

Plastic Case



Size: 0.86in x 0.44in x 0.36in (21.8mm x 11.2mm x 9.1mm)

Metal Case



Size: 0.86in x 0.44in x 0.38in (21.8mm x 11.2mm x 9.6mm)



**OPTIONS**

- Input Voltage
- Case Type
  - Plastic Case
  - Metal Case
- Output Quantity

**FEATURES**

- Up to 9 Watts of Output Power
- No Minimum Load Required
- 4:1 Ultra Wide Input Range
- Single and Dual Outputs
- Efficiency up to 89%
- Over Load and Short Circuit Protection
- Plastic or Metal Case Available
- Small Size and Low Profile
- CE Marked
- RoHS II & REACH Compliant
- Low Standby Power
- UL60950-1, EN60950-1, IEC60950-1, UL62368-1, EN62368-1, IEC62368-1 Safety Approvals

**APPLICATIONS**

- Wireless Network
- Telecom/Datacom
- Industry Control System
- Distributed Power Architectures
- Semiconductor Equipment

**DESCRIPTION**

The DCPDLW09 series of DC DC converters offers up to 9 watts of output power in a small size and low profile package. This series consists of both single and dual output models with a 4:1 ultra-wide input range. Each model in this series offers no minimum load requirement as well as over load and short circuit protection. This series has UL60950-1, EN60950-1, IEC60950-1, UL62368-1, EN62368-1, IEC62368-1 safety approvals and is also CE marked, and both RoHS and REACH compliant. Either a plastic or metal case is available. Please call factory for order details.

**MODEL SELECTION TABLE**

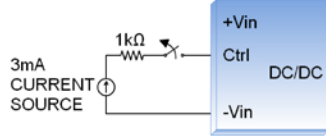
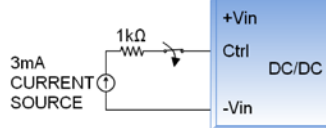
Single Outputs

| Model Number <sup>(1)</sup> | Input Voltage Range | Output Voltage | Output Current @ Full Load | Ripple & Noise | No Load Input Current | Output Power | Maximum Capacitive Load | Efficiency |
|-----------------------------|---------------------|----------------|----------------------------|----------------|-----------------------|--------------|-------------------------|------------|
| DCPDLW09-24S3P3x            | 9~36VDC             | 3.3VDC         | 2000mA                     | 50mVp-p        | 9mA                   | Up to 9W     | 2600µF                  | 82%        |
| DCPDLW09-24S05x             |                     | 5VDC           | 1600mA                     | 50mVp-p        | 9mA                   |              | 1300µF                  | 85%        |
| DCPDLW09-24S09x             |                     | 9VDC           | 1000mA                     | 50mVp-p        | 9mA                   |              | 800µF                   | 86%        |
| DCPDLW09-24S12x             |                     | 12VDC          | 750mA                      | 75mVp-p        | 9mA                   |              | 560µF                   | 88%        |
| DCPDLW09-24S15x             |                     | 15VDC          | 600mA                      | 75mVp-p        | 9mA                   |              | 560µF                   | 89%        |
| DCPDLW09-24S24x             |                     | 24VDC          | 375mA                      | 75mVp-p        | 9mA                   |              | 200µF                   | 89%        |
| DCPDLW09-48S3P3x            |                     | 18~75VDC       | 3.3VDC                     | 2000mA         | 50mVp-p               |              | 5mA                     | Up to 9W   |
| DCPDLW09-48S05x             | 5VDC                |                | 1600mA                     | 50mVp-p        | 5mA                   | 1300µF       | 85%                     |            |
| DCPDLW09-48S09x             | 9VDC                |                | 1000mA                     | 50mVp-p        | 5mA                   | 800µF        | 86%                     |            |
| DCPDLW09-48S12x             | 12VDC               |                | 750mA                      | 75mVp-p        | 5mA                   | 560µF        | 89%                     |            |
| DCPDLW09-48S15x             | 15VDC               |                | 600mA                      | 75mVp-p        | 5mA                   | 560µF        | 88%                     |            |
| DCPDLW09-48S24x             | 24VDC               |                | 375mA                      | 75mVp-p        | 5mA                   | 200µF        | 88%                     |            |

**MODEL SELECTION TABLE**

Dual Outputs

| Model Number    | Input Voltage Range | Output Voltage | Output Current @ Full Load | Ripple & Noise | No Load Input Current | Output Power | Maximum Capacitive Load | Efficiency |
|-----------------|---------------------|----------------|----------------------------|----------------|-----------------------|--------------|-------------------------|------------|
| DCPDLW09-24D05x | 9~36VDC             | ±5VDC          | ±800mA                     | 50mVp-p        | 9mA                   | Up to 9W     | ±800µF                  | 85%        |
| DCPDLW09-24D12x |                     | ±12VDC         | ±375mA                     | 75mVp-p        | 9mA                   |              | ±390µF                  | 88%        |
| DCPDLW09-24D15x |                     | ±15VDC         | ±300mA                     | 75mVp-p        | 9mA                   |              | ±200µF                  | 88%        |
| DCPDLW09-48D05x | 18~75VDC            | ±5VDC          | ±800mA                     | 50mVp-p        | 5mA                   | Up to 9W     | ±800µF                  | 85%        |
| DCPDLW09-48D12x |                     | ±12VDC         | ±375mA                     | 75mVp-p        | 5mA                   |              | ±390µF                  | 87%        |
| DCPDLW09-48D15x |                     | ±15VDC         | ±300mA                     | 75mVp-p        | 5mA                   |              | ±200µF                  | 87%        |

| SPECIFICATIONS  |  |                        |   |      |       |       |    |
|---|--|------------------------|---|------|-------|-------|----|
| All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.<br>We reserve the right to change specifications based on technological advances. |  |                        |   |      |       |       |    |
| SPECIFICATION   | TEST CONDITIONS                            |                        | Min   | Typ  | Max   | Unit  |    |
| <b>INPUT SPECIFICATIONS</b>   |  |                        |   |      |       |       |    |
| Operating Input Voltage Range   | 24Vin (Nominal)                            |                        | 9   | 24   | 36    | VDC   |    |
|   | 48Vin (Nominal)                            |                        | 18  | 48   | 75    |       |    |
| Input Surge Voltage   | 1 second, max.                             | 24Vin (Nominal)        |   |      | 50    | VDC   |    |
|   |  | 48Vin (Nominal)        |   |      | 100   |       |    |
| Input Filter  | Capacitor Type                             |                        |   |      |       |       |    |
| <b>OUTPUT SPECIFICATIONS</b>  |  |                        |   |      |       |       |    |
| Output Voltage  | See Table                                  |                        |   |      |       |       |    |
| Voltage Accuracy  |  |                        | -1.0  |      | +1.0  | %     |    |
| Line Regulation   | Low Line to High Line at Full Load         |                        | -0.2  |      | +0.2  | %     |    |
| Load Regulation   | No Load to Full Load                       |                        | -1.0  |      | +1.0  | %     |    |
| Cross Regulation  | Asymmetrical load 25%/100% FL, Dual        |                        | -5.0  |      | +5.0  | %     |    |
| Ripple and Noise  | 20MHz bandwidth<br>With a 1µF/50V X7R MLCC | 3.3Vout, 5Vout, 9Vout  |   | 50   |       | mVp-p |    |
|   |  | 12Vout, 15Vout, 24Vout |   | 75   |       |       |    |
| Output Power  |  |                        |   |      | 9     | W     |    |
| Output Current  | See Table                                  |                        |   |      |       |       |    |
| Maximum Capacitive Load   | See Table                                  |                        |   |      |       |       |    |
| Transient Response Recovery Time  | 2% Load Step Change                        |                        |   | 250  |       | µs    |    |
| Start-Up Time   | Constant Resistive Load                    |                        |   | 50   |       | ms    |    |
| Temperature Coefficient   |  |                        | -0.02   |      | +0.02 | %/°C  |    |
| <b>REMOTE ON/OFF CONTROL</b>  |  |                        |   |      |       |       |    |
| Ctrl Pin Applied Current via 1kΩ  | DC-DC ON                                   |                        | Open or High Impedance  |      |       |       |    |
|   | DC-DC OFF                                  |                        | 2   | 3    | 4     | mA    |    |
| Remote Off Input Current  | DCPDL09W-24xxx                             |                        |   |      | 3     | mA    |    |
|   | DCPDL09W-48xxx                             |                        |   |      | 2.5   |       |    |
| Application Circuit   | DC-DC ON                                   |                        |  |      |       |       |    |
|   | DC-DC OFF                                  |                        |  |      |       |       |    |
| <b>PROTECTION</b>   |  |                        |   |      |       |       |    |
| Short Circuit Protection  |  |                        | Continuous, Automatic Recovery  |      |       |       |    |
| Over Load Protection  | % of Iout rated; Hiccup Mode               |                        |   | 180  |       | %     |    |
| <b>ENVIRONMENTAL SPECIFICATIONS</b>   |  |                        |   |      |       |       |    |
| Operating Case Temperature  | 3.3Vout Models                             | Standard Type          | Without Derating  | -40  |       | +100  | °C |
|   |  |                        | Derating  | +45  |       | +100  |    |
|   |  | Suffix "M"             | Without Derating  | -40  |       | +100  |    |
|   | Derating                                   |                        | +50   |      | +100  |       |    |
|   | Other Models                               | Standard Type          | Without Derating  | -40  |       | +100  |    |
|   |  |                        | Derating  | +55  |       | +100  |    |
| Suffix "M"  |  | Without Derating       | -40   |      | +100  |       |    |
|   | Derating                                   | +60                    |   | +100 |       |       |    |
| Storage Temperature Range   |  |                        | -55   |      | +125  | °C    |    |
| Thermal Shock   | MIL-STD-810F                               |                        |   |      |       |       |    |
| Relative Humidity   |  |                        | 5   |      | 95    | %RH   |    |
| Vibration   | MIL-STD-810F                               |                        |   |      |       |       |    |
| MTBF  | MIL-HDBK-217F, Full Load                   | Standard Type          | 2.696E+06 hrs   |      |       |       |    |
|   |  | Suffix "M"             | 2.939E+06 hrs   |      |       |       |    |

**SPECIFICATIONS**

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

| SPECIFICATION                           | TEST CONDITIONS |                                     |               | Min   | Typ | Max | Unit               |
|---|-----------------|-------------------------------------|---------------|---|-----|-----|--------------------|
| <b>GENERAL SPECIFICATIONS</b>           |                 |                                     |               |   |     |     |                    |
| Efficiency                              |                 |                                     |               | See Table   |     |     |                    |
| Switching Frequency                     | Single          |                                     |               |   | 400 |     | kHz                |
|   | Dual            |                                     |               |   | 500 |     |                    |
| Isolation Voltage                       | 1 minute        | Input to Output                     | Standard Type | 1600  |     |     | VDC                |
|   |                 |                                     | Suffix "M"    | 1600  |     |     |                    |
|   |                 | Input (Output) to Case              | Suffix "M"    | 1600  |     |     |                    |
| Isolation Resistance                    | 500VDC          |                                     |               | 1   |     |     | GΩ                 |
| Isolation Capacitance                   |                 |                                     |               |   |     | 50  | pF                 |
| <b>PHYSICAL SPECIFICATIONS</b>          |                 |                                     |               |   |     |     |                    |
| Weight                                  | Standard Type   |                                     |               | 0.17oz (4.8g)   |     |     |                    |
|   | Suffix "M"      |                                     |               | 0.21oz (5.9g)   |     |     |                    |
| Dimensions (L x W x H)                  | Standard Type   |                                     |               | 0.86in x 0.44in x 0.36in<br>(21.8mm x 11.2mm x 9.1mm) |     |     |                    |
|   | Suffix "M"      |                                     |               | 0.86in x 0.44in x 0.38in<br>(21.8mm x 11.2mm x 9.6mm) |     |     |                    |
| Case Material                           | Standard Type   |                                     |               | Non-Conductive Black Plastic                          |     |     |                    |
|   | Suffix "M"      |                                     |               | Copper  |     |     |                    |
| Base Material                           |                 |                                     |               | None  |     |     |                    |
| Potting Material                        |                 |                                     |               | Silicone (UL94 V-0)                                   |     |     |                    |
| <b>SAFETY &amp; EMC CHARACTERISTICS</b> |                 |                                     |               |   |     |     |                    |
| Safety Approvals                        |                 |                                     |               | EN60950-1   |     |     |                    |
|   |                 |                                     |               | UL60950-1   |     |     |                    |
|   |                 |                                     |               | IEC60950-1  |     |     |                    |
|   |                 |                                     |               | EN62368-1   |     |     |                    |
|   |                 |                                     |               | UL62368-1<br>IEC62368-1                               |     |     |                    |
| EMI <sup>(2)</sup>                      | EN55022         |                                     |               |   |     |     | Class A<br>Class B |
| ESD                                     | EN61000-4-2     | Air ±8kV and Contact ±6kV           |               |   |     |     | Perf. Criteria A   |
| Radiated Immunity                       | EN61000-4-3     | 20 V/m                              |               |   |     |     | Perf. Criteria A   |
| Fast Transient <sup>(3)</sup>           | EN61000-4-4     | ±2kV                                |               |   |     |     | Perf. Criteria A   |
| Surge <sup>(3)</sup>                    | EN61000-4-5     | ±2kV                                |               |   |     |     | Perf. Criteria A   |
| Conducted Immunity                      | EN61000-4-6     | 10 Vr.m.s                           |               |   |     |     | Perf. Criteria A   |
| Power Frequency Magnetic Field          | EN61000-4-8     | 100A/m continuous; 1000A/m 1 second |               |   |     |     | Perf. Criteria A   |

**NOTES**

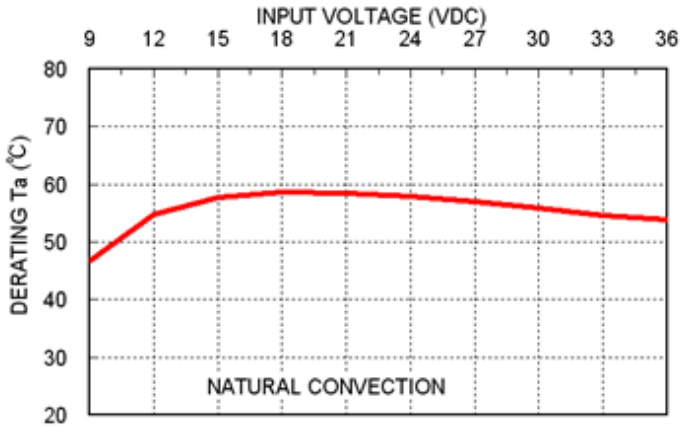
- (1) "x" in model name indicates the case type. "x" can be "S" to indicate standard (plastic) case or "M" to indicate metal case.
- (2) The standard modules meet either EMI Class A or Class B with external components. For more information, please contact factory.
- (3) An external input filter capacitor is required if the module is to meet EN61000-4-4 and EN61000-4-5. We suggest the following:  
The DCPDLW09-24xxx is recommended to use an aluminum electrolytic capacitor (Nippon chemi-con KY series, 220µF/100V) and a TVS (SMDJ70A, 70V, 3000 watt peak pulse power) to connect in parallel.  
The DCPDLW09-48xxx is recommended to use an aluminum electrolytic capacitor (Nippon chemi-con KY series, 220µF/100V) and a TVS (SMDJ120A, 120V, 3000 watt peak pulse power) to connect in parallel.

**CAUTION:** This power module is not internally fused. An input line fuse must always be used.

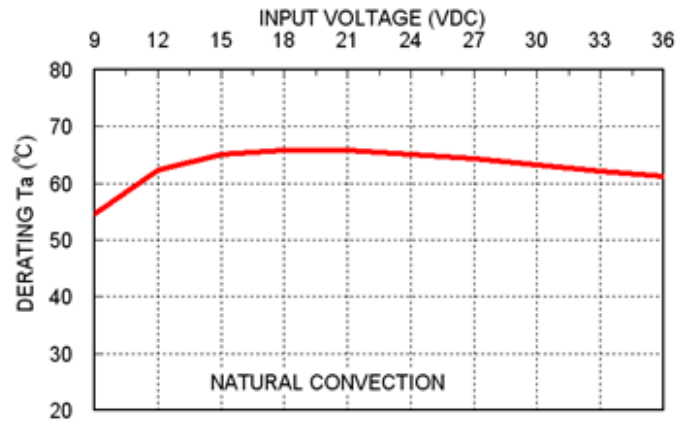
*\*Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

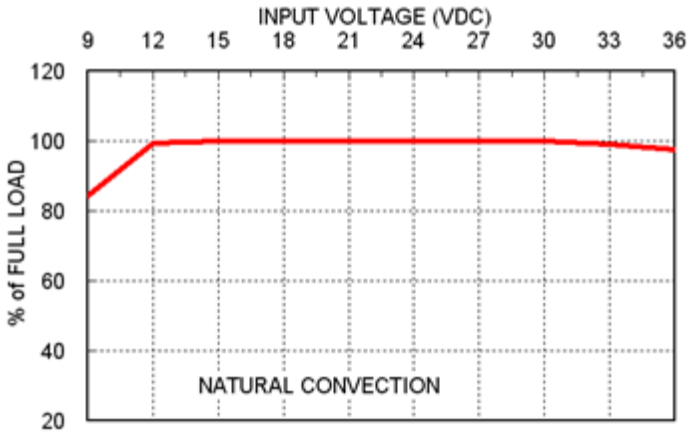
DCPDLW09-24D12 Derating Ta vs Input Voltage (at Full Load)



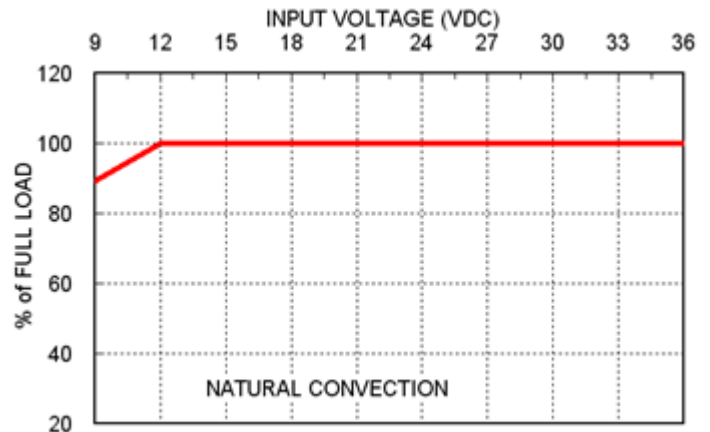
DCPDWL09-24D12M Derating Ta vs Input Voltage (at Full Load)



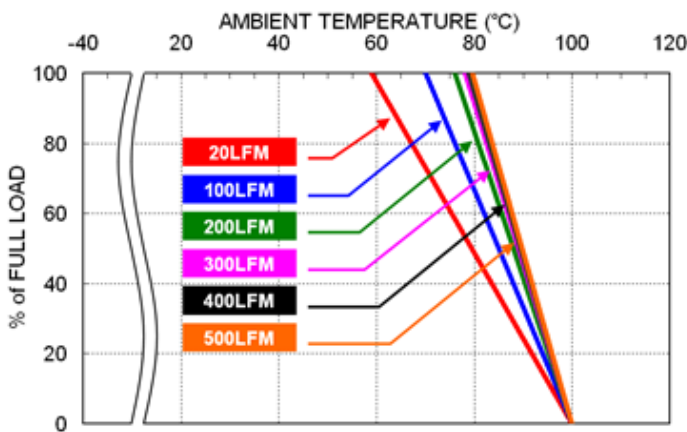
DCPDLW09-24D12 Load Derating vs Input Voltage (at Ta=55°C)



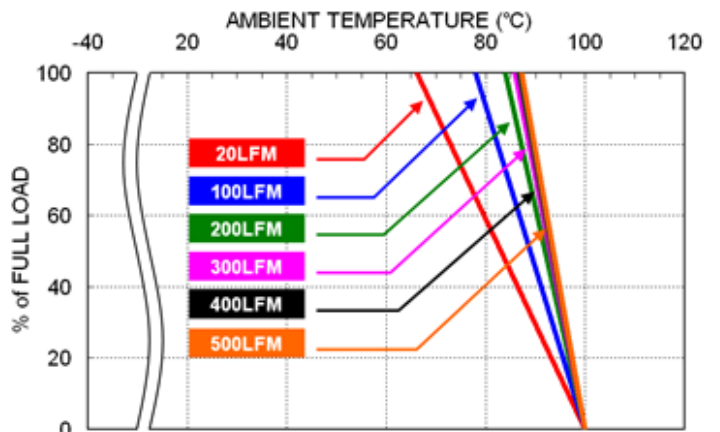
DCPDLW09-24D12M Load Derating vs Input Voltage (at Ta=60°C)



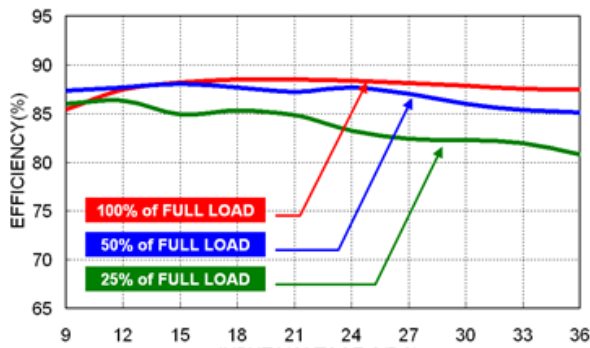
DCPDLW09-24D12W Derating Curve



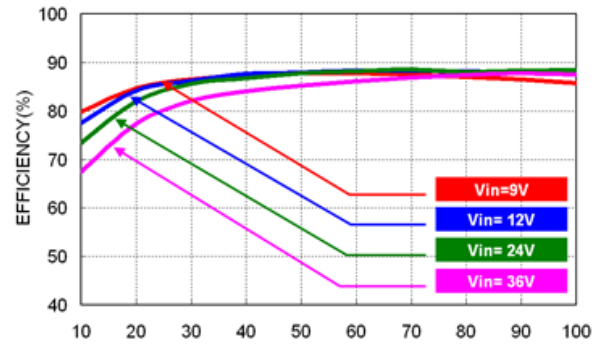
DCPDLW09-24D12M Derating Curve



DCPDLW09-24D12 Efficiency vs. Input Voltage

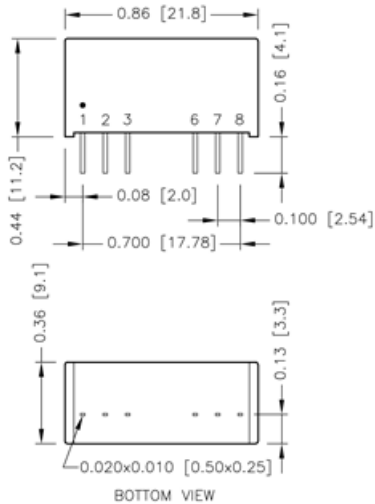


DCPDLW09-24D12 Efficiency vs. Output Load



MECHANICAL DRAWINGS

STANDARD CASE

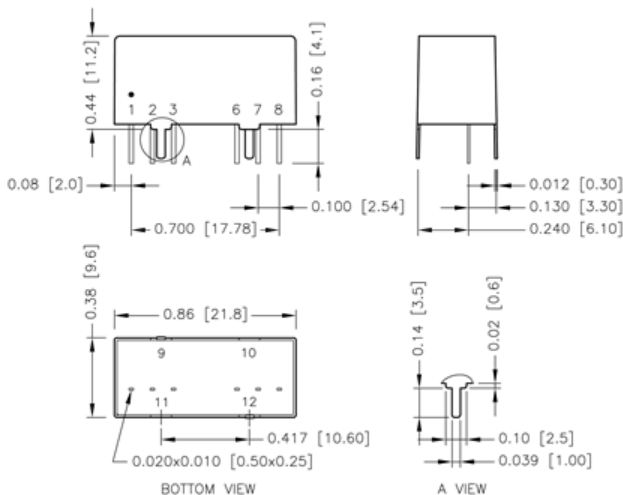


PIN Connection

| PIN | SINGLE | DUAL   |
|-----|--------|--------|
| 1   | -Vin   | -Vin   |
| 2   | +Vin   | +Vin   |
| 3   | Ctrl   | Ctrl   |
| 6   | +Vout  | +Vout  |
| 7   | -Vout  | Common |
| 8   | NC     | -Vout  |

- All dimensions in inch (mm)  
Tolerance: x.xx±0.02 (x.x±0.5)  
x.xxx±0.01 (x.xx±0.25)
- Pin pitch tolerance ±0.1 (0.25)
- Pin dimensions tolerance ±0.004(0.1)

METAL CASE



PIN Connection

| PIN | SINGLE    | DUAL      |
|-----|-----------|-----------|
| 1   | -Vin      | -Vin      |
| 2   | +Vin      | +Vin      |
| 3   | Ctrl      | Ctrl      |
| 6   | +Vout     | +Vout     |
| 7   | -Vout     | Common    |
| 8   | NC        | -Vout     |
| 9   | Case      | Case      |
| 10  | Stand Off | Stand Off |
| 11  | Stand Off | Stand Off |
| 12  | Case      | Case      |

- All dimensions in inch (mm)  
Tolerance: x.xx±0.02 (x.x±0.5)  
x.xxx±0.01 (x.xxx±0.25)
- Pin pitch tolerance ±0.01 (0.25)
- Pin dimension tolerance ±0.004 (0.1)

**MODEL NUMBER SETUP**

| DCPDL       | W             | 09            | - | 48  | S                                      | 05   | M   |
|-------------|---------------|---------------|---|---|--|--|---|
| Series Name | Input Range   | Output Power  |   | Input Voltage                             | Output Quantity                        | Ouput Voltage  | Remote On/Off & Pin Length  |
|             | <b>W:</b> 4:1 | <b>09:</b> 9W |   | <b>24:</b> 9~36VDC<br><b>48:</b> 18~75VDC | <b>S:</b> Single<br><br><b>D:</b> Dual | <b>3P3:</b> 3.3VDC<br><b>05:</b> 5VDC<br><b>09:</b> 9VDC<br><b>12:</b> 12VDC<br><b>15:</b> 15VDC<br><b>24:</b> 24VDC<br><br><b>05:</b> ±5VDC<br><b>12:</b> ±12VDC<br><b>15:</b> ±15VDC | <b>S:</b> Standard Type<br>Plastic Case<br><br><b>M:</b> Metal Case |

**COMPANY INFORMATION**

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

Phone: ☎ (603)778-2300  
 Toll Free: ☎ (888)597-9255  
 Fax: ☎ (603)778-9797  
 E-mail: [sales@wallindustries.com](mailto:sales@wallindustries.com)  
 Web: [www.wallindustries.com](http://www.wallindustries.com)  
 Address: 37 Industrial Drive  
 Exeter, NH 03833