Through Hole Package

Size: 2.40in x 2.28in x 0.50in (61mm x 57.9mm x 12.7mm)

Through Hole Package with Heatsink

Size: 2.40in x 2.28in x 0.95in (61mm x 57.9mm x 24.2mm)

Terminal Block

Size: 3.35in x 2.40in x 1.35in (85mm x 61mm x 34.2mm)

Terminal Block with EMC Filter

Size: 3.35in x 2.40in x 1.54in (85mm x 61mm x 39mm)

OPTIONS

- Pin Length
- Sync Pin
- Case Pin
- Heatsinks
- Thru-Hole Inserts
- Negative Logic Remote On/Off
- Terminal Block
- Terminal Block with EMC Filter

FEATURES

- Soft Start
- 4:1 Ultra Wide Input Ranges
- 132~182 Watts of Output Power
- Single Outputs Ranging from 3.3VDC-48VDC
- Under Voltage Lockout
- High Efficiency
- No Minimum Load Requirement
- Several Mechanical Options Available
- Adjustable Output Voltage
- Industry Standard Half-Brick Footprint
- Remote On/Off Control
- 2250VDC Basic Isolation, 3000VAC Reinforced Isolation
- Thru-Hole Insert Versions and Terminal Blocks Versions Available
- Short Circuit, Over Current, Over Temperature, and Over Voltage Protection
- RoHS & REACH Compliant
- IEC/UL/EN60950-1 Safety Approvals

APPLICATIONS

- Railway Applications
- Wireless Networks
- Telecom/Datacom
- Industry Control Systems
- Semiconductor Equipment
- Distributed Power Architectures
- Military Applications

DESCRIPTION

The DCHBW150 series of DC/DC power converters provides up to 182 watts of output power in an industry standard half-brick package and footprint. This series consists of single output models ranging from 3.3VDC to 48VDC with 4:1 ultra-wide input voltage ranges. Some features include high efficiency up to 91%, adjustable output voltage, and remote on/off control. These converters also have short circuit, over voltage, over current, and over temperature protection. The DCHBW150 series is RoHS & REACH compliant and has IEC/UL/EN60950-1 safety approvals. Several different options are available for this series including negative remote on/off control, terminal block, pin length, heatsinks, sync pin, case pin, and thru-hole inserts. Please contact factory for more details.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current		Ripple & Noise	No Load Input Current	Output Power	Maximum Capacitive Load	Efficiency
			Min Load	Full Load					
DCHBW150-24S3.3	24VDC (9~36VDC)	3.3VDC	0mA	40A	75mVp-p	20mA	132W	121000µF	88%
DCHBW150-24S05		5VDC	0mA	28A	75mVp-p	25mA	140W	56000µF	90%
DCHBW150-24S12	24VDC (8.5~36VDC)	12VDC	0mA	12A	100mVp-p	25mA	144W	10000µF	90%
DCHBW150-24S15		15VDC	0mA	9.5A	100mVp-p	25mA	142.5W	6300µF	91%
DCHBW150-24S24		24VDC	0mA	6A	200mVp-p	25mA	144W	2500µF	90%
DCHBW150-24S28		28VDC	0mA	5A	200mVp-p	25mA	140W	1700µF	90%
DCHBW150-24S48		48VDC	0mA	3A	300mVp-p	35mA	144W	620µF	90%
DCHBW150-48S3.3	48VDC (16.5~75VDC)	3.3VDC	0mA	40A	75mVp-p	15mA	132W	121000µF	89%
DCHBW150-48S05		5VDC	0mA	30A	75mVp-p	15mA	150W	60000µF	91%
DCHBW150-48S12		12VDC	0mA	13A	100mVp-p	20mA	156W	10800µF	91%
DCHBW150-48S15		15VDC	0mA	10A	100mVp-p	20mA	150W	6600µF	91%
DCHBW150-48S24		24VDC	0mA	6.5A	200mVp-p	20mA	156W	2700µF	91%
DCHBW150-48S28		28VDC	0mA	5.5A	200mVp-p	20mA	154W	1900µF	91%
DCHBW150-48S48		48VDC	0mA	3.2A	300mVp-p	25mA	153.6W	660µF	91%
DCHBW150-110S3.3	110VDC (43~160VDC)	3.3VDC	0mA	43A	75mVp-p	10mA	141.9W	130000µF	88%
DCHBW150-110S05		5VDC	0mA	32A	75mVp-p	10mA	160W	64000µF	90%
DCHBW150-110S12		12VDC	0mA	15A	100mVp-p	10mA	180W	12500µF	90%
DCHBW150-110S15		15VDC	0mA	12A	100mVp-p	10mA	180W	8000µF	90%
DCHBW150-110S24		24VDC	0mA	7.5A	200mVp-p	10mA	180W	3100µF	90%
DCHBW150-110S28		28VDC	0mA	6.5A	200mVp-p	10mA	182W	2300µF	90%
DCHBW150-110S48		48VDC	0mA	3.8A	300mVp-p	10mA	182.4W	790µF	90%

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input, 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	24VDC Nominal Input Models	3.3 & 5VDC Models	9	24	36	VDC
		Others	8.5	24	36	
	48VDC Nominal Input Models		16.5	48	75	
	110VDC Nominal Input Models		43	110	160	
Start-Up Voltage	24VDC Nominal Input Models				9	VDC
	48VDC Nominal Input Models				18	
	110VDC Nominal Input Models				43	
Shutdown Voltage	24VDC Nominal Input Models		7.3	7.7	8.1	VDC
	48VDC Nominal Input Models		15.5	16	16.3	
	110VDC Nominal Input Models		33.0	34.5	36	
Input Surge Voltage (1 sec. max.)	24VDC Nominal Input Models				50	VDC
	48VDC Nominal Input Models				100	
	110VDC Nominal Input Models				180	
Input Current	No Load		See Table			
Input Filter *(See Note 1)*			Pi Type			
Sync Pin Signal *(See Note 2)*			-0.3		5.6	VDC
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy			-1.0		+1.0	%
Line Regulation	Low Line to High Line at Full Load		-0.1		+0.1	%
Load Regulation	No Load to Full Load		-0.1		+0.1	%
Voltage Adjustability *(See Note 3)*	Maximum output deviation is inclusive of remote sense		-20		+10	%
Remote Sense *(See Note 4)*	% of Vout (nom)				10	%
Output Power			See Table			
Output Current			See Table			
Minimum Load			0			%
Maximum Capacitive Load			See Table			
Ripple & Noise (Measured by 20MHz bandwidth)	With a 1µF/25V X7R MLCC & a 22µF/25V POS-CAP	3.3V & 5V Models		75		mVp-p
		12V & 15V Models		100		
	With a 4.7µF/50V X7R MLCC	24V & 28V Models		200		
	With a 2.2µF/100V X7R MLCC	48V Models		300		
Transient Response Recovery Time	25% load step change			200	250	µs
Start-Up Time	Constant Resistive Load	Power Up		75		mS
		Remote ON/OFF		75		
Temperature Coefficient			-0.02		+0.02	%/ºC

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input, 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 *(See Note 5)*							
Positive Logic (Standard)	DC/DC ON				Open or 3~12VDC		
	DC/DC OFF				Short or 0~1.2VDC		
Negative Logic	DC/DC ON				Short or 0~1.2VDC		
	DC/DC OFF				Open or 3~12VDC		
Input Current of CTRL Pin				-0.5		1	mA
Remote OFF Input Current					3		mA
PROTECTION							
Short Circuit Protection					Continuous, Automatic Recovery		
Over Load Protection	%of Iout rated; Hiccup Mode			120		150	%
Over Voltage Protection	% of Vout (nom); Hiccup Mode			115		130	%
Over Temperature Protection					+120		ºC
ENVIRONMENTAL SPECIFICATIONS							
Operating Case Temperature	Base-Plate			-40		+115	ºC
Storage Temperature	Terminal Block Type			-40		+105	ºC
	Others			-55		+125	ºC
Thermal Impedance *(See Note 6)*	Module without Assembly Option				6.1		ºC/W
	Only Mount on the Iron Base-Plate				2.8		
	Heat-Sink Type with 0.24" Height				5.1		
	Heat-Sink Type with 0.45" Height				4.6		
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				350,000		Hours
GENERAL SPECIFICATIONS							
Efficiency					See Table		
Switching Frequency				225	250	275	kHz
Isolation Voltage	1 Minute (Reinforced Insulation)	110Vin (nom)	Input to Output	3000			VAC
			Input (Output) to Case	1500			
	1 Minute (Basic Insulation)	Others	Input to Output	2250			VDC
			Input (Output) to Case	1600			
Isolation Resistance	500VDC			1			GΩ
Isolation Capacitance						2500	pF
PHYSICAL SPECIFICATIONS							
Weight	Through Hole Package				3.70oz (105g)		
	Terminal Block without EMC Filter (-T Suffix)				8.29oz (235g)		
	Terminal Block with EMC Filter (-TF Suffix)				9.88oz (280g)		
	Terminal Block with EMC Filter That Can Connect to PE (-TF1 Suffix)				10.12oz (287g)		
Dimensions (L x W x H)	Through Hole Package				2.40 x 2.28 x 0.50in (61 x 57.9 x 12.7mm)		
	Terminal Block without EMC Filter (-T Suffix)				3.35 x 2.40 x 1.35in (85 x 61 x 34.2mm)		
	Terminal Block with EMC Filter (-TF Suffix)				3.35 x 2.40 x 1.54in (85 x 61 x 39mm)		
	Terminal Block with EMC Filter That Can Connect to PE (-TF1 Suffix)				3.35 x 2.40 x 1.59in (85 x 61 x 40.5mm)		
Case Material	24VDC Nominal Input & 48VDC Nominal Input				Metal		
	110VDC Nominal Input				Aluminum base-plate with Plastic Case		
Base Material	24VDC Nominal Input & 48VDC Nominal Input				FR4 PCB		
Potting Material					Silicone (UL94 V-0)		
SAFETY CHARACTERISTICS							
Safety Approvals[10]	IEC/UL/EN60950-1						UL CB:UL (Demko)
Standard Approvals	EN50155 EN45545-2						
EMI *(See Note 7)*	EN55011, EN55032	Terminal Block with EMC Filter (-TF Suffix)					Class A
		Terminal Block with EMC Filter that Can connect to PE (-TF1 Suffix)					Class A
		Other Models with External Components					Class A, Class B
ESD	EN61000-4-2	Air ±8kV and Contact ±6kV					Perf. Criteria A
Radiated Immunity	EN61000-4-3	20V/m					Perf. Criteria A
Fast Transient *(See Note 8)*	EN61000-4-4	±2kV					Perf. Criteria A
Surge *(See Note 8)*	EN61000-4-5	EN55024 ±2kV and EN50155 ±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; 100A/m 1 second					Perf. Criteria A

NOTES

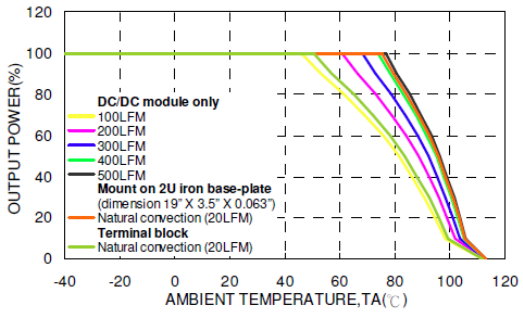
1. Input source impedance: Power module will operate as specifications without external components, assuming source voltage has very low impedance and reasonable input voltage regulation. Highly inductive source impedances can affect stability of the power module. Since real-world voltage source has finite impedance, performance can be improved by adding external filter capacitor.
   24VDC & 48VDC Nominal Input Voltage recommended capacitor: Nippon Chemi-con KY series, 100µF/100V
   110VDC Nominal Input Voltage recommended capacitor: Ruby-con BXF series, 68µF/200V
2. (1) Multiple DCHBW150 series modules can be synchronized together simply by connecting the module SYNC pins together. Care should be taken to ensure the ground potential difference between the modules are minimized.
   (2) In this configuration all of the modules will be synchronized to the highest frequency module.
   (3) Up to three modules can be synchronized using this technique
   (4) More relevant information in application notes
3. Output voltage is adjustable for 10% trim up or -20% trim down of nominal output voltage by connecting a single resistor between TRIM and +SENSE pins for trim up or between TRMI and –SENSE pins for trim down. To calculate value of the resistor R_U and R_D. For particular output voltage see page 5.
4. Maximum output deviation is +10% inclusive of remote sense and trim. If remote sense is not being used, the +SENSE should be connected to corresponding +OUTPUT and likewise the –SENSE should be connected to its corresponding –OUTPUT.
5. CTRL pin is referenced to –INPUT. To order negative logic remote on/off control add the suffix “R” to the model number. Ex. DCHBW150-48S12R
6. (1) Thermal test conditions for vertical direction are by natural convection (20LFM).
   (2) The iron base-plate dimensions are 19” x 3.5” x 0.063” (the height is EIA standard 2U)
   (3) Heat sink is optional. See “Product Options” table on page 7 for suffix options.
7. CASE GROUNDING: Connecting four screw bolts to shield plane will help to reduce the EMI
8. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
   24VDC & 48VDC Nominal Input Voltage Models: 2pcs of aluminum electrolytic capacitor (Nippon Chemi-con KY series, 220µF/100V)
   110VDC Nominal Input Models: 2pcs of aluminum electrolytic capacitor (Nippon Chemi-con KXJ series, 150µF/200V)
9. This series comes with several different options: negative remote on/off control, heatsinks, case pin, sync pin, pin length, terminal block, and thru-hole inserts. See the Product Options table on page for 7 more ordering information.
10. This product is Listed to applicable standards and requirements by UL.

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

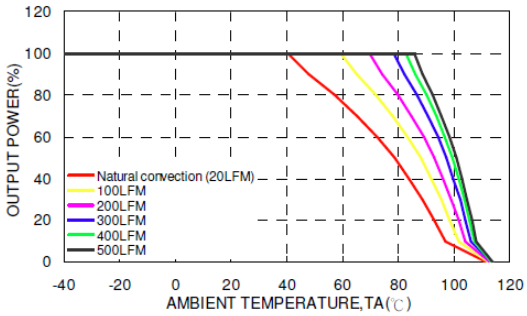
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

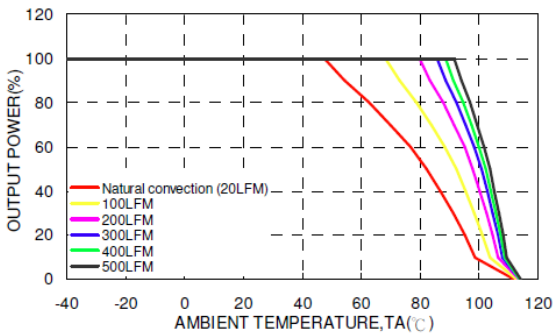
DCHBW150-48S05 Derating Curve *(See Note 6)*



DCHBW150-48S05W Derating Curve *(See Note 6)* with 0.24” Height Heat-Sink

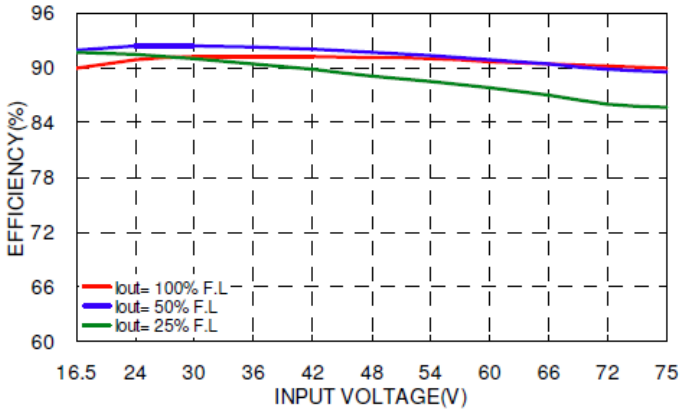


DCHBW150-48S05 Derating Curve *(See Note 6)* with 0.45” Height Heat-Sink

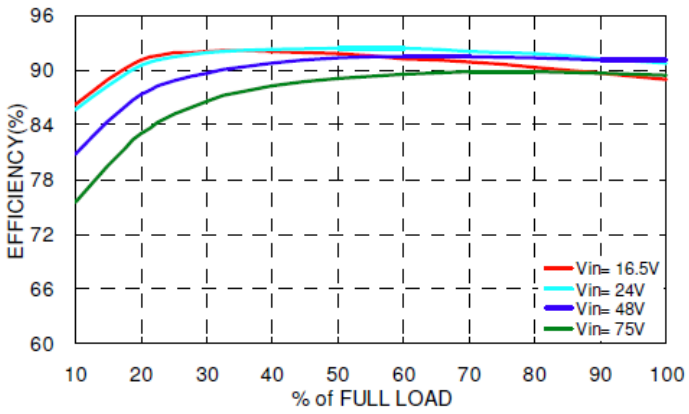


EFFICIENCY GRAPHS

DCHBW150-48S05 Efficiency vs. Input Voltage



DCHBW150-48S05 Efficiency vs Output Load



OUTPUT VOLTAGE ADJUSTMENT

Output voltage is adjustable for 10% trim up or -20 trim down of nominal output voltage by connecting an external resistor between the Trim pin and either the +Sense pins.
With an external resistor between the Trim and –Sense pin, the output voltage set point decreases.
With an external resistor between the Trim and +Sense pin. The output voltage set point increases.
Maximum output deviation is +10% inclusive of remote sense.
The external TRIM resistor needs to be at least 1/8W of rated power.

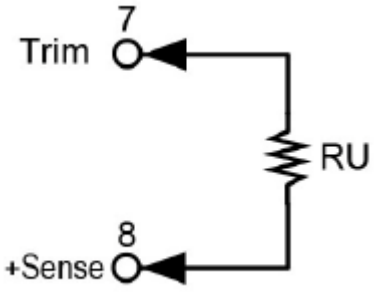
Trim Up Equation

$$R_U = \left(\frac{V_{OUT}(100 + \Delta\%)}{1.225\Delta\%} - \frac{100 + 2\Delta\%}{\Delta\%} \right) k\Omega$$

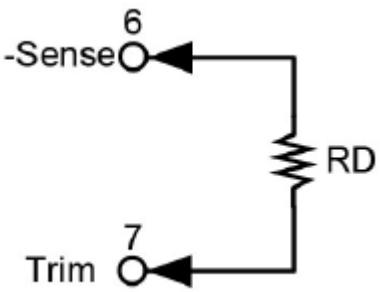
Trim Down Equation

$$R_D = \left(\frac{100}{\Delta\%} - 2 \right) k\Omega$$

Trim Up



Trim Down



External Output Trimming

Trim Up

3.3V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.630
RU (kΩ)	170.082	85.388	57.156	43.041	34.571	28.925	24.892	21.867	19.515	17.633

5V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	5.05	5.10	5.15	5.20	5.25	5.30	5.35	5.40	5.45	5.50
RU (kΩ)	310.245	156.163	104.803	79.122	63.714	53.442	46.105	40.602	36.322	32.898

12V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	12.12	12.24	12.36	12.48	12.60	12.72	12.84	12.96	13.08	13.20
RU (kΩ)	887.388	447.592	300.993	227.694	183.714	154.395	133.452	117.745	105.528	95.755

15V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	16.50
RU (kΩ)	1134.735	572.490	385.075	291.367	235.143	197.660	170.886	150.806	135.188	122.694

24V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	24.24	24.48	24.72	24.96	25.20	25.44	25.68	25.92	26.16	26.40
RU (kΩ)	1876.776	947.184	637.320	482.388	389.429	327.456	283.190	249.990	224.168	203.510

28V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	28.28	28.56	28.84	29.12	29.40	29.68	29.96	30.24	30.52	30.80
RU (kΩ)	2206.571	1113.714	749.429	567.286	458.000	385.143	333.102	294.071	263.714	239.429

48V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	48.48	48.96	49.44	49.92	50.40	50.88	51.36	51.84	52.32	52.80
RU (kΩ)	3855.551	1946.367	1309.973	991.776	800.857	673.578	582.665	514.480	461.447	419.020

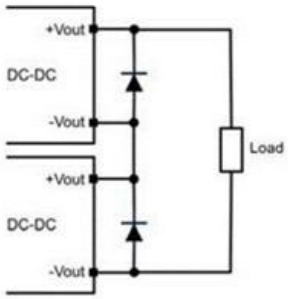
Trim Down

All Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
RD (kΩ)	98.000	48.000	31.333	23.000	18.000	14.667	12.286	10.500	9.111	8.000
ΔV (%)	11	12	13	14	15	16	17	18	19	20
RD (kΩ)	7.091	6.333	5.692	5.143	4.667	4.250	3.882	3.556	3.263	3.000

SERIES

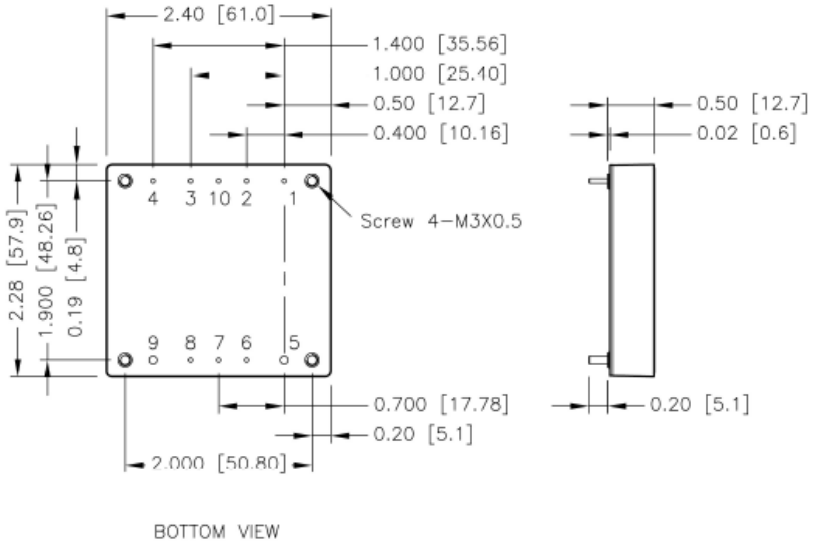
For DCHBW150-24S12



MECHANICAL DRAWINGS

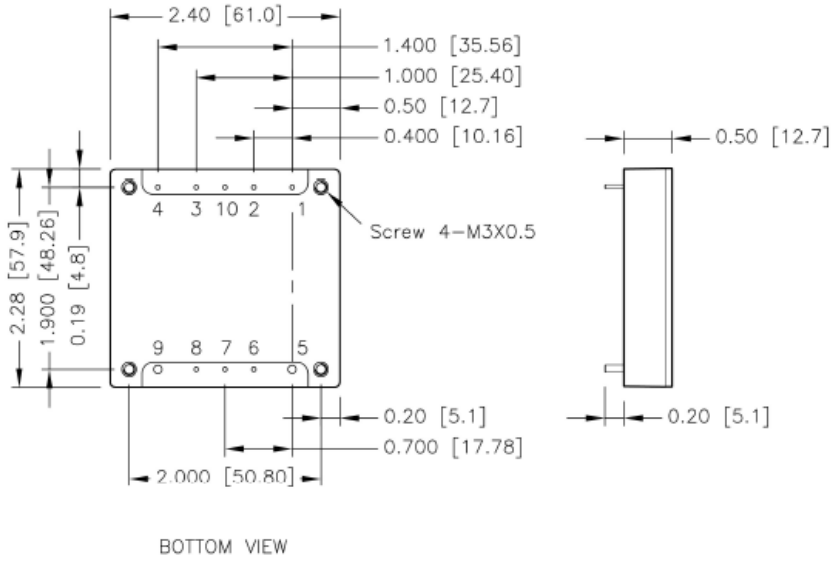
Through Hole Case

24VDC & 48VDC Nominal Input Models



The screw locked torque: MAX 5.0kgf-cm/0.49N-m

110VDC Nominal Input Models



The screw locked torque: MAX 3.5kgf-cm/0.34N-m

PIN CONNECTIONS

PIN	DEFINE	DIAMETER
1	-Vin	0.04in
2	Case (Option)	0.04in
3	Ctrl	0.04in
4	+Vin	0.04in
5	-Vout	0.08in
6	-Sense	0.04in
7	Trim	0.04in
8	+Sense	0.04in
9	+Vout	0.08in
10	Sync (Option)	0.04in

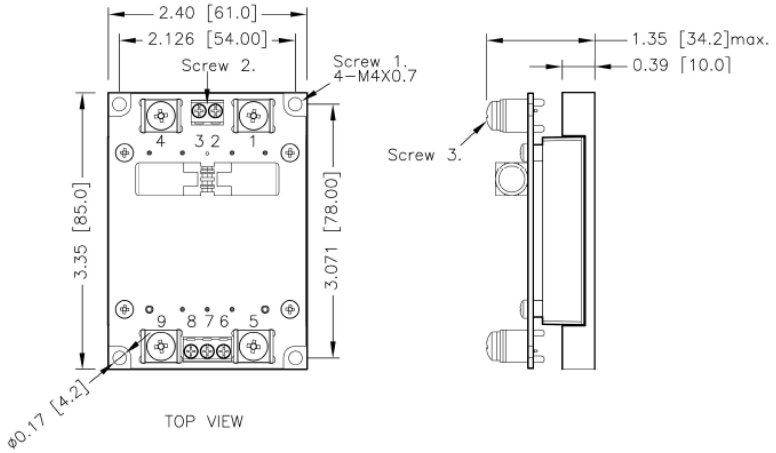
Notes:
1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]
   x.xxx±0.01 [x.xx±0.25]
3. Pin pitch tolerance ±0.01 [0.25]
4. Pin dimension tolerance ±0.004 [0.10]

Product Options		Suffix	Product Options		Suffix
Negative Remote ON/OFF Logic	0.200” pin length	R	Heatsink	H=0.45” Vertical	H
	0.145” pin length	RL		H=0.24” Horizontal	H1
Positive Remote ON/OFF Logic	0.200” pin length	None		H=0.24” Vertical	H2
	0.145” pin length	S		H=0.45” Horizontal	H3
Thru-Hole Inserts (No Thread)	Ø0.126 thru-hole (no thread) inserts	TH	Terminal Block	No EMC Filter	T
Sync Pin		SY		EMC Filter(1)	TF
Case Pin		CP		EMC Filter that can be connected to PE(1)	TF1

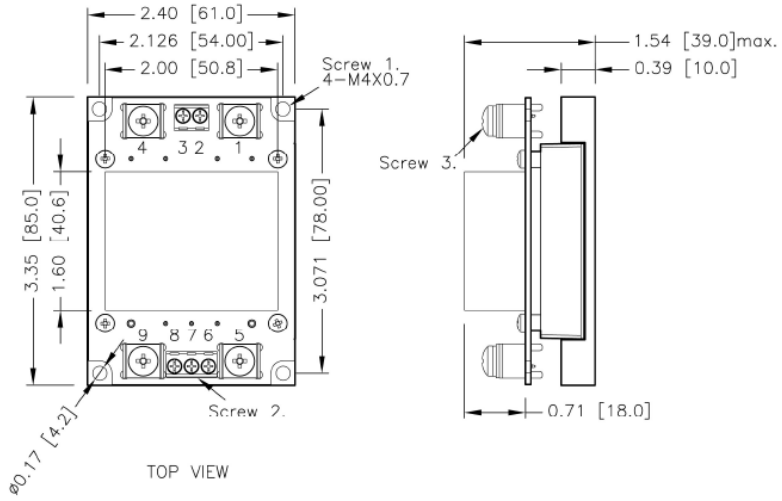
(1) Models with EMC filters (suffix “TF” and “TF1”) meet EN55032 Class A

Terminal Block Options

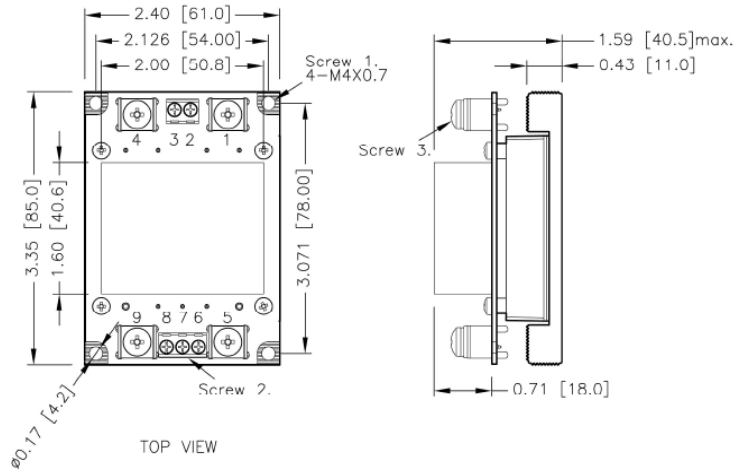
Terminal Block without EMC Filter (-T Suffix)



Terminal Block with EMC Filter (-TF Suffix)



Terminal Block with EMC Filter That Can Connect to PE (-TF1 Suffix)



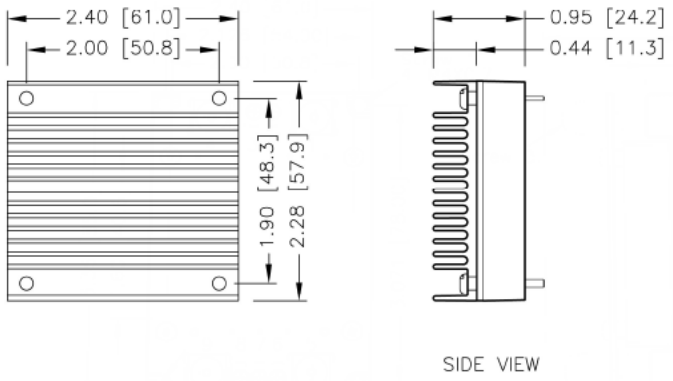
TERMINAL CONNECTION

NO.	DEFINE
1	-Vin
2	NC
3	Ctrl
4	+Vin
5	-Vout
6	-Sense
7	Trim
8	+Sense
9	+Vout

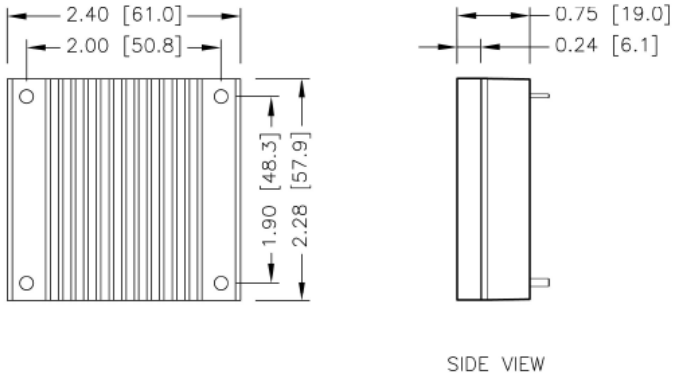
Notes:
1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]
   x.xxx±0.01 [x.xx±0.25]
3. Screw 1 locked torque:
   MAX 11.2kgf-cm/1.10N-m
4. Screw 2 locked torque:
   MAX 5.2kgf-cm/0.51N-m
5. Screw 3 locked torque:
   MAX 16.8kgf-cm/1.65N-m
6. Screw 2：M2.6
   Screw 3: M5

Heatsink Options

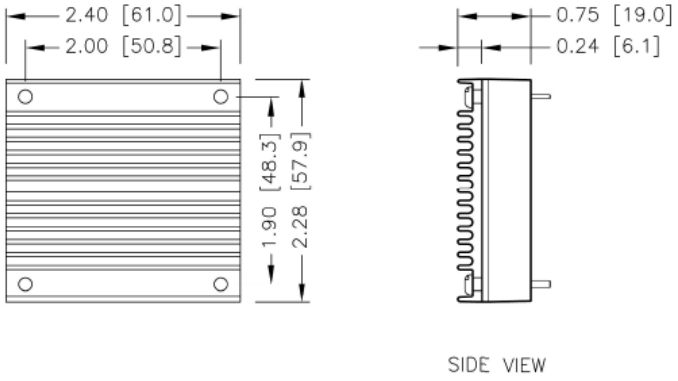
7G-0021A-F (-H Suffix)



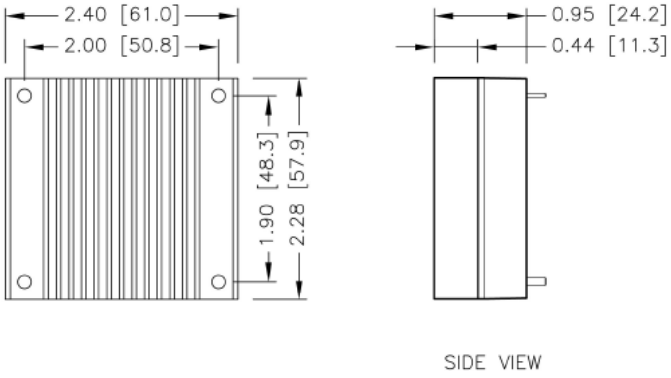
7G-0022A-F (-H1 Suffix)



7G-0023A-F (-H2 Suffix)



7G-0024A-F (-H3 Suffix)



Notes:
1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]
x.xxx±0.01 [x.xx±0.25]

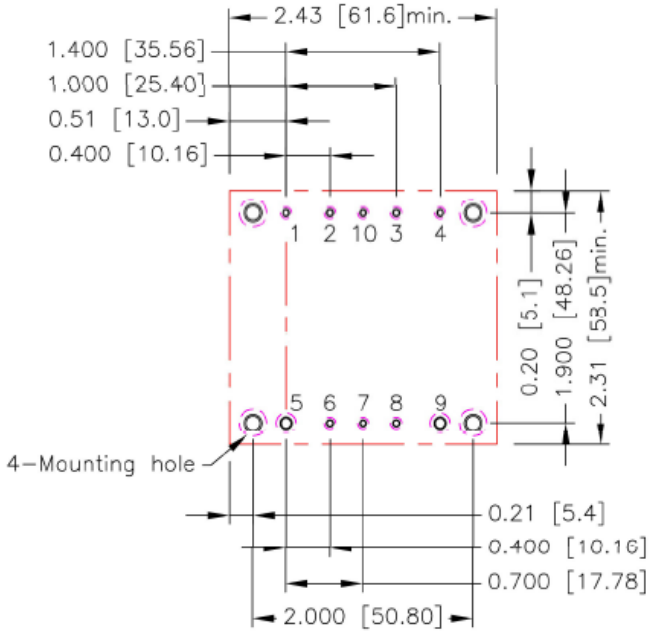
FUSE CONSIDERATION

This power module is not internally fused. An 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.
The maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse.
Suggested input line fused are below:

Model	Fuse Rating (A)	Fuse Type
DCHBW150-24Sxx	25	Fast Acting
DCHBW150-48Sxx	15	Fast Acting
DCHBW150-110Sxx	8	Fast Acting

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

RECOMMENDED PAD LAYOUT

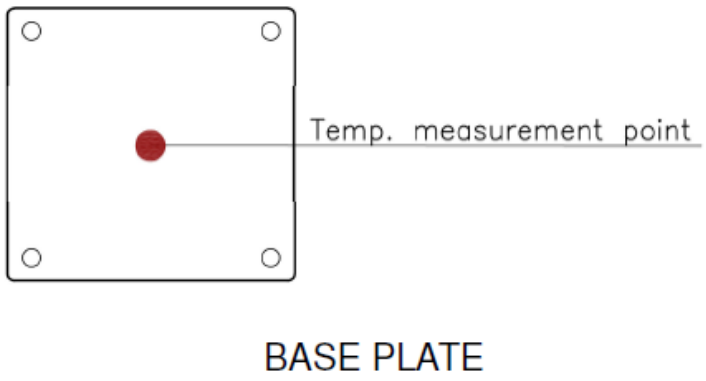


Notes:
1. All dimensions in inch [mm]
2. Pad Size (Lead free recommended)
3. Through Hole 1,2,3,4,6,7,8,10: Φ0.051 [1.30]
4. Through Hole 5, 9: Φ0.091 [2.30]
5. Through Hole of Mounting: Φ0.126 [3.20]
6. Top View Pad 1,2,3,4,6,7,8,10: Φ0.064 [1.63]
7. Top View Pad 5, 9: Φ0.113 [2.88]
8. Top View Pad of Mounting: Φ0.157 [4.00]
9. Bottom View Pad 1,2,3,4,6,7,8,10: Φ0.102 [2.60]
10. Bottom View Pad 5,9: Φ0.181 [4.60]
11. Bottom View Pad of Mounting: Φ0.252 [6.40]

THERMAL CONSIDERATIONS

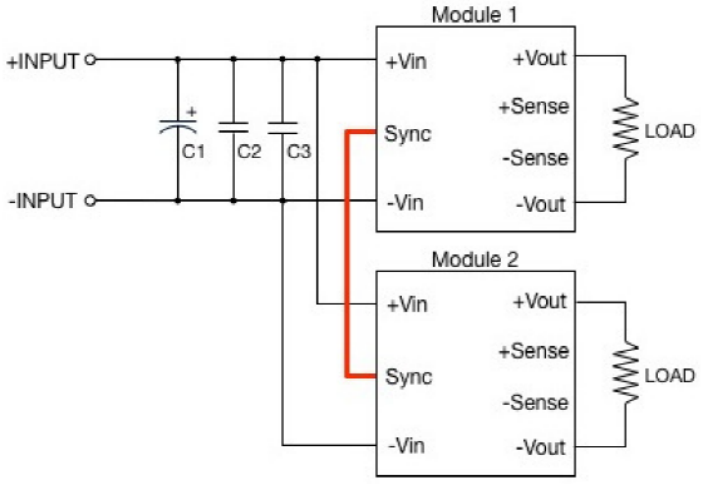
The power module operates in a variety of thermal environments.
However, sufficient cooling should be provided to help ensure reliable operation of the unit.
Heat is removed by conduction, convection, and radiation to the surrounding environment.
Proper cooling can be verified by measuring the point as the figure below.
The temperature at this location should not exceed 115ºC.
When operating, adequate cooling must be provided to maintain the test point temperature at or below 115ºC.
Although maximum point temperature of the power modules is 115ºC, you can limit this temperature to a lower value for extremely high reliability.

- Thermal test condition with vertical direction by natural convection (20LFM)
- The iron base-plate dimension is 19” x 3.5” x 0.063” (The height is EIA standard 2U)
- The heat-sink is optional and P/N: 7G-0021A-F, 7G-0022A-F, 7G-0023A-F, 7G-0024A-F

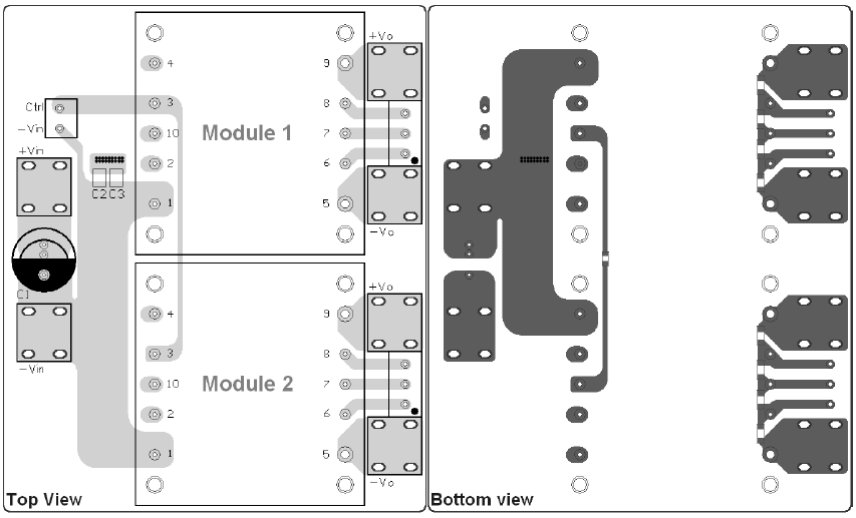


SYNCHRONOUS PIN

Multiple modules can be synchronized together simply by connecting the module SYNC pins together.



Synchronous Circuits



Recommended Layouts

24V & 48V Nominal Input Models

Component	Value	Voltage	Reference
C1	220µF	100V	Nippon Chemi-Con KY Series
C2, C3	2.2µF	100V	1812 MLCC

110V Nominal Input Models

Component	Value	Voltage	Reference
C1	150µF	200V	Nippon Chemi-Con KXJ-Series
C2, C3	1µF	250V	1812 MLCC

- Care should be taken to ensure the ground potential differences between modules are minimized.
- All of the modules in this configuration will be synchronized to the highest frequency module.
- Up to three module can be synchronized using this technique.

MODEL NUMBER SETUP

Through Hole Models

DCHBW	150	-	24	S	12	-	P	SY
Series Name	Output Power		Input Voltage	Output Quantity	Ouptut Voltage		Remote On/Off + Pin Length	Sync Pin
	150: 150 Watts		**24:** 8.5~36VDC 9~36VDC **48:** 16.5~75VDC **110:** 43~160VDC	**S:** Single	**3.3:** 3.3VDC **05:** 5VDC **12:** 12VDC **15:** 15VDC **24:** 24VDC **28:** 28VDC **48:** 48VDC		**None:** Positive Logic, 0.200" Pin Length **S:** Positive Logic, 0.145" Pin Length **R:** Negative Logic, 0.200" Pin Length **RL:** Negative Logic, 0.145" Pin Length	**SY:** Sync Pin

CP	TH	HS
Case Pin	Through-Hole Inserts	Heatsink
CP: Case Pin	**TH:** No Thread	**HS:** 7G-0021A-F; H=0.45" **H1:** 7G-0022A-F; H=0.24" **H2:** 7G-0023A-F; F=0.24" **H3:** 7G-0024A-F; F=0.45"

MODEL NUMBER SETUP

Terminal Block Types

DCHBW	150	-	24	S	12	-	P	TF
Series Name	Output Power		Input Voltage	Output Quantity	Ouptut Voltage		Remote On/Off + Pin Length	Terminal Block
	150: 150 Watts		**24:** 8.5~36VDC 9~36VDC **48:** 16.5~75VDC **110:** 43~160VDC	**S:** Single	**3.3:** 3.3VDC **05:** 5VDC **12:** 12VDC **15:** 15VDC **24:** 24VDC **28:** 28VDC **48:** 48VDC		**None:** Positive Logic, 0.200" Pin Length **R:** Negative Logic, 0.200" Pin Length	**T:** No EMC Filter **TF:** EMC Filter(1) **TF1:** EMC Filter that can be connected to PE(1)

Notes:
1. These integraded filters meet EN55032 Class A

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.

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