

JCP Series



- 2:1 Input Range
- Single, Dual & Triple Outputs
- -40 °C to +100 °C Operating Temperature
- High Efficiency up to 92%
- Six-sided Metal Case
- Continuous Short Circuit Protection
- 3 Year Warranty

Specification

Input

Input Voltage Range	<ul style="list-style-type: none"> • 12 VDC (9-18 VDC) • 24 VDC (18-36 VDC) • 48 VDC (36-75 VDC)
Input Current	<ul style="list-style-type: none"> • See table
Input Filter	<ul style="list-style-type: none"> • Pi network
Undervoltage Lockout	<ul style="list-style-type: none"> • Turn on >71% nominal input • Turn off <67% nominal input
Input Surge	<ul style="list-style-type: none"> • 12 V models 25 VDC for 100 ms • 24 V models 50 VDC for 100 ms • 48 V models 100 VDC for 100 ms

Output

Output Voltage	<ul style="list-style-type: none"> • See table
Output Voltage Trim	<ul style="list-style-type: none"> • $\pm 10\%$
Minimum Load	<ul style="list-style-type: none"> • See table
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max for single & dual output, • $\pm 1.0\%$ max for V1 of triple output, • $\pm 3.0\%$ for aux of triple output
Load Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max single $\pm 1.0\%$ dual output, • $\pm 1.0\%$ max for V1 of triple output, • $\pm 4.0\%$ for aux of triple output
Setpoint Accuracy	<ul style="list-style-type: none"> • $\pm 1.5\%$ max single and dual • $\pm 1.5\%$ max for V1, $\pm 3.0\%$ of triple output
Voltage Balance	<ul style="list-style-type: none"> • $\pm 2.0\%$ max
Ripple & Noise	<ul style="list-style-type: none"> • 2.5, 3.3 & 5.0 V models 50 mV pk-pk max • 12.0 & 15.0 V models 75 mV pk-pk max, • 20 MHz bandwidth, see note 3
Transient Response	<ul style="list-style-type: none"> • 5% max deviation, recovery to within • 1% in 300 μs for a 25% load change
Temperature Coefficient	<ul style="list-style-type: none"> • $\pm 0.02\%/^{\circ}\text{C}$
Overvoltage Protection	<ul style="list-style-type: none"> • 2.5 V models 3.6 V typical, • 3.3 V models 3.9 V typical, • 5.0 V models 6.2 V typical, • 12.0 V models 15.0 V typical, • 15.0 V models 18.0 V typical
Overcurrent Protection	<ul style="list-style-type: none"> • 110-140%
Short Circuit Protection	<ul style="list-style-type: none"> • Continuous, trip & restart (Hiccup mode)
Remote On/Off	<ul style="list-style-type: none"> • ON >3.5 to 75 VDC or open circuit • OFF <1.8 VDC
Thermal Protection	<ul style="list-style-type: none"> • Shuts down when case temperature • measures +110 °C typical
Remote Sense	<ul style="list-style-type: none"> • Compensates for up to 10% voltage drop • single output models only

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation Voltage	<ul style="list-style-type: none"> • 1500 VDC Input to Output • 1500 VDC Input to Case • Output return connected to case
Isolation Resistance	<ul style="list-style-type: none"> • $10^9 \Omega$ min
Switching Frequency	<ul style="list-style-type: none"> • 350 kHz typical
MTBF	<ul style="list-style-type: none"> • >600 kHrs to MIL-HDBK-217F • at 25°C, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • -40 °C to +100 °C, derate from 100% load • at +60 °C to 0% load at +100 °C
Case Temperature	<ul style="list-style-type: none"> • +100 °C max
Storage Temperature	<ul style="list-style-type: none"> • -55 °C to +125 °C
Cooling	<ul style="list-style-type: none"> • Convection-cooled
Operating Humidity	<ul style="list-style-type: none"> • Up to 90%, non-condensing
Shock	<ul style="list-style-type: none"> • 30 g, half sine wave 18 ms pulse applied • 3 times on each of 6 axes
Vibration	<ul style="list-style-type: none"> • 5-500 Hz, 3 g, for 10 mins on each • of 3 axes

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55022 Level A conducted & radiated • with external components - • see application note
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, Level 3 air, Level 2 contact • Perf Criteria B
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, 3 V/m Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, Level 1 Perf Criteria B
Surge	<ul style="list-style-type: none"> • EN61000-4-5, Level 2 Perf Criteria B
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, 3 V rms Perf Criteria A

Models and Ratings

Input Voltage	Output Voltage	Output Current		Input Current ⁽²⁾		Efficiency	Model Number ⁽¹⁾
		Min	Max	No Load	Full Load		
9-18 V	2.5 V	0 A	10.00 A	200 mA	2367 mA	88%	JCP4012S2V5
	3.3 V	0 A	10.00 A	200 mA	3090 mA	89%	JCP4012S3V3†^
	5.0 V	0 A	8.80 A	200 mA	3745 mA	89%	JCP4012S05†^
	12.0 V	0 A	3.33 A	200 mA	3703 mA	90%	JCP4012S12†^
	15.0 V	0 A	2.66 A	200 mA	3702 mA	90%	JCP4012S15†^
	±12.0 V	±0.09 A	±1.80 A	100 mA	4045 mA	89%	JCP4012D12†^
	±15.0 V	±0.07 A	±1.40 A	100 mA	3889 mA	90%	JCP4012D15†^
	3.3 V/±12.0 V	0.60 A/±0.04 A	6.00 A/±0.40 A	200 mA	2784 mA	88%	JCP4012T0312†^
	3.3 V/±15.0 V	0.60 A/±0.03 A	6.00 A/±0.30 A	200 mA	2727 mA	88%	JCP4012T0315†^
	5.0 V/±12.0 V	0.60 A/±0.04 A	6.00 A/±0.40 A	200 mA	3750 mA	88%	JCP4012T0512†^
5.0 V/±15.0 V	0.60 A/±0.03 A	6.00 A/±0.30 A	200 mA	3611 mA	90%	JCP4012T0515†^	
18-36 V	2.5 V	0 A	10.00 A	100 mA	1184 mA	88%	JCP4024S2V5
	3.3 V	0 A	10.00 A	100 mA	1545 mA	89%	JCP4024S3V3†^
	5.0 V	0 A	8.80 A	110 mA	1831 mA	91%	JCP4024S05†^
	12.0 V	0 A	3.33 A	100 mA	1811 mA	92%	JCP4024S12†^
	15.0 V	0 A	2.66 A	100 mA	1810 mA	92%	JCP4024S15†^
	±12.0 V	±0.09 A	±1.80 A	100 mA	1978 mA	91%	JCP4024D12†^
	±15.0 V	±0.07 A	±1.40 A	100 mA	1902 mA	92%	JCP4024D15†^
	3.3 V/±12.0 V	0.60 A/±0.04 A	6.00 A/±0.40 A	100 mA	1361 mA	90%	JCP4024T0312†^
	3.3 V/±15.0 V	0.60 A/±0.03 A	6.00 A/±0.30 A	100 mA	1333 mA	90%	JCP4024T0315†^
	5.0 V/±12.0 V	0.60 A/±0.04 A	6.00 A/±0.40 A	100 mA	1833 mA	90%	JCP4024T0512†^
5.0 V/±15.0 V	0.60 A/±0.03 A	6.00 A/±0.30 A	100 mA	1806 mA	90%	JCP4024T0515†^	
36-75 V	2.5 V	0 A	10.00 A	50 mA	585 mA	89%	JCP4048S2V5
	3.3 V	0 A	10.00 A	50 mA	764 mA	90%	JCP4048S3V3†^
	5.0 V	0 A	8.80 A	60 mA	926 mA	90%	JCP4048S05†^
	12.0 V	0 A	3.33 A	60 mA	916 mA	91%	JCP4048S12†^
	15.0 V	0 A	2.66 A	60 mA	906 mA	92%	JCP4048S15†^
	±12.0 V	±0.09 A	±1.80 A	50 mA	1000 mA	90%	JCP4048D12†^
	±15.0 V	±0.07 A	±1.40 A	50 mA	962 mA	91%	JCP4048D15†^
	3.3 V/±12.0 V	0.60 A/±0.04 A	6.00 A/±0.40 A	50 mA	688 mA	89%	JCP4048T0312†^
	3.3 V/±15.0 V	0.60 A/±0.03 A	6.00 A/±0.30 A	50 mA	690 mA	87%	JCP4048T0315†^
	5.0 V/±12.0 V	0.60 A/±0.04 A	6.00 A/±0.40 A	50 mA	938 mA	88%	JCP4048T0512†^
5.0 V/±15.0 V	0.60 A/±0.03 A	6.00 A/±0.30 A	50 mA	903 mA	90%	JCP4048T0515†^	

Notes

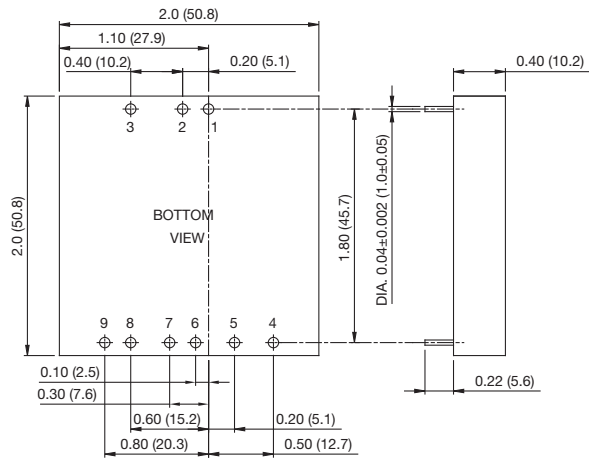
1. Add suffix '-N' to model number for negative logic Remote On/Off.
 2. Input current measured at nominal input voltage.
 3. Add a 0.1 μF ceramic capacitor to output for ripple and noise measurement, with a 20 MHz bandwidth limit.
- † Available from Farnell. See pages 266-269.
 ^ Available from Newark. See pages 270-272.

Mechanical Details

All dimensions are in inches (mm), Weight: 0.14 lbs (65 g)
 Pin diameter tolerance: ±0.002 (±0.05)
 Pin pitch tolerance: ±0.010 (±0.25)
 Case tolerance: ±0.02 (±0.5)

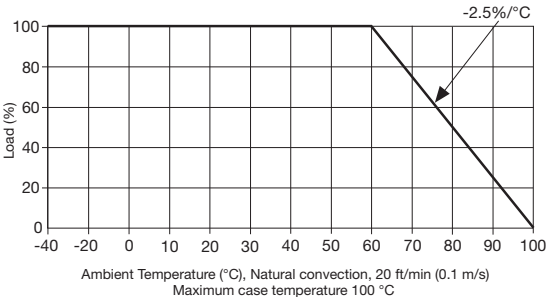
PIN CONNECTIONS			
Pin	Single	Dual	Triple
1	+V Input	+V Input	+V Input
2	-V Input	-V Input	-V Input
3	On/Off	On/Off	On/Off
4	NC	No Pin	+Aux. Output
5	-Sense*	+V Output 1	Rtn
6	+Sense*	Rtn	-Aux. Output
7	+Vout	Rtn	+V Output 1
8	Rtn	-V Output 2	Rtn
9	Trim	Trim	NC

*If remote sense is not being used:
 +Sense should be connected to +Vout
 -Sense should be connected to Rtn.



Application Notes

Derating Curve



Remote On/Off Control

Standard ROF logic is positive.
 Output On >3.5 to 75 VDC or open circuit
 Output Off <1.8 VDC

Optional ROF logic is negative ('-N' version).
 Output On <1.8 VDC
 Output Off >3.5 to 75 VDC or open circuit

Input Filter

To meet level A conducted emissions. Consult longform datasheet for values.

