

# DRD15 SERIES

DC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



## FEATURES

- 4:1 WIDE INPUT RANGE
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- LOW PROFILE
- 3 YEARS WARRANTY



## MODEL LIST

| MODEL NO.                   | INPUT VOLTAGE | INPUT CURRENT |        | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) | EFF. (typ.) |
|-----------------------------|---------------|---------------|--------|----------------|----------------|----------------|-------------|-------------|
|                             |               | (typ.)        | (max.) |                |                |                |             |             |
| <b>Single Output Models</b> |               |               |        |                |                |                |             |             |
| DRD15-03                    | 9-36 VDC      | 0.62 A        | 1.8 A  | 11.5 WATTS     | + 3.3 VDC      | 3.5 A          | 77%         | 79%         |
| DRD15-05                    | 9-36 VDC      | 0.70 A        | 1.9 A  | 13.5 WATTS     | + 5 VDC        | 2.7 A          | 78%         | 80%         |
| DRD15-09                    | 9-36 VDC      | 0.70 A        | 1.9 A  | 13.5 WATTS     | + 9 VDC        | 1.5 A          | 79%         | 81%         |
| DRD15-12                    | 9-36 VDC      | 0.76 A        | 2.1 A  | 15 WATTS       | + 12 VDC       | 1.25 A         | 80%         | 82%         |
| DRD15-15                    | 9-36 VDC      | 0.76 A        | 2.1 A  | 15 WATTS       | + 15 VDC       | 1 A            | 81%         | 83%         |
| DRD15-24                    | 9-36 VDC      | 0.76 A        | 2.1 A  | 15 WATTS       | + 24 VDC       | 0.63 A         | 81%         | 83%         |

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

| GENERAL                       |   |                   |      |           |        |  |
|-------------------------------|---|-------------------|------|-----------|--------|--|
| Characteristics               | Conditions                                      | min.              | typ. | max.      | unit   |  |
| Switching frequency           | Vi nom, Io nom                                  | 100               |      | 200       | KHz    |  |
| Isolation voltage             | Input-Output                                    | 1,500             |      |           | VDC    |  |
| Isolation resistance          | Input-Output, @ 500VDC                          | 100               |      |           | MΩ     |  |
| Ambient temperature           | Operating at Vi nom                             | -40               |      | + 71      | °C     |  |
| Derating (see derating curve) | Vi nom, from +51°C to +71°C                     |                   |      | 2.5       | % / °C |  |
| Storage temperature           | Non operational                                 | -40               |      | + 85      | °C     |  |
| Relative humidity             | Vi nom, Io nom                                  | 20                |      | 95        | % RH   |  |
| Temperature coefficient       | Vi nom, Io min                                  |                   |      | ± 0.03    | % / °C |  |
| MTBF                          | Bellcore Issue 6 @40°C, GB                      | 3.3V              |      | 1,066,000 | Hours  |  |
|                               |   | 5V                |      | 996,000   | Hours  |  |
|                               |   | 9V                |      | 1,055,000 | Hours  |  |
|                               |   | 12V               |      | 951,000   | Hours  |  |
|                               |   | 15V               |      | 998,000   | Hours  |  |
|                               |   | 24V               |      | 989,000   | Hours  |  |
| Altitude during operation     | EN 62368-1                                      |                   |      | 5,000     | m      |  |
| Dimension                     |   | L91 x W18 x D56.5 |      |           | mm     |  |
| Cooling                       | Free air convection                             |                   |      |           |        |  |
| Installation position         | Vertical ( other direction may derating using ) |                   |      |           |        |  |
| Pollution degree              |   | 2                 |      |           |        |  |

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### INPUT SPECIFICATIONS

| Characteristics          | Conditions                | min. | typ. | max. | unit |
|--------------------------|---------------------------|------|------|------|------|
| Input voltage range      | Ta min ... Ta max, Io nom | 9    | 24   | 36   | VDC  |
| No load input current    | Vi nom, Io = 0            |      |      | 30   | mA   |
| Input voltage w/o damage | Io nom                    |      |      | 40   | VDC  |
| Startup voltage          | Io nom                    |      | 8.5  |      | VDC  |
| Input filter             | Pi type                   |      |      |      |      |

### OUTPUT SPECIFICATIONS

| Characteristics                                     | Conditions                 | min.   | typ. | max.  | unit |
|---|----------------------------|--|------|-------|------|
| Output voltage accuracy                             | Vi nom, Io max             |  |      | ± 1   | %    |
| Minimum load  | Vi nom                     | 0  |      |       | %    |
| Line regulation                                     | Io nom, Vi min ... Vi max  |  |      | ± 1   | %    |
| Load regulation                                     | Vi nom, Io min ... Io nom  | 3.3V   |      | ± 1.5 | %    |
|   |                            | other  |      | ± 1   | %    |
| Startup time  | Vi nom, Io nom             |  |      | 50    | ms   |
| Transient recovery time                             | Vi nom, I ~ 0.5 Io nom     |  |      | 1     | ms   |
| Ripple & noise                                      | Vi nom, Io nom, BW = 20MHz |  |      | 100   | mV   |
| Power back immunity                                 | Vi nom, Io nom             | 3.3V   | 5.0  |       | VDC  |
|   |                            | 5V   | 7.5  |       | VDC  |
|   |                            | 9V   | 15   |       | VDC  |
|   |                            | 12V  | 18   |       | VDC  |
|   |                            | 15V  | 22   |       | VDC  |
|   |                            | 24V  | 35   |       | VDC  |
| Capacitor load                                      | Vi nom, Io nom             | 3.3V, 5V   |      | 3,500 | μF   |
|   |                            | 9V   |      | 2,200 | μF   |
|   |                            | 12V, 15V   |      | 1,000 | μF   |
|   |                            | 24V  |      | 470   | μF   |
| DC ON indicator threshold at start up (Green LED)   | Vi nom, Io nom             | 3.3V   | 2.6  | 3.0   | VDC  |
|   |                            | 5V   | 3.5  | 4.5   | VDC  |
|   |                            | 9V   | 6.8  | 8.1   | VDC  |
|   |                            | 12V  | 9    | 10.8  | VDC  |
|   |                            | 15V  | 11   | 13.5  | VDC  |
|   |                            | 24V  | 19.2 | 21.6  | VDC  |
| DC LOW indicator threshold after start up (Red LED) | Vi nom, Io nom             | 3.3V   | 2.6  | 3.0   | VDC  |
|   |                            | 5V   | 3.5  | 4.5   | VDC  |
|   |                            | 9V   | 6.8  | 8.1   | VDC  |
|   |                            | 12V  | 9    | 10.8  | VDC  |
|   |                            | 15V  | 11   | 13.5  | VDC  |
|   |                            | 24V  | 19.2 | 21.6  | VDC  |
| Efficiency  | Vi nom, Io nom, Po / Pi    | Up to 83%, See model list and typ efficiency curve |      |       |      |

### CONTROL AND PROTECTION

| Characteristics                   | Conditions                         | min.                            | typ.  | max. | unit |
|-----------------------------------|------------------------------------|---------------------------------|-------|------|------|
| Input fuse                        |                                    | T3A / 63VDC internal            |       |      |      |
| Internal surge voltage protection | IEC 61000-4-5                      | Varistor                        |       |      |      |
| Rated over load protection        | Vi nom                             | 110                             |       | 165  | %    |
| Over voltage protection           | Vi nom, 0.8 Io nom (Auto Recovery) | 3.3V                            | 3.8   | 4.3  | VDC  |
|                                   |                                    | 5V                              | 5.75  | 6.5  | VDC  |
|                                   |                                    | 9V                              | 10.35 | 11.7 | VDC  |
|                                   |                                    | 12V                             | 14.4  | 16.2 | VDC  |
|                                   |                                    | 15V                             | 17.25 | 19.5 | VDC  |
|                                   | 24V                                | 28.8                            |       | 32.4 | VDC  |
| Output short circuit              |                                    | Current limited (Auto-recovery) |       |      |      |
| Degree of protection              |                                    | IP20                            |       |      |      |

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### APPROVALS AND STANDARDS

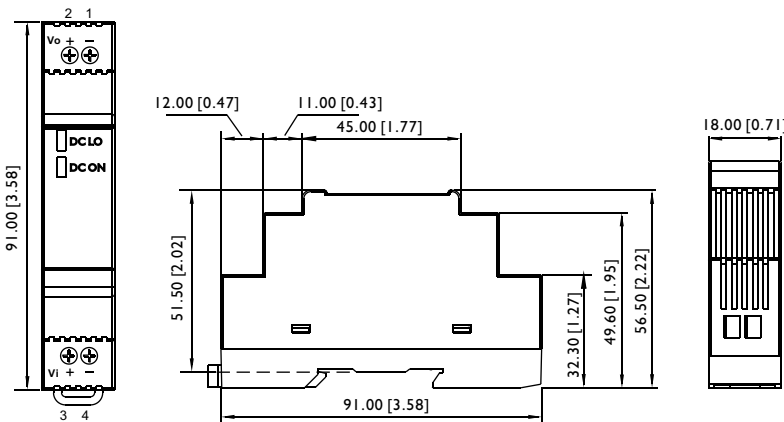
|                      |  |
|----------------------|--|
| UL / cUL             | UL 508   |
| cTUVus               | UL 62368-I   |
| TUV                  | BS EN / EN 62368-I   |
| CE                   | BS EN / EN 61000-6-3, BS EN / EN 55032 Class B<br>BS EN / EN 61000-6-2, BS EN / EN 55035, BS EN / EN 61000-4-2, BS EN / EN 61000-4-3, BS EN / EN 61000-4-4<br>BS EN / EN 61000-4-5, BS EN / EN 61000-4-6, BS EN / EN 61000-4-8, DD ENV / ENV 50204<br>BS EN / EN 61204-3, CISPR 32 |
| Vibration resistance | meet IEC 60068-2-6 (Mounting on rail : 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)   |
| Shock resistance     | meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)  |

### PHYSICAL CHARACTERISTICS

|               |   |
|---------------|---|
| Case size     | 91 x 18 x 56.5 mm (3.58 x 0.71 x 2.22 inches) |
| Case material | Plastic                                       |
| Weight        | 65g   |
| Packing       | 0.11kg ; 120pcs / 14.5kg / 2.28CUFT           |

### MECHANISM & PIN CONFIGURATION

mm [inch]



#### CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail; no tools required even to remove

#### INSTALLATION

Ventilation / Cooling  
Normal convection  
All sides 25mm free space  
For cooling recommended  
Connector size range  
AWG26-12 (0.2~2.5mm<sup>2</sup>) flexible / solid cable  
-Connector can withstand torque at maximum 5 pound-inches.  
4~5mm stripping at cable end recommends.  
Use copper conductors only, 60/75 °C

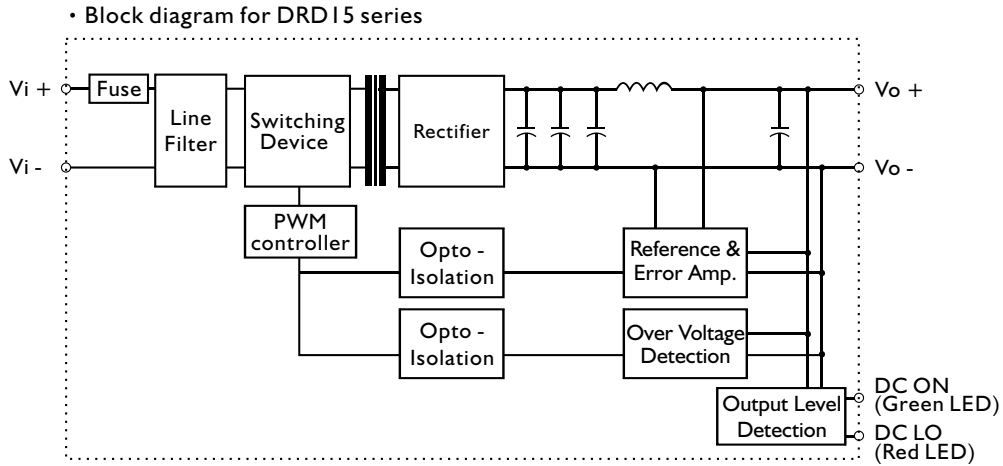
#### GENERAL TOLERANCE

|                            |             |
|----------------------------|-------------|
| 0.00[0.00] - 30.00[1.18]   | ±0.30[0.01] |
| 30.00[1.18] - 120.00[4.72] | ±0.50[0.02] |

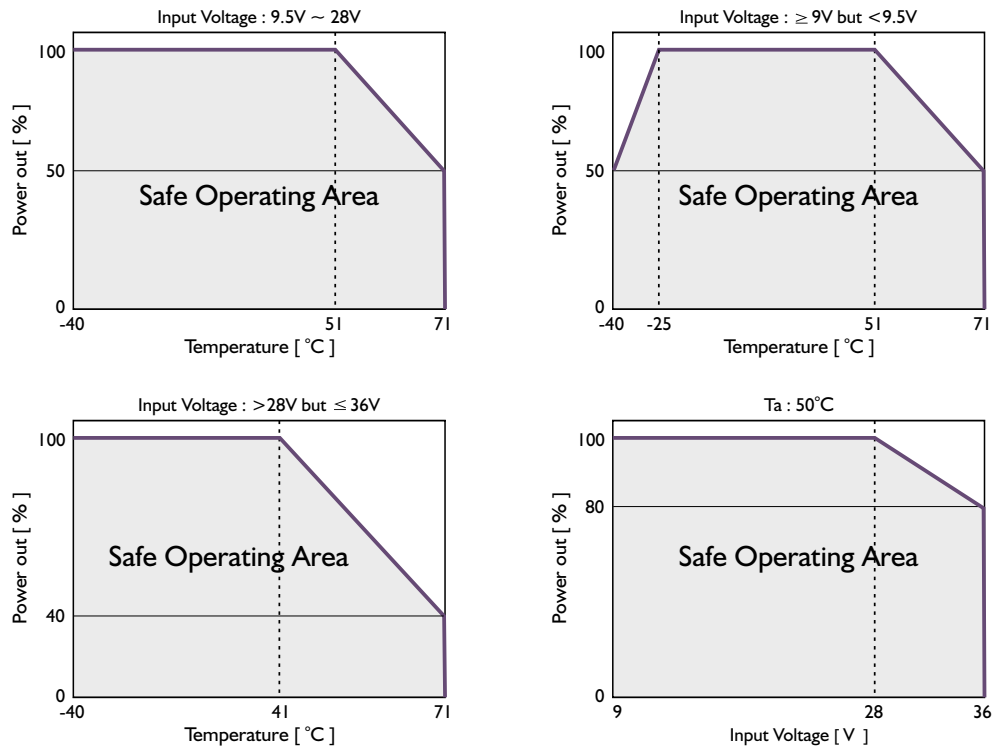
### PIN ASSIGNMENT

| PIN NO | Designation | Description                |
|--------|-------------|----------------------------|
| 1      | OUT         | - Negative output terminal |
| 2      |             | + Positive output terminal |
| 3      | IN          | + Positive input terminal  |
| 4      |             | - Negative input terminal  |
|        | DC ON       | Operation indicator LED    |
|        | DC LO       | DC Low indicator LED       |

## CIRCUIT SCHEMATIC



## DERATING CURVE



## TYP. EFFICIENCY CURVE

