Size: 6in x 4in x 1.52in
(152.4mm x 101.5mm x 38.6mm)

FEATURES

- 4:1 Wide Input Voltage Range
- Constant Current and Voltage
- Current Share
- Remote On/Off
- RoHS & REACH Compliant
- No Minimum Load Requirement
- Adjustable Output Voltage
- Open Frame or DIN Rail Packaging
- Over Voltage, Over Current, Over Temperature, and Short Circuit Protection
- Under Voltage Protection
- 3000VAC Isolation Voltage
- Internal EN55032 Class A Filter
- IEC/UL/EN62368-1 and UL508 Safety Approvals
- EN50155 and EN45545-2 Standard Approvals

APPLICATIONS

- Railway
- Automation
- Datacom
- IPC
- Industrial
- Measurement
- Telecom
- Charger

DESCRIPTION

The DCACF300 series of DC/DC converters offers 300 watts of output power in a 6” x 4” x 1.52” package. This series of single output models is suitable for a variety of applications and has a wide 4:1 input voltage range. Each model in this series features over voltage, over current, over temperature, and short circuit protection, as well as remote on/off, and no minimum load requirement. This series has IEC/UL/EN62368-1 and UL508 safety approvals, EN50155 and EN45545-2 standard approvals, and is RoHS & REACH compliant.

MODEL SELECTION TABLE

Model Number[1]	Input Voltage Range	Output Voltage	Output Current	No Load Input Current	Ripple & Noise	Efficiency	Output Power
DCACF300-48S12	48VDC (18~75VDC)	12VDC	25A	30mA	100mVp-p	89%	300W
DCACF300-48S15		15VDC	20A	30mA	100mVp-p	90%	
DCACF300-48S24		24VDC	12.5A	30mA	200mVp-p	92%	
DCACF300-48S28		28VDC	10.8A	30mA	200mVp-p	91%	
DCACF300-48S48		48VDC	6.3A	30mA	300mVp-p	92%	
DCACF300-110S12	110VDC (43~160VDC)	12VDC	25A	20mA	100mVp-p	89%	300W
DCACF300-110S15		15VDC	20A	20mA	100mVp-p	90%	
DCACF300-110S24		24VDC	12.5A	20mA	200mVp-p	91%	
DCACF300-110S28		28VDC	10.8A	20mA	200mVp-p	91%	
DCACF300-110S48		48VDC	6.3A	20mA	300mVp-p	92%	

SPECIFICATIONS

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

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	48Vin (nom)		18	48	75	VDC
	110Vin (nom)		43	110	160	
Start-Up Voltage	48Vin (nom)				18	VDC
	110Vin (nom)				43	
Shutdown Voltage	48Vin (nom)		15.6	16.2	16.8	VDC
	110Vin (nom)		33.0	34.5	36.0	
Input Surge Voltage	1 Second, max.	48Vin (nom)			100	VDC
		110Vin (nom)			185	
Input Filter			Common Choke + Pi Type			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy			-1		+1	%
Line Regulation	Low Line to High Line, @Full Load		-0.2		+0.2	%
Load Regulation	No Load to Full Load		-0.5		+0.5	%
Voltage Adjustability	Maximum output deviation is inclusive of remote sense		-20		+20	%
Remote Sense[2]	% of Vout(nom)				10	%
Rated Output Power	Normal Vout and Iout		See Table			
Output Current	@Full Load		See Table			
Minimum Load			No Minimum Load Requirement			
Ripple & Noise (20MHz bandwidth)	12V and 15V Models			100	125	mVp-p
	24V and 28V Models			200	250	
	48V Models			300	350	
Transient Response Recovery Time	25% Load Step Change			250		µS
Start-Up Time	Constant Resistive Load, Power Up/Remote ON/OFF			140		mS
Temperature Coefficient			-0.02		+0.02	%/ºC
Load Share Accuracy[3]	Full Load		-10		+10	%

SPECIFICATIONS

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

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
REMOTE ON/OFF CONTROL[4]						
Positive Logic (Standard)	DC-DC ON			Open or 3~12VDC		
	DC-DC OFF			Short or 0~1.2VDC		
Negative Logic (Optional)	DC-DC ON			Short or 0~1.2VDC		
	DC-DC OFF			Open or 3~12VDC		
Input Current of CTRL			-0.5		1	mA
Remote OFF Input Current				4.0		mA
PROTECTION						
Short Circuit Protection				C.C. Mode, Automatic Recovery		
Over Load Protection[5]	% of Iout rated; C.C. Mode		105		115	%
Over Voltage Protection	%of Vout(nom); Latch Mode		125		140	%
Over Temperature Protection				+105		ºC
ENVIRONMENTAL SPECIFICATIONS						
Operating Case Temperature			-40		+100	ºC
Maximum Case Temperature					+100	ºC
Storage Temperature			-40		+105	ºC
Thermal Impedance[6]	Mounted on the Iron Base-Plate			1.1		ºC/W
Relative Humidity			5		95	%RH
Thermal Shock				MIL-STD-810F		
Shock				EN61373, MIL-STD-810F		
Vibration				EN61373, MIL-STD-810F		
MTBF	MIL-HDBK-217F, Full Load			149,000		Hours
GENERAL SPECIFICATIONS						
Efficiency				See Table		
Switching Frequency	48Vin (nom)		203	225	248	kHz
	110Vin (nom)		180	200	220	
Isolation Voltage	1 minute (reinforced insulation)	Input to Output	3000			VAC
		Input (Output) to Case	2100			
Isolation Resistance	500VDC		1			GΩ
Isolation Capacitance				14000		pF
PHYSICAL SPECIFICATIONS						
Weight				31.74oz (900g)		
Dimensions (L x W x H)				6in x 4in x 1.52in (152.4mm x 101.5mm x 38.6mm)		
Case Material				Aluminum		
Potting Material				Silicone (UL94 V-0)		
SAFETY CHARACTERISTICS						
Safety Approvals	IEC/UL/EN62368-1 UL508					CB:UL (Demko)
Standard Approvals	EN50155 EN45545-2					
EMI	EN55011, EN55032	Without External Component	Radiation Conduction			Class A
EMS	EN55035, EN50121-3-2					
ESD	EN61000-4-2	Air±8kV and Contact ±6kV				Perf. Criteria A
Radiated Immunity	EN61000-4-3	20V/m				Perf. Criteria A
Fast Transient	EN61000-4-4	±2kV				Perf. Criteria A
Surge	EN61000-4-5	EN55035 ±1kV and EN50121-3-2 ±2kV				Perf. Criteria A
Conducted Immunity	EN61000-4-6	10Vr.m.s				Perf. Criteria A
Power Frequency Magnetic Field	EN61000-4-8	100A/m continuous; 1000A/m 1 second				Perf. Criteria A

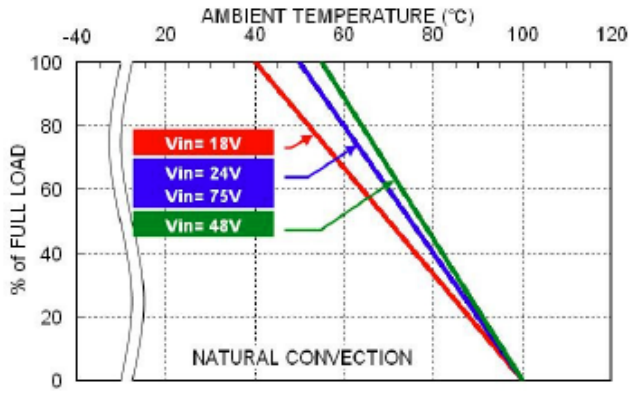
NOTES

1. DIN Rail case option is available for this series. To indicate DIN Rail model, add “D” to end of model number.
   Negative Logic is optional for this series. To indicate Negative Logic Option, add “N” to end of product model number.
   Load Share is optional for this series. To indicate Load Share Option, add “S” to end of product model number.
2. If remote sense is not being used, sense terminals should be connected to corresponding polarity Vout terminals.
3. Connect the LS (Terminal 11) from each converter
   The converter can parallel to increase output current. It has internal load share function in this converter (only for “S” suffix)
4. Referred to –Vin.
5. “C.C. Mode” is “Constant Current Mode” and test by nominal input.
6. The iron base-plate dimension is 19” x 5.25” x 0.063” and the height is the EIA standard 3U.

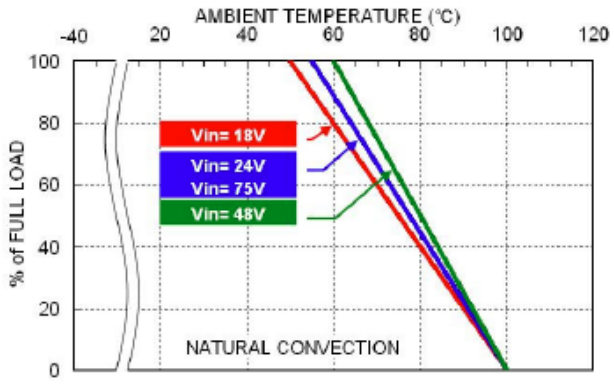
CAUTION: This power module is not internally fused. An input line fuse must always be used.
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

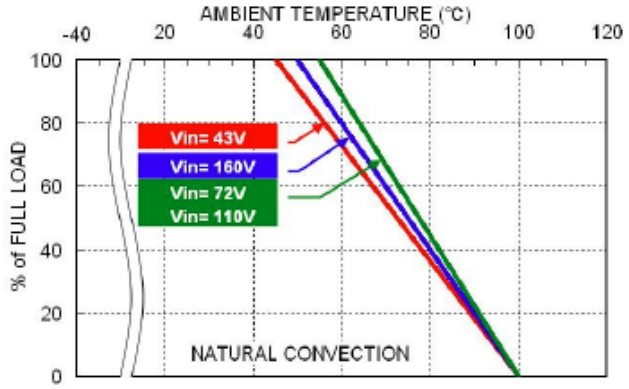
DCACF300-48Sxx Derating Curve



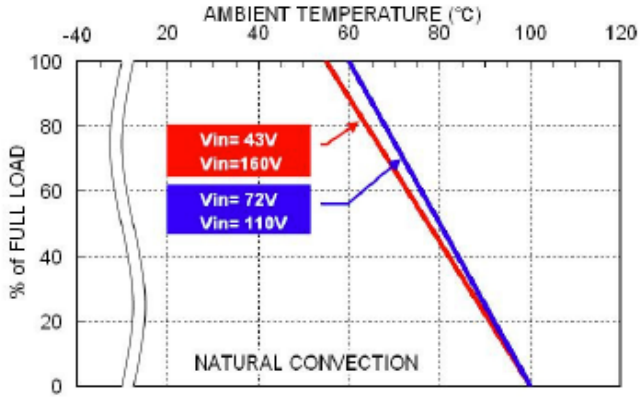
DCACF300-48Sxx Derating Curve with 3U Iron Base-Plate



DCACF300-110Sxx Derating Curve

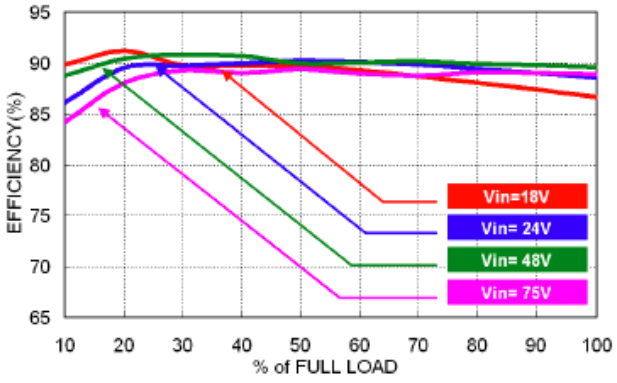


DCACF300-110Sxx Derating Curve with 3U Iron Base-Plate

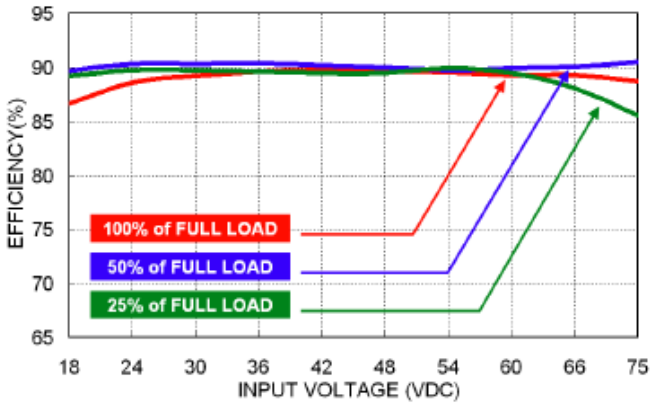


EFFICIENCY GRAPHS

DCACF300-48S12 Efficiency vs. Output Load

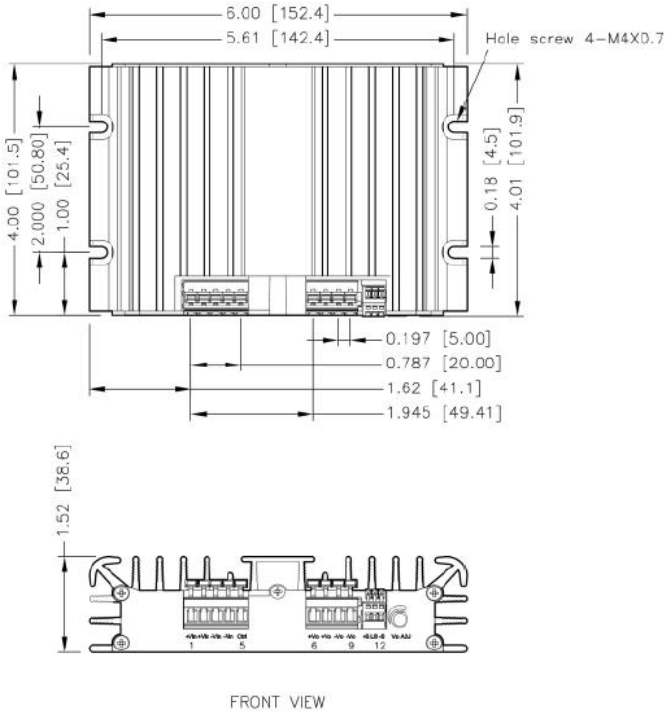


DCACF300-48S12 Efficiency vs. Input Voltage

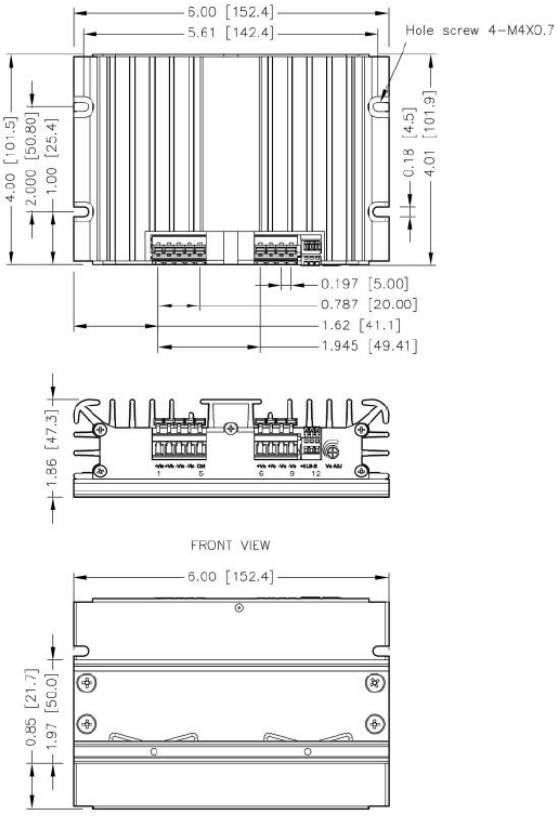


MECHANICAL DRAWINGS

Open Frame Type



DIN Rail Type ("DN" Suffix)



TERMINAL CONNECTION

Terminal	Define	Recommended Matching Wire
1, 2	+Vin	12-16AWG
3, 4	-Vin	12-16AWG
5	Ctrl	12-28AWG
6, 7	+Vout	12-16AWG
8, 9	-Vout	12-16AWG
10	+Sense	20-28AWG
11	LS (option)	20-28AWG
12	-Sense	20-28AWG

* The current rating of the terminal block is 15amps/pole.
*Using 2 poles at the same time when operating is recommended if the total current is more than 15 amps or choose optional 2-way splitter. (Please refer to the diagram below)
*Input voltage vs. Input terminal, refer to the table below.

Output Power	Input Voltage	Input Terminal
300W; Full Load	≥23V	1 pole
	<23V	2 poles
400W; C.C. Mode	≥32V	1 pole
	<32V	2 poles

1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]
   x.xxx±0.010 [x.xx±0.25]
3. The screw locked torque: MAX 14kgf-cm/1.37N.m

FUSE CONSIDERATION

This power module is not internally fused. At input line fuse must always be used.
This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture.
To maximum flexibility, internal fusing is not included; however to achieve maximum safety and system protection, always use an input line fuse.
The input line fuse suggest as below:

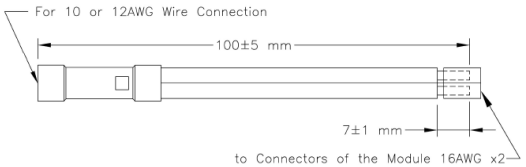
Model	Fuse Rating (A)	Fuse Type
DCACF300-48Sxx	25	Fast-Acting
DCACF300-110Sxx	12	Fast-Acting

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin.

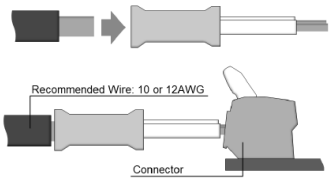
2-WAY SPLITTER (OPTIONAL ACCESSORY)

The 2-way splitter can be used for transforming a thick wire into 2 thin wires to the terminal block.
The 2-way splitter P/N:5J-C0045-F.

2-WAY SPLITTER Mechanical Drawing

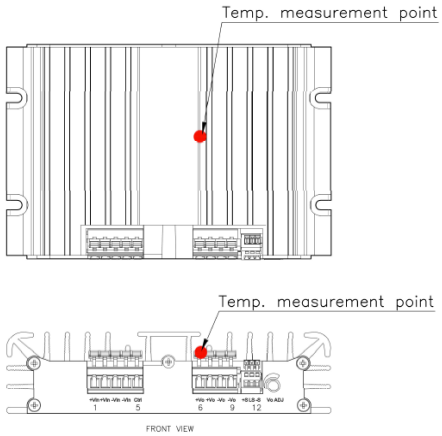


Connection Configuration



THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments.
However, sufficient cooling should be provided to help ensure reliable operation of the unit.
Heat is removed by conduction, convection, and radiation to the surrounding environment.
Proper cooling can be verified by measuring the point as the figure below.
The temperature at this location should not exceed “Maximum Case Temperature”.
When operating, adequate cooling must be provided to maintain the test point temperature at or below “Maximum Case Temperature”.
You can limit this temperature to a lower value for extremely high reliability.



MODEL NUMBER SETUP

DCACF	300	-	110	S	12	-	D	N	S
Series Name	Output Power		Input Voltage	Output Quantity	Ouptut Voltage		Case Type	Remote Control Option	Load Share Option
			48: 18~75VDC **110:** 43~160VDC	**S:** Single	**12:** 12VDC **15:** 15VDC **24:** 24VDC **28:** 28VDC **48:** 48VDC		**Blank:** Open Frame Type **D:** DIN Rail	**Blank:** Positive Logic **N:** Negative Logic	**Blank:** None **S:** Load Share

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 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.

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