JCD06 series

XP Power

6W Convection cooled

DC-DC converters

The JCD06 series is housed in a DIP24 PCB mount metal case. Featuring a 2:1 input voltage range of 4.5 to 9VDC, 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 9, 12, 15 & 24VDC and dual outputs ±3.3 ±5, ±9, ±12, ±15 or ±24VDC.

The 6W JCD06 has 1.6kVDC isolation (3.5kV optional) between input and output, overload & short circuit protection are standard. The 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 24VDC
- ▶ Dual outputs ±3.3 to ±24VDC
- ▶ DIP24 metal case
- ▶ 1.6kVDC isolation, 3.5kVDC option
- ▶ Continuous short circuit protection
- ▶ -40°C to +100°C operating temperature
- ▶ Full power to +60°C
- ▶ 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics
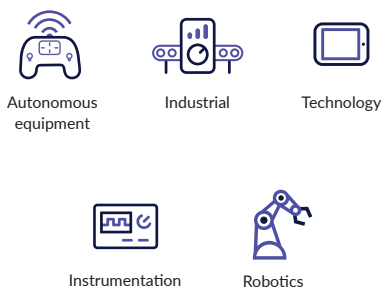
Dimensions

31.7 x 20.3 x 10.4mm (1.25" x 0.8" x 0.40")

More resources

Click the link or scan the code

⟶ **xppower.com**

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCD0605S3V3[5]	4.5-9.0VDC	3.3VDC	1400mA	75%	25mA	1232mA	1000µF
JCD0605S05[5]		5.0VDC	1200mA	77%	25mA	1558mA	1000µF
JCD0605S12[5]		12.0VDC	500mA	83%	25mA	1445mA	330µF
JCD0605S15[5]		15.0VDC	400mA	83%	30mA	1445mz	220µF
JCD0605D03[5]		±3.3VDC	±909mA	76%	25mA	1578mA	±680µF
JCD0605D05[5]		±5.0VDC	±600mA	80%	25mA	1500mA	±330µF
JCD0605D12[5]		±12.0VDC	±250mA	84%	35mA	1428mA	±100µF
JCD0605D15[5]		±15.0VDC	±200mA	84%	40mA	1428mA	±47µF

Continued on page 2

Notes:

1. When one output is set at 100% load, the other varies between 25% & 100% load.
2. Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
3. Input current specified at nominal 5VDC, 12VDC, 24VDC or 48VDC input.
4. For optional 3500VDC isolation add suffix -H to part number e.g. JCD0624S12-H
5. Not recommended for new designs, will be end of life from 31st December 2025

JCD06 series

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCD0612S3V3	9-18VDC	3.3VDC	1400mA	74%	30mA	520mA	220µF
JCD0612S05		5.0VDC	1200mA	77%	30mA	649mA	1000µF
JCD0612S09		9.0VDC	666mA	79%	30mA	632mA	680µF
JCD0612S12		12.VDC	500mA	81%	30mA	617mA	1000µF
JCD0612S15		15.0VDC	400mA	82%	30mA	604mA	100µF
JCD0612S24		24.0VDC	250mA	81%	30mA	617mA	100µF
JCD0612D03		±3.3VDC	±909mA	74%	30mA	675mA	±1000µF
JCD0612D05		±5.0VDC	±600mA	76%	30mA	657mA	±680µF
JCD0612D09		±9.0VDC	±333mA	81%	30mA	617mA	±22µF
JCD0612D12		±12.0VDC	±250mA	79%	30mA	632mA	±330µF
JCD0612D15		±15.0VDC	±200mA	80%	30mA	625mA	±100µF
JCD0612D24		±24.0VDC	±125mA	80%	30mA	625mA	±10µF
JCD0624S3V3	18-36VDC	3.3VDC	1400mA	75%	20mA	256mA	1000µF
JCD0624S05		5.0VDC	1200mA	80%	20mA	313mA	1000µF
JCD0624S09		9.0VDC	666mA	83%	20mA	301mA	680µF
JCD0624S12		12.VDC	500mA	83%	20mA	301mA	1000µF
JCD0624S15		15.0VDC	400mA	83%	20mA	301mA	100µF
JCD0624S24		24.0VDC	250mA	85%	20mA	294mA	470µF
JCD0624D03		±3.3VDC	±909mA	76%	20mA	328mA	±1000µF
JCD0624D05		±5.0VDC	±600mA	81%	20mA	308mA	±680µF
JCD0624D09		±9.0VDC	±333mA	83%	20mA	301mA	±220µF
JCD0624D12		±12.0VDC	±250mA	83%	20mA	301mA	±470µF
JCD0624D15		±15.0VDC	±200mA	83%	20mA	301mA	±100µF
JCD0624D24		±24.0VDC	±125mA	82%	20mA	304mA	±100µF
JCD0648S3V3	36-72VDC	3.3VDC	1400mA	75%	12mA	128mA	2200µF
JCD0648S05		5.0VDC	1200mA	80%	12mA	156mA	1000µF
JCD0648S09		9.0VDC	666mA	84%	12mA	148mA	1000µF
JCD0648S12		12.VDC	500mA	84%	12mA	148mA	470µF
JCD0648S15		15.0VDC	400mA	81%	12mA	154mA	1000µF
JCD0648S24		24.0VDC	250mA	85%	12mA	147mA	220µF
JCD0648D03		±3.3VDC	±909mA	76%	12mA	164mA	±1000µF
JCD0648D05		±5.0VDC	±600mA	80%	12mA	156mA	±680µF
JCD0648D09		±9.0VDC	±333mA	83%	12mA	150mA	±680µF
JCD0648D12		±12.0VDC	±250mA	84%	12mA	148mA	±330µF
JCD0648D15		±15.0VDC	±200mA	82%	12mA	152mA	±330µF
JCD0648D24		±24.0VDC	±125mA	83%	12mA	150mA	±150µF

Notes:

1. When one output is set at 100% load, the other varies between 25% & 100% load.
2. Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
3. Input current specified at nominal 5VDC, 12VDC, 24VDC or 48VDC input.
4. For optional 3500VDC isolation add suffix -H to part number e.g. JCD0624S12-H

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1600		VDC	For optional high isolation versions 3500 VDC Input to Output add suffix -H to model number
Isolation: input to case		1600		VDC	
Isolation: output to case		1600		VDC	
Isolation capacitance		500		pF	
Isolation resistance		10^9		Ω	
Switching frequency		266		kHz	
Power density		245.8 (15)		W/cm³ (W/in³)	
Mean time between failure		>1.1		Mhrs	MIL-HDBK-217F, +25°C GB

JCD06 series

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		9	VDC	5VDC nominal
	9		18		12VDC nominal
	18		36		24VDC nominal
	36		72		48VDC nominal
Input current	See models & ratings table				
Input reflected ripple current		35		mA/rms	12µH inductor
Input filter	Pi network				
Input surge		15		VDC	5VDC models (for 100ms)
		24			12VDC models (for 100ms)
		40			24VDC models (for 100ms)
		80			48VDC models (for 100ms)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Setpoint accuracy		±1		%	D03 models
Voltage balance		±1		%	±2% D03 models
Minimum load	0			%	No minimum load required
Line regulation		±0.5		%	
Load regulation		±0.5		%	Single outputs
		±1.5			S3V3 & D03 models
Cross regulation		±5.0		%	See models and ratings note 1
Start up delay		20		ms	5VDC input models, 500 ms typical for 12/24/48VDC input models
Transient Response			3	%	Recovery to within 1% in 250µs for a 25% load change
Start up rise time		3.5		ms	
Ripple & noise		60		mV pk-pk	Measured with 20MHz bandwidth
Overload protection		150		%	Of full load on 5VDC input models only
Short circuit protection	Continuous with auto recovery				
Temperature coefficient		±0.02		%/ °C	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	See derating curve
Storage temperature	-55		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				
Operating humidity			95	%	RH, non condensing

Safety approvals

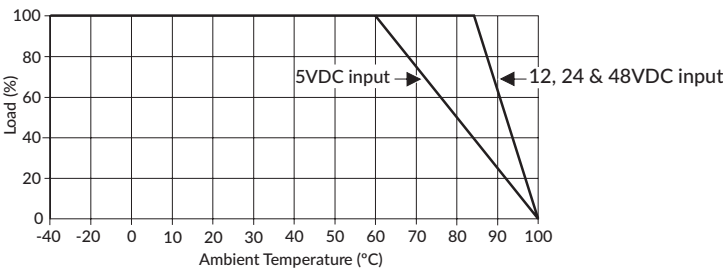| Certification	Standard	Notes & conditions
UL	UL60950-1, CAN/CSA C22.2 No.60950-1, UL62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

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

JCD06 series

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	Level 3	B	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	Level 3	B	
Surge	EN61000-4-5	Level 2	A	External input capacitor required, 220µF/100V
Conducted immunity	EN61000-4-6	10Vrms	B	
Magnetic fields	EN61000-4-8	1A/m	B	

Application notes

Derating Curve

5VDC input → ← 12, 24 & 48VDC input

Load (%) vs Ambient Temperature (°C)

Input filter

Mechanical details

31.75 (1.25)

20.32 (0.80)

DIA 0.50 (0.02)

22.86 (0.90)

Bottom View

15.24 (0.60)

2.54 (0.10)

5.08 (0.20)

10.40 (0.40)

3.00 (0.12) Min.
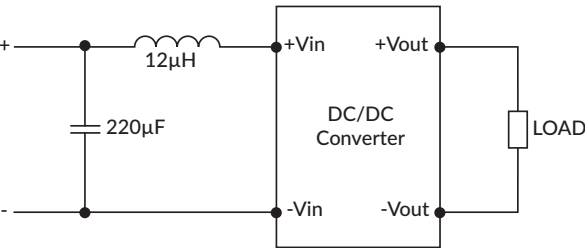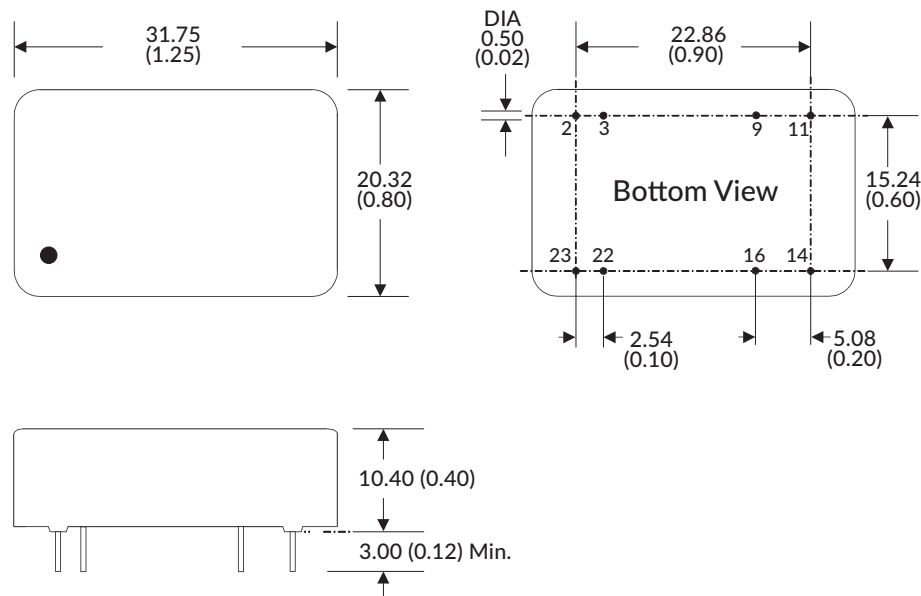
Pin connections

Pin	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	No pin	Common
11	N/C	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Notes:

1. All dimensions in inches (mm)
2. Weight: 18g (0.04lbs)
3. Pin diameter tolerance: 0.5 ±0.005 (0.02 ±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)
6. Package: 24 pin DIL nickel-coated copper