

15W

DC-DC converters

The 15W JCG15 series is housed in a DIP24 PCB mount metal case. Featuring a 2:1 input voltage range of 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5.1, 9, 12 & 15VDC and dual outputs ± 5 , ± 12 & ± 15 VDC..

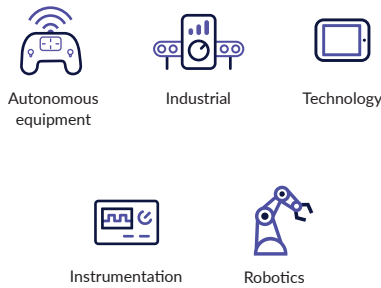
The JCG15 has 1.6kVDC isolation between input and output. Remote on/off is standard as are over voltage, overload & short circuit protection, an optional heatsink can be specified. Operating temperature range is from -40°C to +100°C, with derating above +60°C.



Features

- ▶ Regulated single & dual outputs
- ▶ 2:1 input range
- ▶ Single outputs 3.3 to 15VDC
- ▶ Dual outputs ± 5 , ± 12 & ± 15 VDC
- ▶ DIP24 package, metal case option
- ▶ 1.6kVDC isolation
- ▶ Remote On/Off
- ▶ -40°C to +100°C operating temperature
- ▶ Full power to +60°C
- ▶ 3 year warranty

Applications



Dimensions

31.75 x 20.32 x 10.16 mm (1.2" x 0.8" x 0.4")

Models & ratings

Model number	Input voltage	Output voltage	Output current	Input current ⁽¹⁾		Maximum capacitive load	Efficiency
				No load	Full load		
JCG1512S3V3	9-18VDC	3.3V	4.0A	15mA	1309mA	4700 μ F	86%
JCG1512S05		5.1V	3.0A	15mA	1465mA	3300 μ F	89%
JCG1512S12		12.0V	1.25A	15mA	1436mA	600 μ F	89%
JCG1512S15		15.0V	1.0A	15mA	1420mA	400 μ F	90%
JCG1512D05 ⁽²⁾		± 5.0 V	± 1.5 A	15mA	1488mA	± 1500 μ F	86%
JCG1512D12 ⁽²⁾		± 12.0 V	± 0.625 A	15mA	1420mA	± 288 μ F	90%
JCG1512D15 ⁽²⁾		± 15.0 V	± 0.5 A	15mA	1420mA	± 200 μ F	90%

Continued on page 2

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 μ F ceramic capacitor across output rails.

Models & ratings

Model number	Input voltage	Output voltage	Output current	Input current ⁽¹⁾		Maximum capacitive load	Efficiency
				No load	Full load		
JCG1524S3V3	18-36 VDC	3.3V	4.0A	10mA	647mA	4700µF	87%
JCG1524S05		5.1V	3.0A	10mA	732mA	3300µF	89%
JCG1524S12		12.0V	1.25A	10mA	710mA	600µF	90%
JCG1524S15		15.0V	1.0A	10mA	702mA	400µF	91%
JCG1524D05 ⁽²⁾		±5.0V	±1.5A	10mA	744mA	±1500µF	86%
JCG1524D12 ⁽²⁾		±12.0V	±0.625A	10mA	710mA	±288µF	90%
JCG1524D15 ⁽²⁾		±15.0V	±0.5A	10mA	710mA	±200µF	90%
JCG1548S3V3	36-75 VDC	3.3V	4.0A	5mA	327mA	4700µF	86%
JCG1548S05		5.1V	3.0A	5mA	370mA	3300µF	88%
JCG1548S12		12.0V	1.25A	5mA	359mA	600µF	89%
JCG1548S15		15.0V	1.0A	5mA	359mA	400µF	89%
JCG1548D05 ⁽²⁾		±5.0V	±1.5A	5mA	372mA	±1500µF	86%
JCG1548D12 ⁽²⁾		±12.0V	±0.625A	5mA	359mA	±288µF	89%
JCG1548D15 ⁽²⁾		±15.0V	±0.5A	5mA	355mA	±200µF	90%

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 1µF ceramic capacitor across output rails.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		18	VDC	12VDC nominal
	18		36		24VDC nominal
	36		75		48VDC nominal
Input current	See models & ratings table				
Input filter	Pi network				
Input reflected ripple current		20		mA	Through 12µH inductor
Input surge		36		VDC	12VDC models (for 1000ms)
		50			24VDC models (for 1000ms)
		100			48VDC models (for 1000ms)
Undervoltage lockout	None				12VDC models
Input reverse voltage protection	None				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Minimum load	0			%	No minimum load required
Initial set accuracy			±1.0	%	
Start up delay			20	ms	
Line regulation			±0.5	%	
Load regulation			±0.5	%	Single output
			±1		Dual outputs
Cross regulation		±5		%	On dual outputs, when one output is set to 100% load & the other varies between 25% & 100% load.
Transient response		<3		%	Deviation, recovery to within 1% in 250µs for a 25% load change
Ripple & noise		60		mV	Measured with 20MHz bandwidth, with 1µF ceramic capacitor across output rails.
Overload protection		>150		%	Full load
Overvoltage protection		3.9		V	2.5/3.3V models
		6.2			5V models
		15			12V models
		18			15V models
		±15			±12V models
		±18			±15V models
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Maximum capacitive load	See models & ratings table				
Temperature coefficient			±0.02	%/°C	
Remote on/off	ON >3VDC or open circuit				
	OFF <1.2VDC or short circuit pin 1,2 & 3				

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1600		VDC	Functional insulation
Isolation: input to case		1600		VDC	
Isolation: output to case		1600		VDC	
Isolation capacitance			2000	µF	
Power density		1.8 (30.0)		W/cm ³ (W/in ³)	
Switching frequency		300		kHz	
Power density		2.2 (37.5)		W/cm ³ (W/in ³)	
Mean time between failure		>1.0		Mhrs	MIL-HDBK-217F, +25°C GB
Solder profile	Max 260°C 10s max, 1.5 from case				
Pin material	Solder coated brass				
Case material	Copper, nickel coated				
Base material	UL94V-0 rated plastic				
Potting material	UL94V-0 rated epoxy				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derate from 100% load at +60°C to no load at +100°C
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				
Operating humidity			95	%	Non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

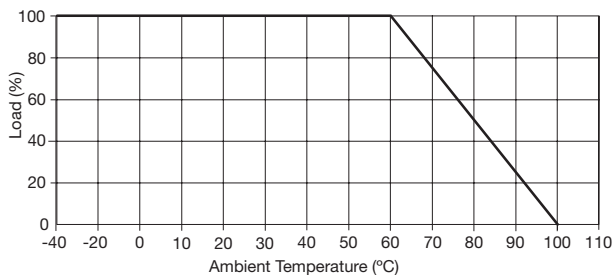
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class A	With external components, see application note
Radiated	EN55022	Class A	

Immunity - EMC

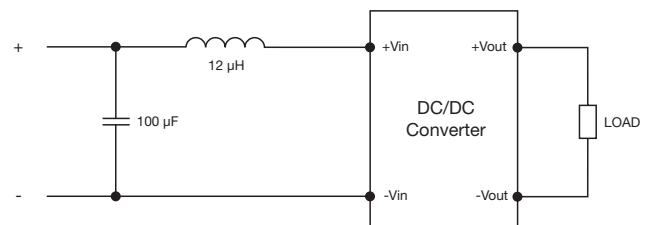
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	8kV air, 6kV contact
EFT/Burst	EN61000-4-4	3	A	A 330 μ F, 100V capacitor is required across input terminals to meet performance criteria A.
Surge	EN61000-4-5	Inst. class 3	A	A 330 μ F, 100V capacitor is required across input terminals to meet performance criteria A.
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

Application notes

Derating curve



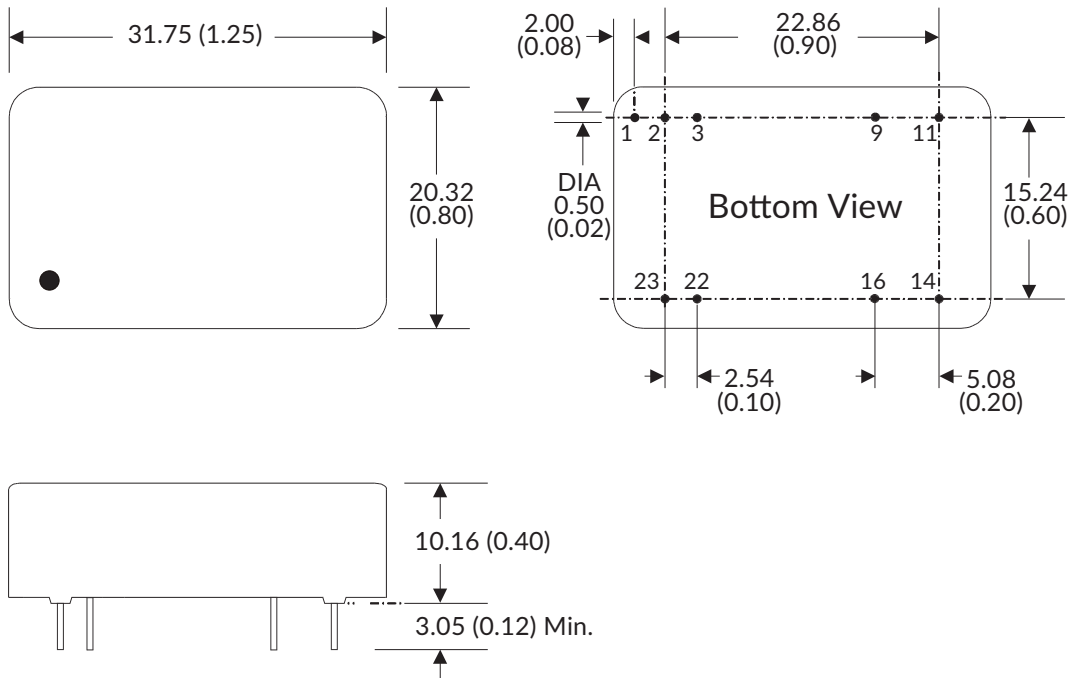
Input filter



Remote on/off

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

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:

- All dimensions are in (mm (inches)).
- Weight: 18g (0.04lbs) approx
- Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
- Pin pitch tolerance: ± 0.35 (± 0.014)
- Case tolerance: ± 0.5 (± 0.02)