# 40 Watts
# 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 | • 12 VDC (9-18 VDC)<br>24 VDC (18-36 VDC)<br>48 VDC (36-75 VDC) |
| Input Current | • See table |
| Input Filter | • Pi network |
| Undervoltage Lockout | • Turn on >71% nominal input<br>Turn off <67% nominal input |
| Input Surge | • 12 V models 25 VDC for 100 ms<br>24 V models 50 VDC for 100 ms<br>48 V models 100 VDC for 100 ms |

### Output

| | |
|---|---|
| Output Voltage | • See table |
| Output Voltage Trim | • ±10% |
| Minimum Load | • See table |
| Line Regulation | • ±0.5% max for single & dual output,<br>±1.0% max for V1 of triple output,<br>±3.0% for aux of triple output |
| Load Regulation | • ±0.5% max single ±1.0% dual output,<br>±1.0% max for V1 of triple output,<br>±4.0% for aux of triple output |
| Setpoint Accuracy | • ±1.5% max single and dual<br>±1.5% max for V1, ±3.0% of triple output |
| Voltage Balance | • ±2.0% max |
| Ripple & Noise | • 2.5, 3.3 & 5.0 V models 50 mV pk-pk max<br>12.0 & 15.0 V models 75 mV pk-pk max,<br>20 MHz bandwidth, see note 3 |
| Transient Response | • 5% max deviation, recovery to within<br>1% in 300 µs for a 25% load change |
| Temperature Coefficient | • ±0.02%/°C |
| Overvoltage Protection | • 2.5 V models 3.6 V typical,<br>3.3 V models 3.9 V typical,<br>5.0 V models 6.2 V typical,<br>12.0 V models 15.0 V typical,<br>15.0 V models 18.0 V typical |
| Overcurrent Protection | • 110-140% |
| Short Circuit Protection | • Continuous, trip & restart (Hiccup mode) |
| Remote On/Off | • ON >3.5 to 75 VDC or open circuit<br>OFF <1.8 VDC |
| Thermal Protection | • Shuts down when case temperature<br>measures +110 °C typical |
| Remote Sense | • Compensates for up to 10% voltage drop<br>single output models only |

### General

| | |
|---|---|
| Efficiency | • See table |
| Isolation Voltage | • 1500 VDC Input to Output<br>1500 VDC Input to Case<br>Output return connected to case |
| Isolation Resistance | • $10^9$ Ω min |
| Switching Frequency | • 350 kHz typical |
| MTBF | • >600 kHrs to MIL-HDBK-217F<br>at 25°C, GB |

### Environmental

| | |
|---|---|
| Operating Temperature | • -40 °C to +100 °C, derate from 100% load<br>at +60 °C to 0% load at +100 °C |
| Case Temperature | • +100 °C max |
| Storage Temperature | • -55 °C to +125 °C |
| Cooling | • Convection-cooled |
| Operating Humidity | • Up to 90%, non-condensing |
| Shock | • 30 g, half sine wave 18 ms pulse applied<br>3 times on each of 6 axes |
| Vibration | • 5-500 Hz, 3 g, for 10 mins on each<br>of 3 axes |

### EMC & Safety

| | |
|---|---|
| Emissions | • EN55022 Level A conducted & radiated<br>with external components -<br>see application note |
| ESD Immunity | • EN61000-4-2, Level 3 air, Level 2 contact<br>Perf Criteria B |
| Radiated Immunity | • EN61000-4-3, 3 V/m Perf Criteria A |
| EFT/Burst | • EN61000-4-4, Level 1 Perf Critera B |
| Surge | • EN61000-4-5, Level 2 Perf Criterea B |
| Conducted Immunity | • EN61000-4-6, 3 V rms Perf Criteria A |

## Models and Ratings

JCP XP

| 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.*

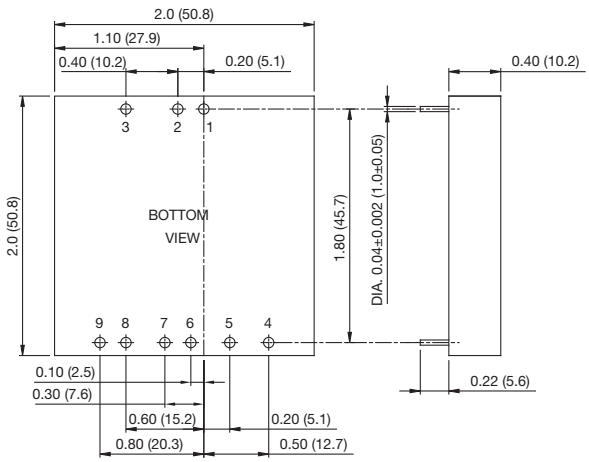
† Available from Farnell. See pages 266-269.
^ Available from Newark. See pages 270-272.

## 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)

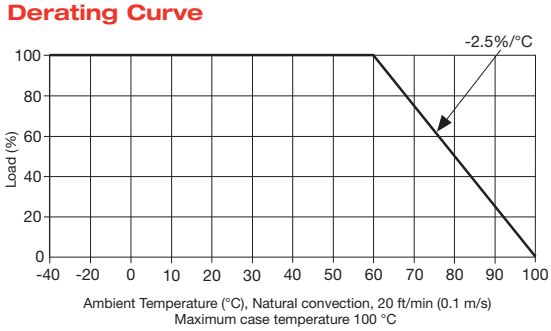
| PIN CONNECTIONS | | | |
|---|---|---|---|
| Pin | Single | Dual | Triple |
| 1 | +V Input | +V Input | +V Input |
| 2 | -V Input | -V Input | -V Input |
| 3 | On/Off | On/Off | On/Off |
| 4 | NC | No Pin | +Aux. Output |
| 5 | -Sense* | +V Output 1 | Rtn |
| 6 | +Sense* | Rtn | -Aux. Output |
| 7 |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