC for 100 ms | 24 V models |
| | | | 100 | VDC for 100 ms | 48 V models |

Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|--------------------------|--|---------|-----------|----------|---|
| Output Voltage | 3.3 | | 30 | VDC | See Models and Ratings table |
| Output Trim | ± 10 | | | % | Single Output Versions |
| Initial Set Accuracy | | | ± 1 | % | At full load |
| Minimum Load | 0 | | | % | No minimum load required |
| Line Regulation | | | ± 0.5 | % | From minimum to maximum input at full load |
| Load Regulation | | | 0.5/1.0 | % | From 0% to full load for single/dual output |
| Cross Regulation | | | ± 5 | % | On dual output models, when one output is at 100% load and other is varied from 25% load to full load |
| Ripple & Noise | | | 75/60 | mV pk-pk | Single output 10 μ F X7R MLCC Dual output with 10 μ F/25 V X7R MLCC on each output measured using 20 MHz bandwidth |
| Overload Protection | | 150 | | % | |
| Short Circuit Protection | | | | | Continuous trip and restart (hiccup), with auto recovery |
| Maximum Capacitive Load | | | | | See Models and Ratings table |
| Temperature Coefficient | | | 0.02 | %/°C | |
| Over Protection Voltage | | | | | See Models and Ratings table |
| Remote On/Off | Output is on if remote on/off (pin 3) is open or high (3.0 to 12 VDC) Output turns off if remote on/off (pin 3) is low (<1.2 VDC max) | | | | |

General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|----------------------------|---------|--------------|---------|-------------------|------------------------------|
| Efficiency | | 90 | | % | See Models and Ratings table |
| Isolation: Input to Output | 1600 | | | VDC | |
| Isolation: Input to Case | 1600 | | | VDC | |
| Switching Frequency | | 270 | | kHz | 3.3 and 5.0 V |
| | | 330 | | | Other models |
| Isolation Resistance | 10^9 | | | Ω | |
| Isolation Capacitance | | | 2000 | pF | |
| Power Density | | | 73 | W/in ³ | |
| Mean Time Between Failure | 370 | | | kHrs | MIL-HDBK-217F, +25 °C GB |
| Weight | | 0.042 (19.0) | | lb (g) | |

Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|-----------------------|---------|---------|---------|-------|--|
| Operating Temperature | -40 | | +100 | °C | Derate from 100% load at +55 °C to 50% at +80 °C or from 100% load at 60 °C to 50% at 85 °C with optional heatsink |
| Storage Temperature | -55 | | +125 | °C | |
| Case Temperature | | | +105 | °C | |
| Humidity | | | 95 | %RH | Non-condensing |
| Cooling | | | | | Natural convection |

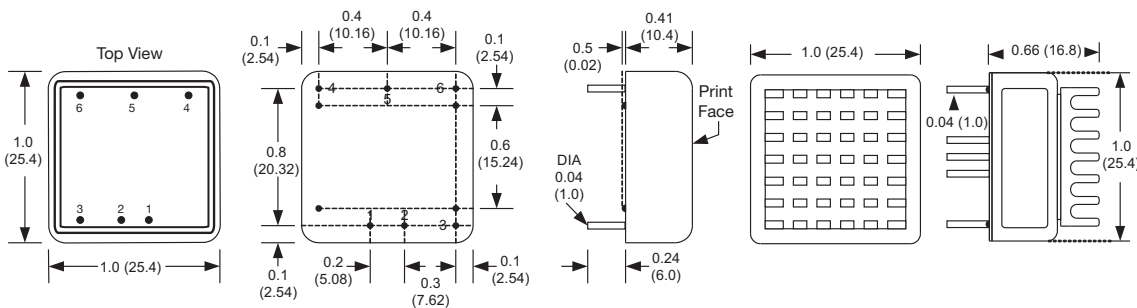
EMC: Emissions

| Phenomenon | Standard | Test Level | Notes & Conditions |
|------------|----------|------------|----------------------|
| Conducted | EN55032 | Class A | See Application Note |
| Radiated | EN55032 | Class A | |

EMC: Immunity

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|--------------------|-------------|-------------|----------|---|
| ESD Immunity | EN61000-4-2 | ±6 kV/±8 kV | A | Contact/Air Discharge |
| Radiated Immunity | EN61000-4-3 | 20 V/m | A | |
| EFT/Burst | EN61000-4-4 | 2 kV | A | External input filter required, see applications note |
| Surge | EN61000-4-5 | 2 kV | A | External input filter required, see applications note |
| Conducted Immunity | EN61000-4-6 | 10V | A | |
| Magnetic Fields | EN61000-4-8 | 100 A/m | A | |

Mechanical Details



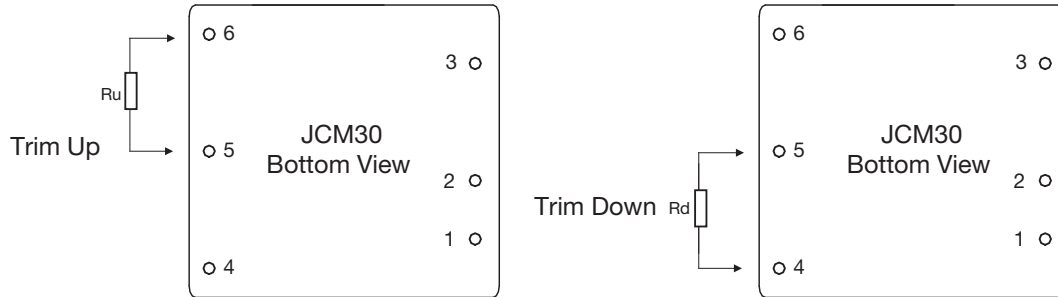
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Notes

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Application Notes

External Output Trimming



Trim Down Resistor Values (Rd)

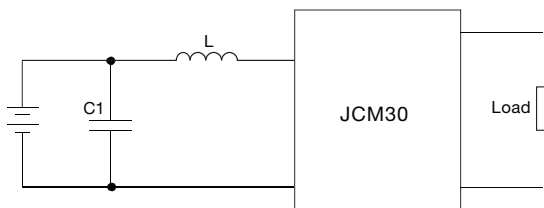
| Models | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|--------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| 3V3 | 817.5 k | 362.2 k | 215.4 k | 143.0 k | 99.7 k | 71.1 k | 50.6 k | 35.3 k | 23.4 k | 14.0 k |
| 5V | 119.9 k | 63.6 k | 40.4 k | 27.7 k | 19.7 k | 14.2 k | 10.2 k | 7.1 k | 4.7 k | 2.7 k |
| 12V | 345.0 k | 164.8 k | 98.9 k | 64.6 k | 43.7 k | 29.6 k | 19.4 k | 11.7 k | 5.7 k | 0.87 k |
| 15V | 174.3 k | 91.1 k | 56.6 k | 37.7 k | 25.8 k | 17.6 k | 11.6 k | 7.0 k | 3.5 k | 0.55 k |

Trim Up Resistor Values (Ru)

| Models | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|--------|----------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 3V3 | 567.6 k | 263.2 k | 158.5 k | 105.5 k | 73.5 k | 52.1 k | 36.8 k | 25.2 k | 16.3 k | 9.1 k |
| 5V | 618.0 k | 223.4 k | 133.3 k | 93.4 k | 70.9 k | 56.4 k | 46.4 k | 38.9 k | 33.2 k | 28.7 k |
| 12V | 1015.7 k | 448.9 k | 280.6 k | 199.8 k | 152.4 k | 121.2 k | 99.1 k | 82.6 k | 69.9 k | 59.7 k |
| 15V | 661.5 k | 231.3 k | 134.0 k | 91.0 k | 66.8 k | 51.3 k | 40.4 k | 32.5 k | 26.4 k | 21.5 k |

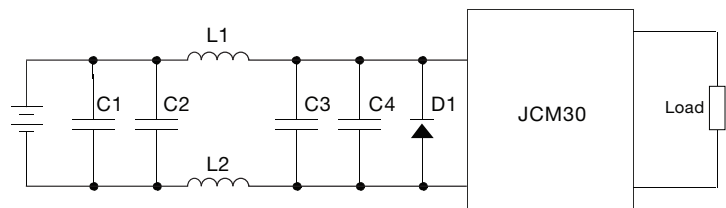
EMI Filter

(Only needed for 12 V input versions)



C1 = 1206, 335 k/50 V, X7R
L = 0.82 μ H

EFT/Surge Filter



| | C1 | C2 | L1 | L2 | C3 | C4 | D1 |
|---------|-------------------|-------------------|-----------|-----------|-----------------|-----------------|------------------|
| JCM3012 | 330 μ F/100 V | 470 μ F/100 V | 1 μ H | 1 μ H | 330 μ F/100 | 470 μ F/100 | None |
| JCM3024 | 330 μ F/100 V | None | Short | Short | None | None | TVS, 58 V, 3 kW |
| JCM3048 | 330 μ F/100 V | None | Short | Short | None | None | TVS, 120 V, 3 kW |