

12/15 Watts

JCG Series



- High Power Density
- 2:1 Input Range
- Operating Temperature $-40\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$
- Single & Dual Outputs
- Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

Specification

Input

| | |
|----------------------------------|---|
| Input Voltage Range | <ul style="list-style-type: none"> • 12 V (9-18 VDC) • 24 V (18-36 VDC) • 48 V (36-75 VDC) |
| Input Current | <ul style="list-style-type: none"> • See table |
| Input Filter | <ul style="list-style-type: none"> • Pi network |
| Input Reflected Ripple Current | <ul style="list-style-type: none"> • 20 mA pk-pk through 12 μH inductor |
| Input Surge | <ul style="list-style-type: none"> • 12 V models 36 VDC for 1000 ms • 24 V models 50 VDC for 1000 ms • 48 V models 100 VDC for 1000 ms |
| Undervoltage Lockout | <ul style="list-style-type: none"> • None |
| Input Reverse Voltage Protection | <ul style="list-style-type: none"> • None |

Output

| | |
|--------------------------|--|
| Output Voltage | <ul style="list-style-type: none"> • See table |
| Minimum Load | <ul style="list-style-type: none"> • No minimum load required |
| Initial Set Accuracy | <ul style="list-style-type: none"> • $\pm 1.2\%$ max for JCG12, $\pm 1.0\%$ for JCG15 |
| Start Up Delay | <ul style="list-style-type: none"> • 20 ms max |
| Line Regulation | <ul style="list-style-type: none"> • $\pm 0.5\%$ max |
| Load Regulation | <ul style="list-style-type: none"> • $\pm 0.5\%$ max single, $\pm 1.0\%$ max dual |
| Cross Regulation | <ul style="list-style-type: none"> • $\pm 5\%$ on dual output models (see note 2) |
| Transient Response | <ul style="list-style-type: none"> • $< 3\%$ deviation, recovery to within 1% in 250 μs for a 25% load change |
| Ripple & Noise | <ul style="list-style-type: none"> • 85 mV pk-pk, 20 MHz bandwidth for JCG12, • 60 mV pk-pk, 20 MHz bandwidth for JCG15 (see note 3) |
| Overload Protection | <ul style="list-style-type: none"> • $> 150\%$ of full load |
| Overvoltage Protection | <ul style="list-style-type: none"> • 2.5/3.3 V models: 3.9 V typical • 5 V models: 6.2 V typical • 12 V models: 15.0 V typical • 15 V models: 18.0 V typical • ± 12 V models: ± 15.0 V typical • ± 15 V models: ± 18.0 V typical |
| Short Circuit Protection | <ul style="list-style-type: none"> • Trip & restart (hiccup) with auto recovery |
| Maximum Capacitive Load | <ul style="list-style-type: none"> • See table |
| Temperature Coefficient | <ul style="list-style-type: none"> • $\pm 0.02/^{\circ}\text{C}$ max |
| Remote On/Off | <ul style="list-style-type: none"> • ON > 3.0 VDC or open circuit • OFF < 1.2 VDC or short circuit pin 1, 2 & 3 |

General

| | |
|-----------------------|---|
| Efficiency | <ul style="list-style-type: none"> • See tables |
| Isolation Voltage | <ul style="list-style-type: none"> • 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case |
| Isolation Capacitance | <ul style="list-style-type: none"> • 2000 μF max |
| Switching Frequency | <ul style="list-style-type: none"> • 330 kHz typical |
| Power Density | <ul style="list-style-type: none"> • 30 W/in³ for JCG12, 37.5 W/in³ for JCG15 |
| MTBF | <ul style="list-style-type: none"> • > 1.0 Mhrs to MIL-HDBK-217F at 25 $^{\circ}\text{C}$, GB |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | <ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$, derate from 100% load at $+60\text{ }^{\circ}\text{C}$ to no load at $+100\text{ }^{\circ}\text{C}$ |
| Case Temperature | <ul style="list-style-type: none"> • $+100\text{ }^{\circ}\text{C}$ max |
| Storage Temperature | <ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ |
| Humidity | <ul style="list-style-type: none"> • Up to 95%, non-condensing |
| Cooling | <ul style="list-style-type: none"> • Natural convection |

EMC

| | |
|--------------------|--|
| Emissions | <ul style="list-style-type: none"> • EN55022 Class A conducted and radiated with external components - see application note |
| ESD Immunity | <ul style="list-style-type: none"> • EN61000-4-2, level 3, 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, installation class 3, Perf Criteria A* |
| Conducted Immunity | <ul style="list-style-type: none"> • EN61000-4-6, 10 Vrms, Perf Criteria A |
| Magnetic Field | <ul style="list-style-type: none"> • EN61000-4-8, 1 A/m, Perf Criteria A |

* A 330 μF , 100 V capacitor is required across input terminals to meet performance criteria A.

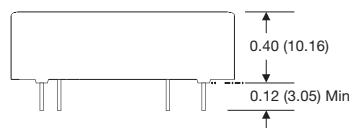
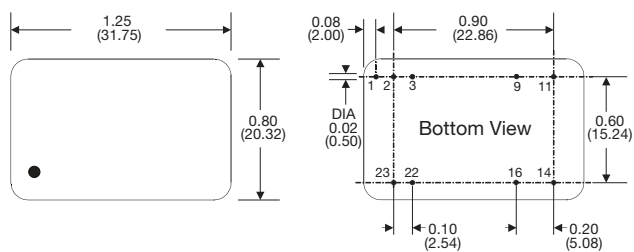
Models and Ratings

| Input Voltage | Output Voltage | Output Current | Input Current ⁽¹⁾ | | Max. Capacitive Load | Efficiency | Model Number |
|---------------|----------------|----------------|------------------------------|-----------|----------------------|------------|--------------|
| | | | No Load | Full Load | | | |
| 9-18 V | 2.5 V | 3.5 A | 15 mA | 0.89 A | 2000 µF | 85% | JCG1212S2V5 |
| | 3.3 V | 3.5 A | 15 mA | 1.15 A | 2000 µF | 87% | JCG1212S3V3 |
| | 5.0 V | 2.4 A | 15 mA | 1.16 A | 2000 µF | 89% | JCG1212S05 |
| | 12.0 V | 1.0 A | 15 mA | 1.15 A | 430 µF | 90% | JCG1212S12 |
| | 15.0 V | 0.8 A | 15 mA | 1.15 A | 300 µF | 90% | JCG1212S15 |
| | ±12.0 V | ±0.5 A | 15 mA | 1.15 A | ±200 µF | 90% | JCG1212D12 |
| | ±15.0 V | ±0.4 A | 15 mA | 1.14 A | ±120 µF | 91% | JCG1212D15 |
| 18-36 V | 2.5 V | 3.5 A | 15 mA | 0.45 A | 2000 µF | 85% | JCG1224S2V5 |
| | 3.3 V | 3.5 A | 15 mA | 0.57 A | 2000 µF | 87% | JCG1224S3V3 |
| | 5.0 V | 2.4 A | 15 mA | 0.58 A | 2000 µF | 89% | JCG1224S05 |
| | 12.0 V | 1.0 A | 15 mA | 0.58 A | 430 µF | 90% | JCG1224S12 |
| | 15.0 V | 0.8 A | 15 mA | 0.58 A | 300 µF | 90% | JCG1224S15 |
| | ±12.0 V | ±0.5 A | 15 mA | 0.58 A | ±200 µF | 90% | JCG1224D12 |
| | ±15.0 V | ±0.4 A | 15 mA | 0.56 A | ±120 µF | 91% | JCG1224D15 |
| 36-75 V | 2.5 V | 3.5 A | 15 mA | 0.23 A | 2000 µF | 84% | JCG1248S2V5 |
| | 3.3 V | 3.5 A | 15 mA | 0.28 A | 2000 µF | 88% | JCG1248S3V3 |
| | 5.0 V | 2.4 A | 15 mA | 0.29 A | 2000 µF | 89% | JCG1248S05 |
| | 12.0 V | 1.0 A | 15 mA | 0.29 A | 430 µF | 88% | JCG1248S12 |
| | 15.0 V | 0.8 A | 15 mA | 0.29 A | 300 µF | 89% | JCG1248S15 |
| | ±12.0 V | ±0.5 A | 15 mA | 0.29 A | ±200 µF | 88% | JCG1248D12 |
| | ±15.0 V | ±0.4 A | 15 mA | 0.29 A | ±120 µF | 89% | JCG1248D15 |
| 9-18 V | 3.3 V | 4.0 A | 15 mA | 1309 mA | 4700 µF | 86% | JCG1512S3V3 |
| | 5.1 V | 3.0 A | 15 mA | 1465 mA | 3300 µF | 89% | JCG1512S05 |
| | 12.0 V | 1.25 A | 15 mA | 1436 mA | 600 µF | 89% | JCG1512S12 |
| | 15.0 V | 1.0 A | 15 mA | 1420 mA | 400 µF | 90% | JCG1512S15 |
| | ±5.0 V | ±1.5 A | 15 mA | 1488 mA | ±1500 µF | 86% | JCG1512D05 |
| | ±12.0 V | ±0.625 A | 15 mA | 1420 mA | ±288 µF | 90% | JCG1512D12 |
| | ±15.0 V | ±0.5 A | 15 mA | 1420 mA | ±200 µF | 90% | JCG1512D15 |
| 18-36 V | 3.3 V | 4.0 A | 10 mA | 647 mA | 4700 µF | 87% | JCG1524S3V3 |
| | 5.1 V | 3.0 A | 10 mA | 732 mA | 3300 µF | 89% | JCG1524S05 |
| | 12.0 V | 1.25 A | 10 mA | 710 mA | 600 µF | 90% | JCG1524S12 |
| | 15.0 V | 1.0 A | 10 mA | 702 mA | 400 µF | 91% | JCG1524S15 |
| | ±5.0 V | ±1.5 A | 10 mA | 744 mA | ±1500 µF | 86% | JCG1524D05 |
| | ±12.0 V | ±0.625 A | 10 mA | 710 mA | ±288 µF | 90% | JCG1524D12 |
| | ±15.0 V | ±0.5 A | 10 mA | 710 mA | ±200 µF | 90% | JCG1524D15 |
| 36-75 V | 3.3 V | 4.0 A | 5 mA | 327 mA | 4700 µF | 86% | JCG1548S3V3 |
| | 5.1 V | 3.0 A | 5 mA | 370 mA | 3300 µF | 88% | JCG1548S05 |
| | 12.0 V | 1.25 A | 5 mA | 359 mA | 600 µF | 89% | JCG1548S12 |
| | 15.0 V | 1.0 A | 5 mA | 359 mA | 400 µF | 89% | JCG1548S15 |
| | ±5.0 V | ±1.5 A | 5 mA | 372 mA | ±1500 µF | 86% | JCG1548D05 |
| | ±12.0 V | ±0.625 A | 5 mA | 359 mA | ±288 µF | 89% | JCG1548D12 |
| | ±15.0 V | ±0.5 A | 5 mA | 355 mA | ±200 µF | 90% | JCG1548D15 |

Notes

1. Input current measured at nominal input voltage.
2. When one output is set to 100% load & the other varies between 25% & 100% load.
3. Measured with 1 µF ceramic capacitor across output rails.

Mechanical Details



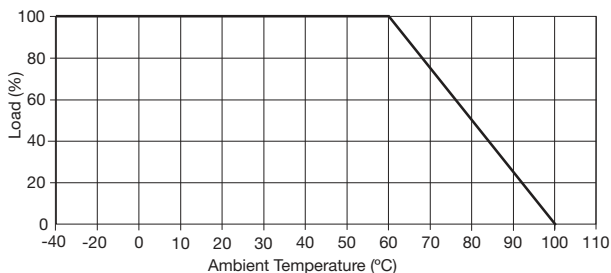
| Pin | Pin Connections | |
|-----|-----------------|---------------|
| | Single | Dual |
| 1 | Remote On/Off | Remote On/Off |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | No Pin | Common |
| 11 | Not Connected | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin | +Vin |
| 23 | +Vin | +Vin |

Notes

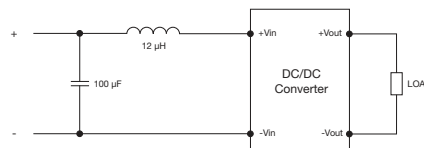
1. All dimensions are in inches (mm)
2. Weight: 0.04 lbs (18 g) approx
3. Pin diameter: 0.02 ±0.002 (0.5 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Package: 24 pin DIL nickel-coated copper

Application Notes

Derating Curve



Input Filter



Remote On/Off

Standard ROF logic is positive
 Output On >3.0 VDC or open circuit
 Output Off <1.2 VDC or short circuit pins 1, 2 & 3