

Through Hole



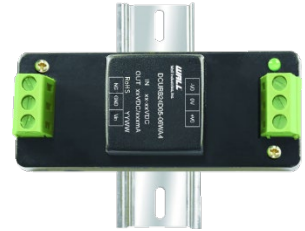
Size: 1 x 1 x 0.46in (25.4 x 25.4 x 11.7mm)

Chassis Mount ("A2" Suffix)

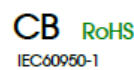


Size: 2.99 x 1.24 x 0.84in (76 x 31.5 x 21.2mm)

DIN Rail Mount ("A4" Suffix)



Size: 2.99 x 1.24 x 1.02in (76 x 31.5 x 25.8mm)



**OPTIONS**

- Package Type  
-Through Hole  
-Chassis Mount  
-DIN Rail Mount

**FEATURES**

- Wide 4:1 Input Voltage Range
- High Efficiency
- Isolated & Regulated Dual and Single Output Models
- I/O Test Isolation Voltage of 1.5KVDC
- Industry Standard Pin-Out
- Input Under Voltage Protection
- Output Over Voltage, Over Current, and Short Circuit Protection
- Input Reverse Polarity Protection Available for Chassis & DIN Rail Mounting
- RoHS Compliant
- Meets CISPR32/EN55032 Class A without External Components
- Meets EN50155 Railway Standard
- UL60950-1, EN62368-1, BS EN62368-1 and IEC60950-1 Approval

**APPLICATIONS**

- Industrial
- Communication
- Railway
- Robotics

**DESCRIPTION**

The DCURB06 series of DC/DC converters offers 6 watts of output power in a through hole, chassis mount, or DIN Rail mount package. This series consists of isolated and regulated dual and single output models with a wide 4:1 input voltage range. Features of this series include high efficiency, I/O test isolation voltage of 1.5KVDC, and protection against input under voltage and output over voltage, over current, and short circuit conditions. This series meets EN50155 railway standard, has UL60950-1, EN62368-1, BS EN62368-1 and IEC60950-1 approvals and is RoHS compliant.

**MODEL SELECTION TABLE**

Single Output Models

Model Number <sup>(1)</sup>	Input Voltage Range		Output Voltage	Output Current		Efficiency <sup>(4)</sup>		Maximum Capacitive Load <sup>(5)</sup>	Certification	Ripple & Noise		Output Power
	Nominal Range <sup>(2)</sup>	Max <sup>(3)</sup>		Min Load	Max Load	Min.	Typ.			Typ.	Max.	
DCURB24S03-06W	24VDC (9-36VDC)	40VDC	3.3VDC	0mA	1500mA	75%	77%	1800µF	UL/EN/BS EN/IEC	60mVp-p	85mVp-p	6W
DCURB24S05-06W			5VDC	0mA	1200mA	80%	83%	1000µF				
DCURB24S09-06W			9VDC	0mA	667mA	82%	84%	680µF				
DCURB24S12-06W			12VDC	0mA	500mA	83%	85%	470µF				
DCURB24S15-06W			15VDC	0mA	400mA	84%	86%	220µF				
DCURB24S24-06W			24VDC	0mA	250mA	84%	86%	100µF				
DCURB48S03-06W	48VDC (18-75VDC)	80VDC	3.3VDC	0mA	1500mA	77%	79%	1800µF	UL/EN/BS EN/IEC	60mVp-p	85mVp-p	6W
DCURB48S05-06W			5VDC	0mA	1200mA	81%	83%	1000µF				
DCURB48S12-06W			12VDC	0mA	500mA	85%	87%	470µF				
DCURB48S15-06W			15VDC	0mA	400mA	86%	88%	220µF				
DCURB48S24-06W			24VDC	0mA	250mA	86%	88%	100µF				

**MODEL SELECTION TABLE**

Dual Output Models

Model Number <sup>(1)</sup>	Input Voltage Range		Output Voltage	Output Current		Efficiency <sup>(4)</sup>		Maximum Capacitive Load <sup>(5)</sup>	Certification	Ripple & Noise		Output Power
	Nominal Range <sup>(2)</sup>	Max <sup>(3)</sup>		Min Load	Max Load	Min.	Typ.			Typ.	Max.	
DCURB24D05-06W	24VDC (9-36VDC)	40VDC	±5VDC	0mA	±600mA	81%	83%	470µF	UL/EN/BS EN/IEC	60mVp-p	85mVp-p	6W
DCURB24D12-06W			±12VDC	0mA	±250mA	84%	87%	100µF				
DCURB24D15-06W			±15VDC	0mA	±200mA	83%	85%	100µF				
DCURB24D24-06W			±24VDC	0mA	±125mA	85%	87%	100µF				
DCURB48D05-06W	48VDC (18-75VDC)	80VDC	±5VDC	0mA	±600mA	81%	83%	470µF	UL/EN/BS EN/IEC	60mVp-p	85mVp-p	6W
DCURB48D12-06W			±12VDC	0mA	±250mA	85%	87%	100µF				
DCURB48D15-06W			±15VDC	0mA	±200mA	86%	88%	100µF				

**SPECIFICATIONS**

All specifications are based on 25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit	
<b>INPUT SPECIFICATIONS</b>						
Input Voltage Range	24VDC Nominal Input	9	24	36	VDC	
	48VDC Nominal Input	18	48	75		
Maximum Input Voltage	24VDC Nominal Input			40	VDC	
	48VDC Nominal Input			80		
Full Load Input Current	24VDC Nominal Input	3.3VDC Output		268	275	mA
		Other Models		301	312	
	48VDC Nominal Input	3.3VDC Output		130	134	
		Other Models		150	155	
No Load Input Current	24VDC Nominal Input	3.3VDC Output		5	12	mA
		Other Models		5	12	
	48VDC Nominal Input	3.3VDC Output		4	8	
		Other Models		4	8	
Reflected Ripple Current	Nominal Input Voltage		20		mA	
Surge Voltage (1 sec. max.)	24VDC Nominal Input	-0.7		50	VDC	
	48VDC Nominal Input	-0.7		100		
Start Up Voltage	24VDC Nominal Input			9	VDC	
	48VDC Nominal Input			18		
Input Under-Voltage Protection	24VDC Nominal Input	5.5	6.5		VDC	
	48VDC Nominal Input	12	15.5			
Input Filter		Pi Filter				
Hot Plug		Unavailable				
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage		See Table				
Voltage Accuracy <sup>(6)</sup>	0%-100% Load		±1	±3	%	
Line Regulation	Input voltage variation from low to high at full load	Vo1	±0.2	±0.5	%	
		Vo2	±0.5	±1		
Load Regulation <sup>(7)</sup>	5%-100% Load	Vo1	±0.5	±1	%	
		Vo2	±0.5	±1.5		
Cross Regulation	Dual Outputs, Vo1 load at 50%, Vo2 load at range of 10%-100%			±5	%	
Output Power		See Table				
Output Current		See Table				
Maximum Capacitive Load	Tested at input voltage range and full load	See Table				
Ripple & Noise <sup>(6)</sup>	20MHz bandwidth, 5%-100% Load		60	85	mVp-p	
Transient Recovery Time	25% Load Step Change, Nominal Input Voltage		300	500	µs	
Transient Response Deviation	25% Load Step Change, Nominal Input Voltage	3.3VDC, 5VDC, ±5VDC Outputs		±5	±8	%
		Other Models		±3	±5	
Temperature Coefficient	Full Load			±0.03	%/°C	
No Load Power Consumption		0.12			W	
<b>PROTECTION</b>						
Short Circuit Protection	Input Voltage Range	Continuous, Self-Recovery				
Over Current Protection	Input Voltage Range	110	140	190	%Io	
Over Voltage Protection	Input Voltage Range	110		160	%Vo	
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Temperature	See derating curve	-40		+85	°C	
Storage Temperature		-55		+125	°C	
Pin Soldering Resistance Temperature	Soldering spot is 1.5m away from case for 10 seconds			+300	°C	
Storage Humidity	Non-Condensing	5		95	%RH	
Vibration		IEC/EN61373 – Category 1, Grade B				
MTBF	MIL-HDBK-217F @25°C	1000			KHours	
<b>GENERAL SPECIFICATIONS</b>						
Efficiency		See Table				
Switching Frequency <sup>(9)</sup>	PWM Mode		300		kHz	
Isolation	Input-Output Electric Strength Test for 1 minute with a leakage current of 1mA max.	1500			VDC	
Insulation Resistance	Input-Output, resistance at 500VDC	1000			MΩ	
Isolation Capacitance	Input-Output, Capacitance at 100KHz/0.1V		1000		pF	

**SPECIFICATIONS**

All specifications are based on 25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

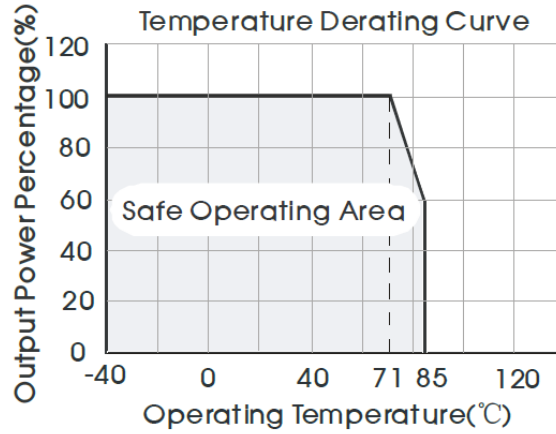
SPECIFICATION		TEST CONDITIONS			Min	Typ	Max	Unit	
<b>PHYSICAL SPECIFICATIONS</b>									
Weight	Through Hole					0.44oz (12.5g)			
	Chassis Mount					1.27oz (36g)			
	DIN Rail Mount					1.98oz (56g)			
Dimensions (L x W x H)	Through Hole					1in x 1in x 0.46in (25.4mm x 25.4mm x 11.7mm)			
	Chassis Mount					2.99in x 1.24in x 0.84in (76mm x 31.5mm x 21.2mm)			
	DIN Rail Mount					2.99in x 1.24in x 1.02in (76mm x 31.5mm x 25.8mm)			
Case Material					Aluminum Alloy				
Cooling Method					Free Air Convection				
<b>SAFETY CHARACTERISTICS</b>									
Safety Approvals <sup>(12)</sup>					IEC60950-1, EN62368-1, BS EN62368-1, IEC60950-1				
Electromagnetic Compatibility (EMC)	Emissions	CE		CISPR32/EN55032	Class A (without external components) Class B <sup>(11)</sup>				
		RE		CISPR32/EN55032	Class A (without external components) Class B <sup>(11)</sup>				
	Immunity	ESD	IEC/EN61000-4-2	Contact ±4KV		Perf. Criteria B			
		RS	IEC/EN61000-4-3	10V/m		Perf. Criteria A			
		EFT	IEC/EN61000-4-4	±2KV <sup>(10)</sup>		Perf. Criteria B			
		Surge	IEC/EN61000-4-5	Line to Line ±2KV <sup>(10)</sup>		Perf. Criteria B			
		CS	IEC/EN61000-4-6	3 Vr.m.s		Perf. Criteria A			
Voltage Dips, Short Interruptions and Voltage Variations Immunity		IEC/EN61000-4-29	0%, 70%		Perf. Criteria B				
Electromagnetic Compatibility (EMC) (EN50155)	Emissions	CE	EN50121-3-2	150kHz-500kHz	99dBuV <sup>(11)</sup>				
			EN55016-2-1	500kHz-30MHz	93dBuV <sup>(11)</sup>				
		RE	EN50121-3-2	30MHz-230MHz	40dBuV/m at 10m <sup>(11)</sup>				
			EN55016-2-1	230MHz-1GHz	47dBuV/m at 10m <sup>(11)</sup>				
	Immunity	ESD	EN50121-3-2	Contact ±6KV/Air ±8KV		Perf. Criteria A			
		RS	EN50121-3-2	20V/m		Perf. Criteria A			
		EFT	EN50121-3-2	±2kV 5/50ns 5kHz <sup>(10)</sup>		Perf. Criteria A			
		Surge	EN50121-3-2	Line to Line ±1kV (42Ω 0.5μF) <sup>(10)</sup>		Perf. Criteria A			
		CS	EN50121-3-2	0.15MHz-80MHz; 10V r.m.s					

**NOTES**

- Chassis mount and DIN rail mount options are available for this series. To indicate Chassis Mount, add "A2" suffix to model number Ex. DCURB12S05-06WA2. To indicate DIN rail mount options, add "A4" suffix to model number Ex. DCURB12S05-06WA4.
- The chassis mount and DIN rail model's start-up and minimum input voltages are increased by 1VDC due to the input reverse polarity protection circuit.
- Exceeding the maximum input voltage may cause permanent damage.
- Efficiency is measured in nominal input voltage and rated output load. Efficiencies for chassis mount and DIN Rail models is decreased by 2% due to the input reverse polarity protection circuit.
- Specified capacitive load value for Vo1 and Vo2 output is identical
- Output voltage accuracy of ±5VDC/±9VDC output converter for 0%-5% load is ±5% max.
- Load Regulation for 0%-100% load is ±5%.
- Under 0%-5% load conditions, ripple & noise does not exceed 5%Vo. The parallel cable method is used for ripple and noise test. Contact factory for specific information.
- Switching frequency is measured at full load. The module reduced the switching frequency for light load (below 50%) efficiency improvement.
- See Fig. 2 ① for recommended circuit
- See Fig. 2 ② for recommended circuit
- This product is Listed to applicable standards and requirements by UL
- It is recommended that the load imbalance of the dual output is ≤±5%. If it exceeds ±5% the performance of the product cannot be guaranteed to meet the data sheet as marked. Contact factory for more details.
- Products should be classified according to ISO14001 and related environmental laws and regulations and should be handled by qualified units.
- Customization is available, please contact factory.

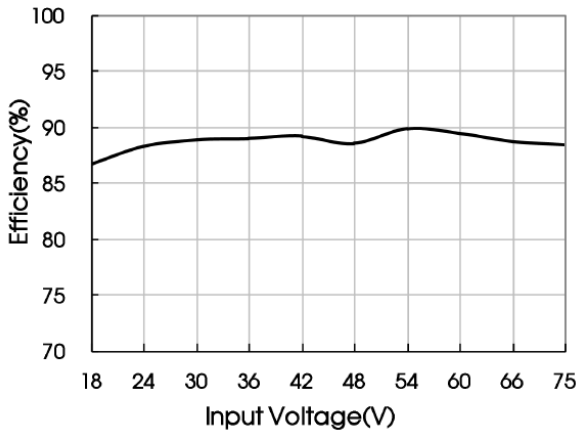
\*Due to advances in technology, specifications subject to change without notice.

TEMPERATURE DERATING CURVE

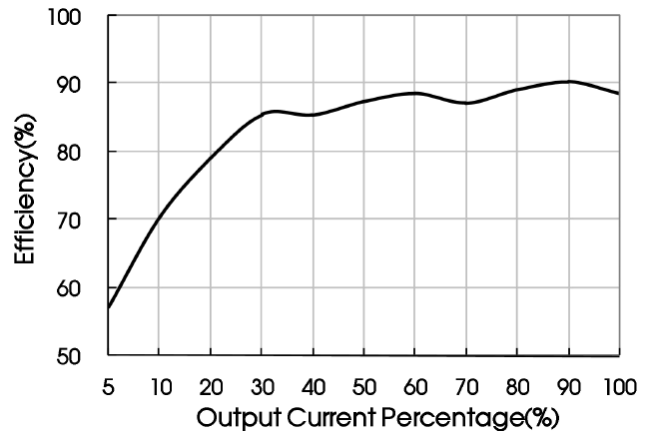


EFFICIENCY GRAPHS

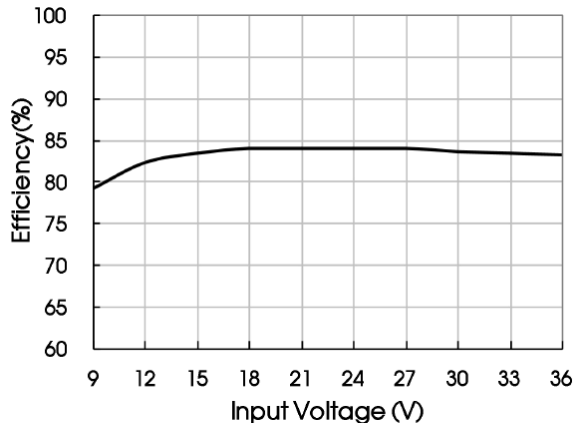
Efficiency vs. Input Voltage (Full Load) DCURB06-48D15



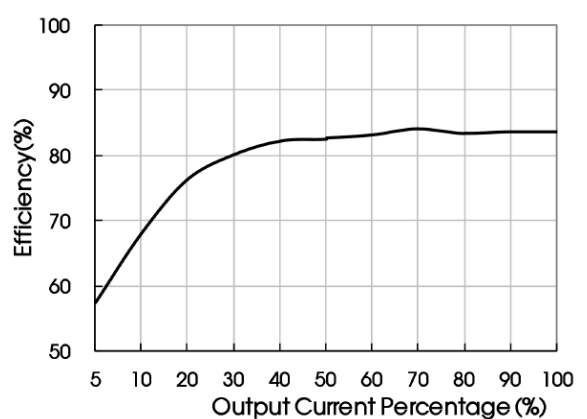
Efficiency vs. Output Load (Vin=48V) DCURB06-48D15



Efficiency vs. Input Voltage (Full Load) DCURB06-24S05

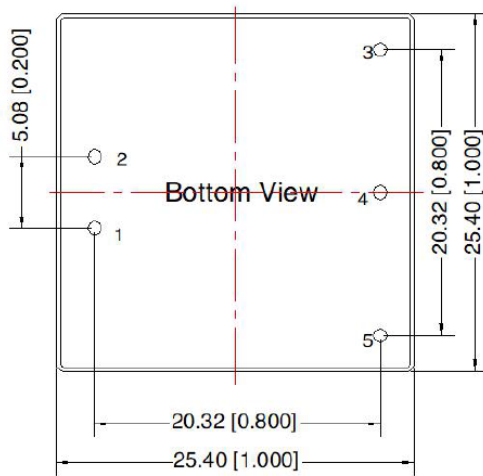
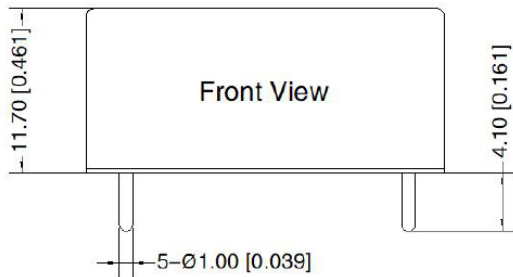


Efficiency vs. Output Load (Vin=24V) DCURB06-24S05

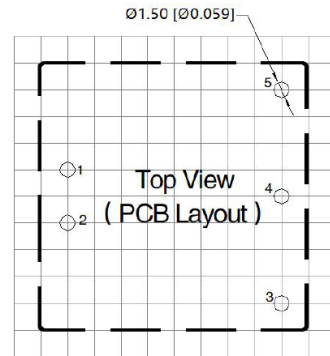


MECHANICAL DRAWINGS

Through Hole



THIRD ANGLE PROJECTION

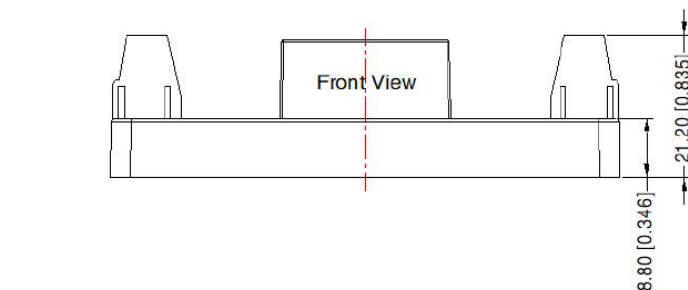
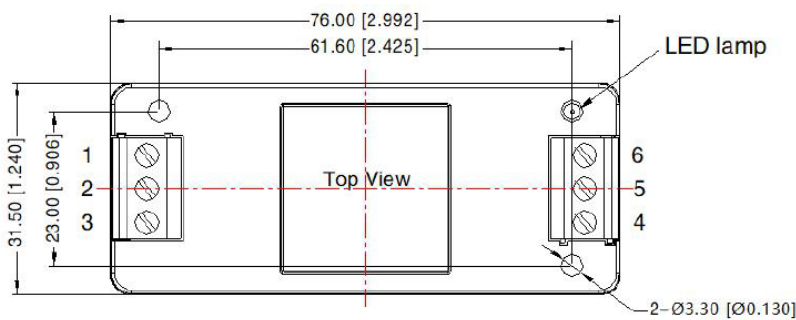


Note: Grid 2.54\*2.54mm  
Pin Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	0V
5	0V	-Vo

Note:  
Unit: mm [inch]  
PIN1/2/3/4/5:  $\phi$ 1.0mm  
Pin diameter tolerances:  $\pm$ 0.10 [ $\pm$ 0.004]  
General Tolerances:  $\pm$ 0.50 [ $\pm$ 0.020]

Chassis Mount ("A2" Suffix)



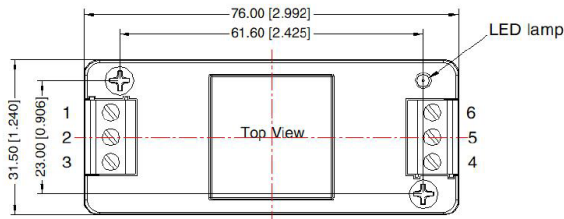
THIRD ANGLE PROJECTION

Pin Out

Pin	1	2	3	4	5	6
Dual	NC	GND	Vin	+Vo	0V	-Vo
Single	NC	GND	Vin	+Vo	NC	0V

Note:  
Unit: mm [inch]  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N·m  
General tolerances:  $\pm$ 1.00 [ $\pm$ 0.039]

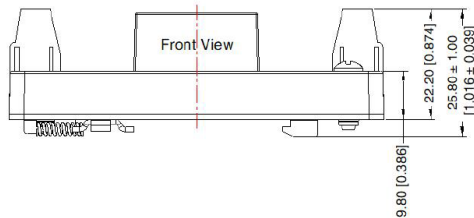
DIN Rail Mount ("DN" Suffix)



THIRD ANGLE PROJECTION

Pin Out

Pin	1	2	3	4	5	6
Dual	NC	GND	Vin	+Vo	0V	-Vo
Single	NC	GND	Vin	+Vo	NC	0V



Note:  
Unit: mm [inch]  
Mounting Rail: TS35  
Wire Range: 24-12 AWG  
Tightening Torque: Max 0.4 N·m  
General tolerances: ±1.00 [±0.039]

DESIGN REFERENCE

1. Typical Application Circuit

All the DC/DC converters in this series are tested before delivery using the recommended circuit shown in Fig. 1. Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values  $C_{in}$  and  $C_{out}$  and/or by selecting capacitors with a low ESR (equivalent series resistance). Also make sure that the capacitance does not exceed the specified max. capacitive load value of the product.

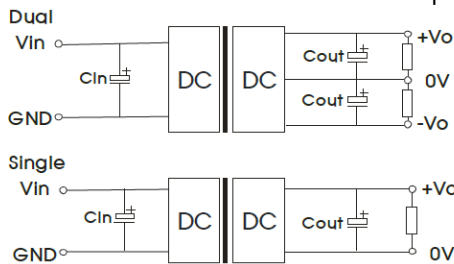


Fig. 1

Vin (VDC)	Cin	Cout
24	100uF/50V	10uF/50V
48	10uF-47uF/100V	10uF/50V

2. EMC Solution-Recommended Circuit

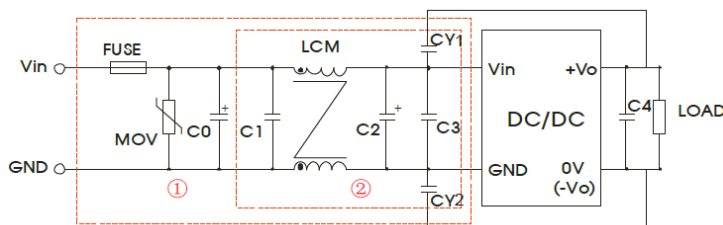


Fig. 2

Notes: For EMC tests we use Part ① in Fig. 2 for immunity and part ② for emission tests; selected based on needs.

Parameter Description

Model	Vin: 24V	Vin: 48V
FUSE	Choose according to actual input current	
MOV	S20K30	S14K60
C0	680μF/50V	680μF/100V
C1	1μF/50V	1μF/100V
C2	330μF/50V	330μF/100V
C3	4.7μF/50V	4.7μF/100V
C4	Refer to the Cout in Fig. 1	
LCM	4.7mH	
CY1/CY2	1nF/2KV	

3. Products do not support parallel connection of their output.

MODEL NUMBER SETUP

DCURB	06	-	12	S	05	C
Series Name	Output Power		Input Voltage	Output Quantity	Ouput Voltage	Mount Options
			<b>24:</b> 9-36VDC <b>48:</b> 18-75VDC	<b>S:</b> Single  <b>D:</b> Dual	<b>3.3:</b> 3.3VDC <b>5:</b> 5VDC <b>9:</b> 9VDC <b>12:</b> 12VDC <b>15:</b> 15VDC <b>24:</b> 24VDC  <b>5:</b> ±5VDC <b>12:</b> ±12VDC <b>15:</b> ±15VDC <b>24:</b> ±24VDC	<b>None:</b> Through Hole <b>A2:</b> Chassis Mount <b>A4:</b> DIN Rail

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: 2015 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

©2023 Wall Industries, Inc. Specifications subject to change without notice. Wall Industries is not responsible for typographical errors. The information contained herein is for informational purposes only. This information is provided by Wall Industries and we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information contained in this document for any purpose. All product and manufacturer names are trademarks or registered trademarks of their respective companies.