



SERIES: PDRB-10 | **DESCRIPTION:** AC-DC DIN RAIL POWER SUPPLY

FEATURES

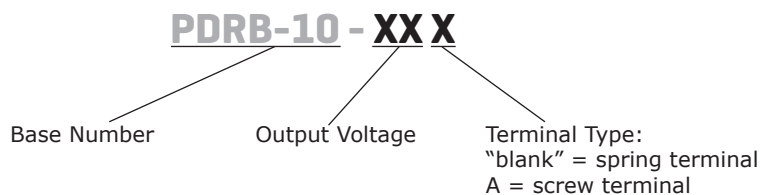
- universal input (90~264 Vac)
- integrated fuse and surge protection
- 3,000 Vac input/output isolation voltage
- DC ON/LOW LED indicators
- over voltage/current protection
- spring and screw terminal options
- adjustable output via trim POT
- UL/cUL, TUV, CE certified



| MODEL | output voltage | output current max | output power max | ripple and noise ¹ max | efficiency ² typ |
|------------|----------------|--------------------|------------------|-----------------------------------|-----------------------------|
| | (Vdc) | (A) | (W) | (mVp-p) | (%) |
| PDRB-10-5 | 5 | 2.0 | 10 | 50 | 73 |
| PDRB-10-12 | 12 | 0.84 | 10 | 50 | 75 |
| PDRB-10-15 | 15 | 0.67 | 10 | 50 | 76 |
| PDRB-10-24 | 24 | 0.42 | 10 | 50 | 76 |

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope.
 2. At nominal input.
 3. All specifications are measured at Ta=25°C, nominal input voltage, and rated output load unless otherwise specified.

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|-----------------|------------------------|-----|-----|------|-------|
| voltage | | 90 | | 264 | Vac |
| | | 120 | | 375 | Vdc |
| frequency | | 47 | | 63 | Hz |
| current | at 90 Vac, full load | | | 300 | mA |
| inrush current | at 115 Vac, full load | | | 15 | A |
| | at 230 Vac, full load | | | 30 | A |
| leakage current | input to output | | | 0.25 | mA |
| | input to FG | | | 3.5 | mA |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|---|---|------|-----|-------|-------|
| capacitive load | | | | 3,500 | μF |
| initial set point accuracy | | | | ±1 | % |
| line regulation | at full load, V in min to V in max | | | ±1 | % |
| load regulation | at Vi nom, 0~100% load | | | ±2 | % |
| adjustability | via built in trim pot, 80% load | | | | |
| | 5, 12, 15 Vdc output models | 90 | | 115 | % |
| | 24 Vdc output models | 90 | | 120 | % |
| rated continuous loading at max trim voltage | 5 Vdc output models (5.75 Vdc) | | | 1.7 | A |
| | 12 Vdc output models (13.8 Vdc) | | | 0.72 | A |
| | 15 Vdc output models (17.25 Vdc) | | | 0.58 | A |
| | 24 Vdc output models (28.8 Vdc) | | | 0.34 | A |
| start-up time | at Vi nom, full load | | | 1.0 | s |
| | at Vi nom, full load with max capacitive load | | | 1.5 | s |
| rise time | at Vi nom, full load | | | 150 | ms |
| | at Vi nom, full load with max capacitive load | | | 500 | ms |
| hold-up time | at 115 Vac, full load | 25 | | | ms |
| | at 230 Vac, full load | 100 | | | ms |
| fall time | at Vi nom, full load | | | 150 | ms |
| transient recovery time | at Vi nom, 100~50% load | | | 2 | ms |
| switching frequency | at Vi nom, full load | | 132 | | kHz |
| temperature coefficient | | | | ±0.03 | %/°C |
| power back immunity | at Vi nom, full load, for 1 second | | | | |
| | 5 Vdc output models | 7.5 | | | Vdc |
| | 12 Vdc output models | 18 | | | Vdc |
| | 15 Vdc output models | 22 | | | Vdc |
| | 24 Vdc output models | 35 | | | Vdc |
| DC ON indicator threshold at start-up (GREEN) | 5 Vdc output models | 3.5 | | 4.5 | Vdc |
| | 12 Vdc output models | 9.0 | | 10.8 | Vdc |
| | 15 Vdc output models | 11.0 | | 13.5 | Vdc |
| | 24 Vdc output models | 18 | | 21.6 | Vdc |
| DC LOW indicator threshold after start-up (RED) | 5 Vdc output models | 3.5 | | 4.5 | Vdc |
| | 12 Vdc output models | 9.0 | | 10.8 | Vdc |
| | 15 Vdc output models | 11.0 | | 13.5 | Vdc |
| | 24 Vdc output models | 18 | | 21.6 | Vdc |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|------------------------------------|-------|-----|-------|-------|
| over voltage protection | at Vi nom, 80% load, auto recovery | | | | |
| | 5 Vdc output models | 6.25 | | 7.25 | Vdc |
| | 12 Vdc output models | 15 | | 17.4 | Vdc |
| | 15 Vdc output models | 18.75 | | 21.75 | Vdc |
| | 24 Vdc output models | 30 | | 34.8 | Vdc |
| over current protection | hiccup, auto recovery (see curve) | 110 | | 165 | % |
| short circuit protection | hiccup, auto recovery | | | | |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|----------------------|--|-------|---------|-----|-------|
| isolation voltage | input to output for 1 minute | 3,000 | | | Vac |
| | | 4,242 | | | Vdc |
| | input to FG for 1 minute | 1,500 | | | Vac |
| | | 2,121 | | | Vdc |
| | output to FG for 1 minute | 500 | | | Vac |
| | | 710 | | | Vdc |
| isolation resistance | input to output at 500 Vdc | 100 | | | MΩ |
| safety approvals | UL 508, UL 1310, UL 60950-1, EN 62368-1 ISA 12.12.01 (Class I, Div 2, Groups A~D) | | | | |
| safety class | Class I | | | | |
| EMI/EMC | EN 55032 Class B, EN 55024, ENV 50204, EN 61204-3, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11 | | | | |
| pollution degree | 2 | | | | |
| degree of protection | IP20 | | | | |
| MTBF | as per Bellcore Issue 6 at 40 °C, GB | | | | |
| | 5 Vdc output models | | 728,000 | | hours |
| | 12 Vdc output models | | 767,000 | | hours |
| | 15 Vdc output models | | 780,000 | | hours |
| | 24 Vdc output models | | 808,000 | | hours |
| RoHS | yes | | | | |

Notes: 4. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

ENVIRONMENTAL

| parameter | conditions/description | min | typ | max | units |
|-----------------------|---|-----|-----|-------|-------|
| operating temperature | see derating curves | -20 | | 71 | °C |
| storage temperature | | -25 | | 85 | °C |
| humidity | non-condensing | 20 | | 95 | % |
| altitude | EN 60950-1 | | | 5,000 | m |
| vibration | meets IEC 60068-2-6 (Mounting on rail: 10~500 Hz, 2 G, along X,Y,Z axis, for 60 minutes on each axis) | | | | |
| shock | meets IEC 60068-2-27 (15 G, 11 ms, 3 axis, 6 faces, 3 times for each face) | | | | |

MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|------------------------|---|-----|-----|-----|-------|
| dimensions | 90.00 x 22.50 x 114.00 (3.60 x 0.89 x 4.49 inches) | | | | mm |
| material | plastic | | | | |
| weight | | | 120 | | g |
| cooling | natural convection | | | | |
| input/output connector | spring terminal: accepts 24~14 AWG wire screw terminal: accepts 26~12 AWG wire | | | | |

MECHANICAL DRAWING

units: mm [inch]
 tolerance:
 $X \leq 30.00$: ± 0.30 [± 0.01]
 $30.00 < X \leq 120.00$: ± 0.50 [± 0.02]
 unless otherwise noted

| TERMINAL CONNECTIONS | |
|----------------------|----------|
| TERMINAL | Function |
| 1 | V+ |
| 2 | V- |
| 3 | |
| 4 | N |
| 5 | L |

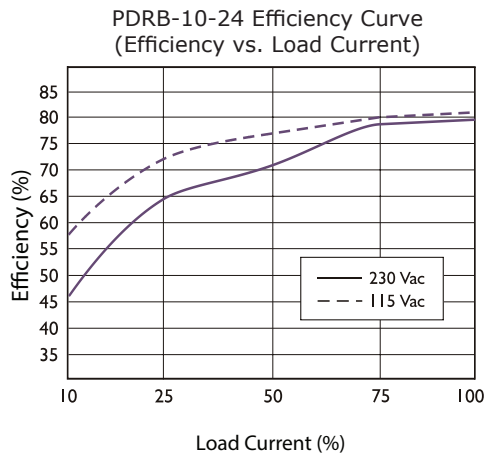


| INSTALLATION | | |
|--------------|--|--------------------------------------|
| | Spring | Screw |
| DIN RAIL | TS35/7.5 or TS35/15 | |
| Cable | flexible/solid, copper conductors only, 60/75°C | |
| Wire Range | 24~14 AWG (0.2~2 mm ²) | 26~12 AWG (0.2~2.5 mm ²) |
| Strip Length | 10 mm | 4~5 mm |
| Screw Torque | -- | 5 lb·in |
| Position | Vertical | |
| Cooling | Natural convection, 25 mm clearance on all sides | |

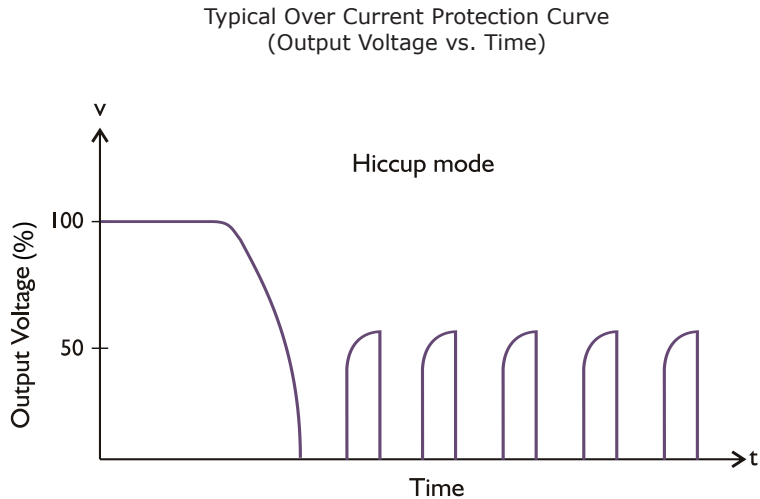
DERATING CURVE



EFFICIENCY CURVES



CURRENT LIMITED CURVE



REVISION HISTORY

| rev. | description | date |
|------|-----------------|------------|
| 1.0 | initial release | 06/13/2019 |

The revision history provided is for informational purposes only and is believed to be accurate.

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