

## JTL30 Series



- 4:1 Input Range
- High Power Density
- Single, Dual and Triple Outputs
- High Efficiency - Up to 91%
- Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

## Specification

## Input

|                      |                                                                                        |
|----------------------|----------------------------------------------------------------------------------------|
| Input Voltage Range  | • 24 V (9-36 VDC), 48 V (18-75 VDC)                                                    |
| Input Current        | • See table                                                                            |
| Undervoltage Lockout | • 24 V models: ON 8.6 V, OFF 7.9 V typical<br>48 V models: ON 17.8 V, OFF 16 V typical |
| Input Surge          | • 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      | • $\pm 10\%$ on single outputs models only                                                                                                                                                                                                                                                |
| Minimum Load             | • No minimum load required for single and dual output models, 10% required for triple output models                                                                                                                                                                                       |
| Line Regulation          | • $\pm 0.2\%$ max for single and dual output models, $\pm 1.0\%$ main, $\pm 5\%$ auxiliary for triple output models                                                                                                                                                                       |
| Load Regulation          | • Single output models: $\pm 0.5\%$ max<br>Dual output models: $\pm 1\%$ max balanced outputs<br>Triple output models: $\pm 1\%$ max main, $\pm 5\%$ auxiliaries                                                                                                                          |
| Cross Regulation         | • $\pm 5\%$ for dual and triples outputs, see note 2                                                                                                                                                                                                                                      |
| Setpoint Accuracy        | • $\pm 1\%$ ( $\pm 5\%$ for triple auxiliaries)                                                                                                                                                                                                                                           |
| Start Up Time            | • 30 ms typical                                                                                                                                                                                                                                                                           |
| Ripple & Noise           | • 100 mV or 1% pk-pk, whichever is greater single and dual output models, 50/75 mV pk-pk main/auxiliary outputs of triple output models, 20 MHz bandwidth, see note 3                                                                                                                     |
| Transient Response       | • 3% max deviation, recovery to within 1% in $<250\ \mu\text{s}$ for a 25% load change                                                                                                                                                                                                    |
| Temperature Coefficient  | • $0.02\%/^{\circ}\text{C}$                                                                                                                                                                                                                                                               |
| Overvoltage Protection   | • 3.3 V models: 3.9 V typical<br>5 V models: 6.2 V typical<br>12 V models: 15 V typical<br>15 V models: 18 V typical<br>$\pm 5\text{ V}$ models: $\pm 6.2\text{ V}$ typical<br>$\pm 12\text{ V}$ models: $\pm 15\text{ V}$ typical<br>$\pm 15\text{ V}$ models: $\pm 18\text{ V}$ typical |
| Overload Protection      | • $>120\%$                                                                                                                                                                                                                                                                                |
| Short Circuit Protection | • Trip & restart (Hiccup mode), auto recovery                                                                                                                                                                                                                                             |
| Remote On/Off            | • On = Logic High ( $>3.0\text{ V}$ ) or Open<br>Off = Logic Low ( $<1.2\text{ V}$ ) or short pin 2 to 3                                                                                                                                                                                  |

## General

|                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| Efficiency          | • See table                                                                     |
| Isolation           | • 1600 VDC Input to Output<br>1600 VDC Input to Case<br>1600 VDC Output to Case |
| Switching Frequency | • 330 kHz typical                                                               |
| MTBF                | • 320 kHrs min to MIL-HDBK-217F at $25^{\circ}\text{C}$ , GB                    |

## Environmental

|                       |                                                                       |
|-----------------------|-----------------------------------------------------------------------|
| Operating Temperature | • $-40^{\circ}\text{C}$ to $+75^{\circ}\text{C}$ , see derating curve |
| Case Temperature      | • $+105^{\circ}\text{C}$ max                                          |
| Cooling               | • Convection-cooled                                                   |
| Operating Humidity    | • 5-95% RH, non-condensing                                            |
| Storage Temperature   | • $-40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$                     |

## Models and Ratings

JTL30 XP

| Input Voltage | Output Voltage      | Output Current       | Input Current <sup>(1)</sup> |           | Maximum Capacitive Load  | Efficiency | Model Number |
|---------------|---------------------|----------------------|------------------------------|-----------|--------------------------|------------|--------------|
|               |                     |                      | No Load                      | Full Load |                          |            |              |
| 9-36 VDC      | 3.3 V               | 7.50 A               | 100 mA                       | 1228 mA   | 20000 $\mu$ F            | 86%        | JTL3024S3V3  |
|               | 5.0 V               | 6.00 A               | 100 mA                       | 1483 mA   | 14000 $\mu$ F            | 88%        | JTL3024S05   |
|               | 12.0 V              | 2.50 A               | 100 mA                       | 1437 mA   | 2000 $\mu$ F             | 89%        | JTL3024S12   |
|               | 15.0 V              | 2.00 A               | 100 mA                       | 1437 mA   | 2000 $\mu$ F             | 89%        | JTL3024S15   |
|               | $\pm 5.0$ V         | $\pm 3.00$ A         | 100 mA                       | 1453 mA   | $\pm 3000$ $\mu$ F       | 88%        | JTL3024D05   |
|               | $\pm 12.0$ V        | $\pm 1.25$ A         | 100 mA                       | 1470 mA   | $\pm 1300$ $\mu$ F       | 87%        | JTL3024D12   |
|               | $\pm 15.0$ V        | $\pm 1.00$ A         | 100 mA                       | 1470 mA   | $\pm 1300$ $\mu$ F       | 87%        | JTL3024D15   |
|               | 3.3 V, $\pm 12.0$ V | 5.00 A, $\pm 0.42$ A | 100 mA                       | 1288 mA   | 15000, $\pm 220$ $\mu$ F | 88%        | JTL3024T0312 |
|               | 3.3 V, $\pm 15.0$ V | 5.00 A, $\pm 0.33$ A | 100 mA                       | 1279 mA   | 15000, $\pm 220$ $\mu$ F | 88%        | JTL3024T0315 |
|               | 5.0 V, $\pm 12.0$ V | 4.00 A, $\pm 0.42$ A | 100 mA                       | 1424 mA   | 8000, $\pm 220$ $\mu$ F  | 90%        | JTL3024T0512 |
| 18-75 VDC     | 5.0 V, $\pm 15.0$ V | 4.00 A, $\pm 0.33$ A | 100 mA                       | 1418 mA   | 8000, $\pm 220$ $\mu$ F  | 90%        | JTL3024T0515 |
|               | 3.3 V               | 7.50 A               | 50 mA                        | 614 mA    | 20000 $\mu$ F            | 86%        | JTL3048S3V3  |
|               | 5.0 V               | 6.00 A               | 50 mA                        | 742 mA    | 14000 $\mu$ F            | 88%        | JTL3048S05   |
|               | 12.0 V              | 2.50 A               | 50 mA                        | 711 mA    | 2000 $\mu$ F             | 90%        | JTL3048S12   |
|               | 15.0 V              | 2.00 A               | 50 mA                        | 702 mA    | 2000 $\mu$ F             | 91%        | JTL3048S15   |
|               | $\pm 5.0$ V         | $\pm 3.00$ A         | 50 mA                        | 727 mA    | $\pm 3000$ $\mu$ F       | 88%        | JTL3048D05   |
|               | $\pm 12.0$ V        | $\pm 1.25$ A         | 50 mA                        | 727 mA    | $\pm 1300$ $\mu$ F       | 88%        | JTL3048D12   |
|               | $\pm 15.0$ V        | $\pm 1.00$ A         | 50 mA                        | 727 mA    | $\pm 1300$ $\mu$ F       | 88%        | JTL3048D15   |
|               | 3.3 V, $\pm 12.0$ V | 5.00 A, $\pm 0.42$ A | 50 mA                        | 644 mA    | 15000, $\pm 220$ $\mu$ F | 88%        | JTL3048T0312 |
|               | 3.3 V, $\pm 15.0$ V | 5.00 A, $\pm 0.33$ A | 50 mA                        | 640 mA    | 15000, $\pm 220$ $\mu$ F | 88%        | JTL3048T0315 |
|               | 5.0 V, $\pm 12.0$ V | 4.00 A, $\pm 0.42$ A | 50 mA                        | 712 mA    | 8000, $\pm 220$ $\mu$ F  | 90%        | JTL3048T0512 |
|               | 5.0 V, $\pm 15.0$ V | 4.00 A, $\pm 0.33$ A | 50 mA                        | 708 mA    | 8000, $\pm 220$ $\mu$ F  | 90%        | JTL3048T0515 |

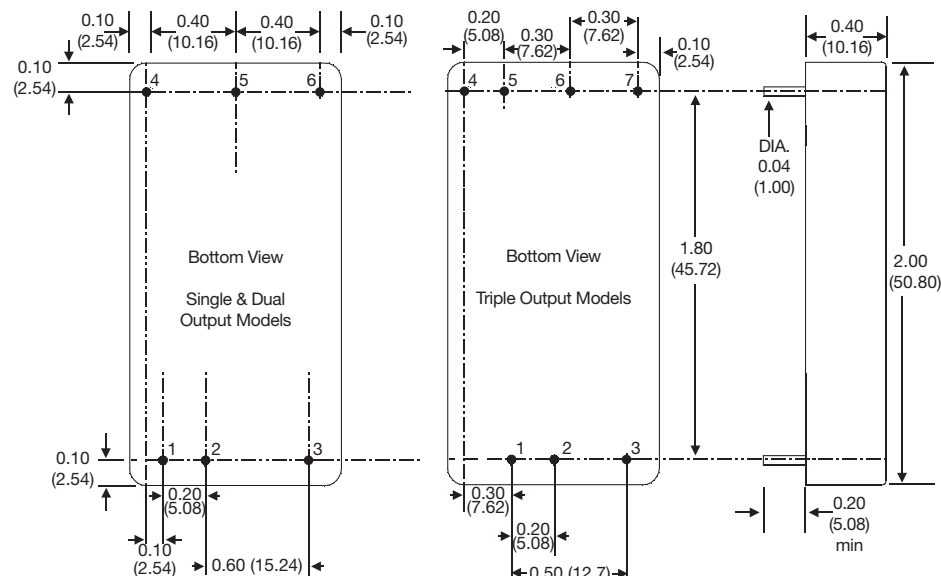
## Notes

- Input current specified at nominal 24 V or 48 V input.
- Cross regulation for duals is  $\pm 5\%$  when one output is at 100% and the other is varied between 25% and 100%. Cross regulation for triples is  $\pm 5\%$  when main output and one auxiliary is at 25% and the other is varied between 25% and 100%.

- Measured with 1  $\mu$ F ceramic capacitor across output rails.

## Mechanical Details

Weight: 0.07 lbs (30 g) approx



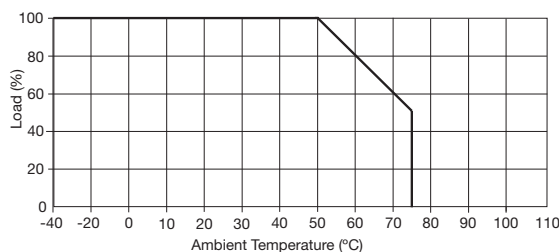
| PIN CONNECTIONS |        |       |         |
|-----------------|--------|-------|---------|
| Pin             | Single | Dual  | Triple  |
| 1               | +Vin   | +Vin  | +Vin    |
| 2               | -Vin   | -Vin  | -Vin    |
| 3               | CTRL   | CTRL  | CTRL    |
| 4               | +Vout  | +Vout | +Vout 2 |
| 5               | Com    | Com   | -Vout 3 |
| 6               | Trim   | -Vout | Com     |
| 7               |        |       | +Vout 1 |

## Notes

- All dimensions are in inches (mm).
- Pin diameter: 0.04  $\pm 0.002$  (1.0  $\pm 0.05$ )
- Pin pitch tolerance:  $\pm 0.014$  ( $\pm 0.35$ )
- Case tolerance:  $\pm 0.02$  ( $\pm 0.5$ )

## Application Notes

## Derating Curve



## Remote On/Off Control

- Output On >3.0 VDC or open circuit  
Output Off <1.2 VDC or short circuit pins 2 & 3