

12 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
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, (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 • $\pm 12\text{ V}$ models: $\pm 15.0\text{ V}$ typical • $\pm 15\text{ V}$ models: $\pm 18.0\text{ V}$ 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 $> 3.0\text{ VDC}$ or open circuit • OFF $< 1.2\text{ VDC}$ 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
Switching Frequency	<ul style="list-style-type: none"> • 330 kHz typical
Power Density	<ul style="list-style-type: none"> • 30 W/in³
MTBF	<ul style="list-style-type: none"> • $> 1.0\text{ Mhrs}$ 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⁾		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-18 V	2.5 V	3.5 A	15 mA	0.89 A	2000 μ F	85%	JCG1212S2V5 [†] [^]
	3.3 V	3.5 A	15 mA	1.15 A	2000 μ F	87%	JCG1212S3V3 [†] [^]
	5.0 V	2.4 A	15 mA	1.16 A	2000 μ F	89%	JCG1212S05 [†] [^]
	12.0 V	1.0 A	15 mA	1.15 A	430 μ F	90%	JCG1212S12 [†] [^]
	15.0 V	0.8 A	15 mA	1.15 A	300 μ F	90%	JCG1212S15 [†] [^]
	± 12.0 V	± 0.5 A	15 mA	1.15 A	± 200 μ F	90%	JCG1212D12 [†] [^]
18-36 V	± 15.0 V	± 0.4 A	15 mA	1.14 A	± 120 μ F	91%	JCG1212D15 [†] [^]
	2.5 V	3.5 A	15 mA	0.45 A	2000 μ F	85%	JCG1224S2V5 [†] [^]
	3.3 V	3.5 A	15 mA	0.57 A	2000 μ F	87%	JCG1224S3V3 [†] [^]
	5.0 V	2.4 A	15 mA	0.58 A	2000 μ F	89%	JCG1224S05 [†] [^]
	12.0 V	1.0 A	15 mA	0.58 A	430 μ F	90%	JCG1224S12 [†] [^]
	15.0 V	0.8 A	15 mA	0.58 A	300 μ F	90%	JCG1224S15 [†] [^]
36-75 V	± 12.0 V	± 0.5 A	15 mA	0.58 A	± 200 μ F	90%	JCG1224D12 [†] [^]
	± 15.0 V	± 0.4 A	15 mA	0.56 A	± 120 μ F	91%	JCG1224D15 [†] [^]
	2.5 V	3.5 A	15 mA	0.23 A	2000 μ F	84%	JCG1248S2V5 [†] [^]
	3.3 V	3.5 A	15 mA	0.28 A	2000 μ F	88%	JCG1248S3V3 [†] [^]
	5.0 V	2.4 A	15 mA	0.29 A	2000 μ F	89%	JCG1248S05 [†] [^]
	12.0 V	1.0 A	15 mA	0.29 A	430 μ F	88%	JCG1248S12 [†] [^]
	15.0 V	0.8 A	15 mA	0.29 A	300 μ F	89%	JCG1248S15 [†] [^]
	± 12.0 V	± 0.5 A	15 mA	0.29 A	± 200 μ F	88%	JCG1248D12 [†] [^]
	± 15.0 V	± 0.4 A	15 mA	0.29 A	± 120 μ F	89%	JCG1248D15 [†] [^]

Notes

1. Input current measured at nominal input voltage.
2. When one output is set to 100% load and the other varies between 25% & 100% load.

3. Measured with 1 μ F ceramic capacitor across output rails.

[†] Available from Farnell & element14. See pages 284-290.

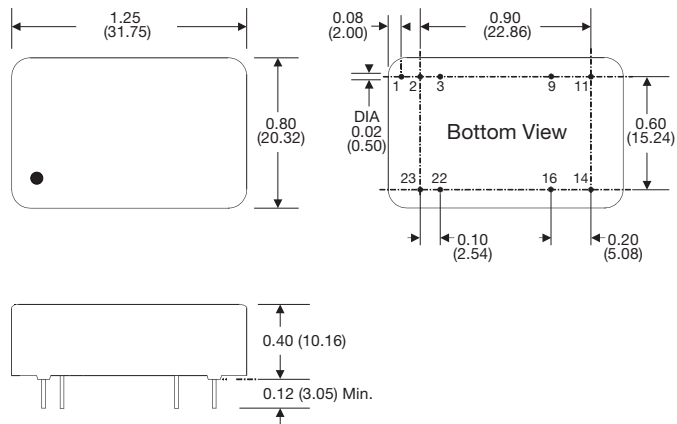
[^] Available from Newark. See pages 291-296.

Mechanical Details

Pin Connections		
Pin	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

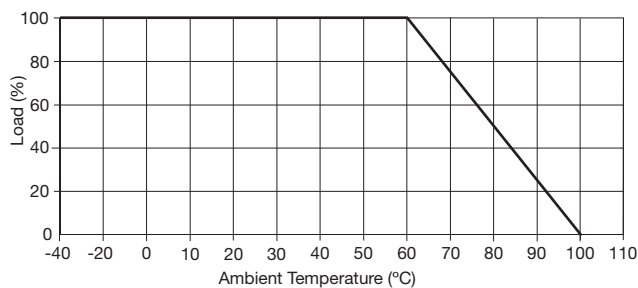
Notes

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

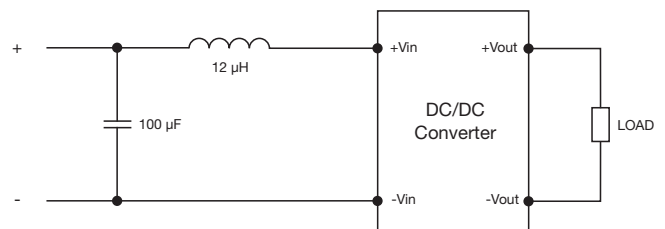


Application Notes

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