

Through Hole (Standard)



Size: 2.4in x 2.28in x 0.5in (61mm x 57.9mm x 12.7in)

With Heatsink



Size: 2.4in x 2.28in x 0.99~1.54in (61mm x 57.9mm x 25.1~39.1in)

Terminal Block (-T Suffix)



Terminal Block with EMC Filter (-TF1 Suffix)



Size: 2.4in x 3.35in x 1.35~1.59in (61mm x 85mm x 34.2~40.5in)

OPTIONS

- Pin Length
- Sync Pin
- Case Pin
- Heatsinks
- Thru-Hole Inserts
- Negative Logic Remote On/Off
- Chassis Mounted
- Chassis Mounted with EMC Filter
- Chassis Mounted with EMC Filter and can be connected to PE

APPLICATIONS

- Railway Systems
- Automation
- Telecom / Datacom
- Industrial
- IPC
- Measurement
- Military Applications

FEATURES

- Railway Applications
- 4:1 Wide Input Voltage Ranges
- Under Voltage Protection
- No Minimum Load Requirements
- Adjustable Output Voltage
- Remote On/Off Control
- Industry Standard Half-Brick Footprint
- Sync
- High Efficiency up to 91%
- Up to 240 Watts Output Power
- Single Outputs Ranging from 3.3VDC to 48VDC
- 3000VAC Reinforced Insulation
- 3000VDC Isolation Voltage
- Threaded Inserts and Thru-Hole Inserts Available
- Short Circuit, Over Voltage, Over Current, and Over Temp. Protection
- RoHS and REACH Compliant
- IEC/EN/UL62368-1, EN50155, and EN45545-2 Safety Approvals
- Several Mechanical Options Available

DESCRIPTION

The DCHBW200 series of DC/DC power converters provides up to 240 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 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 DCHBW200 series is RoHS and REACH compliant and has IEC/EN/UL62368-1, EN50155, and EN45545-2 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.

MODEL SELECTION TABLE

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current		Ripple & Noise	No Load Input Current	Output Power	Maximum Capacitive Load	Efficiency
			Min Load	Max Load					
DCHBW200-24S3.3	24 VDC (9 - 36 VDC)	3.3 VDC	0mA	50A	75mVp-p	25mA	165W	151000µF	87%
DCHBW200-24S05		5 VDC	0mA	36A	75mVp-p	30mA	180W	72000µF	90%
DCHBW200-24S12	24 VDC (8.5 - 36 VDC)	12 VDC	0mA	15A	100mVp-p	30mA	180W	12500µF	89%
DCHBW200-24S15		15 VDC	0mA	12A	100mVp-p	30mA	180W	8000µF	90%
DCHBW200-24S24		24 VDC	0mA	7.5A	200mVp-p	35mA	180W	3100µF	90%
DCHBW200-24S28		28 VDC	0mA	6.5A	200mVp-p	40mA	182W	2300µF	90%
DCHBW200-24S48	48 VDC (16.5 - 75 VDC)	48 VDC	0mA	3.7A	300mVp-p	45mA	177.6W	770µF	89%
DCHBW200-48S3.3		3.3 VDC	0mA	50A	75mVp-p	20mA	165W	151000µF	88%
DCHBW200-48S05		5 VDC	0mA	40A	75mVp-p	20mA	200W	80000µF	91%
DCHBW200-48S12		12 VDC	0mA	18A	100mVp-p	20mA	216W	15000µF	90%
DCHBW200-48S15		15 VDC	0mA	14A	100mVp-p	20mA	210W	9300µF	91%
DCHBW200-48S24		24 VDC	0mA	9A	200mVp-p	20mA	216W	3700µF	90%
DCHBW200-48S28		28 VDC	0mA	7.5A	200mVp-p	25mA	210W	2600µF	91%
DCHBW200-48S48		48 VDC	0mA	4.5A	300mVp-p	25mA	216W	930µF	90%
DCHBW200-110S3.3	110 VDC (43 - 160 VDC)	3.3 VDC	0mA	57A	75mVp-p	10mA	188W	172000µF	87%
DCHBW200-110S05		5 VDC	0mA	44A	75mVp-p	10mA	220W	88000µF	89%
DCHBW200-110S12		12 VDC	0mA	20A	100mVp-p	10mA	240W	16600µF	89%
DCHBW200-110S15		15 VDC	0mA	16A	100mVp-p	10mA	240W	10600µF	90%
DCHBW200-110S24		24 VDC	0mA	10A	200mVp-p	10mA	240W	4100µF	89%
DCHBW200-110S28		28 VDC	0mA	8.5A	200mVp-p	15mA	238W	3000µF	90%
DCHBW200-110S48		48 VDC	0mA	5A	300mVp-p	15mA	240W	1000µF	89%

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							
Operating Input Voltage Range	24VDC Nominal Input Models	3.3Vout & 5Vout	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	36.0		
Input Surge Voltage (1 sec max.)	24VDC Nominal Input Models				50	VDC	
	48VDC Nominal Input Models				100		
	110VDC Nominal Input Models				185		
Input Current	No Load		See Table				
Input Filter ⁽²⁾			Pi Type				
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	Maximum output deviation is inclusive of remote sense		-20		+10	%	
Remote Sense	If remote sense is not being used, sense pins should be connected to corresponding polarity OUTPUT pins.				10	%Vout (nom)	
Output Power			See Table				
Output Current			See Table				
Maximum Capacitive Load			See Table				
Ripple & Noise (20MHz bandwidth)	With a 1µF/25V X7R MLCC and a 22µF/25V POS-CAP	3.3V and 5V Models		75		mVp-p	
	With a 1µF/25V X7R MLCC and a 22µF/25V POS-CAP	12V and 15V Models		100			
	With a 4.7µF/50V X7R MLCC	24V and 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	%/°C	

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
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SPECIFICATION				TEST CONDITIONS		Min	Typ	Max	Unit
REMOTE ON/OFF CONTROL ⁽³⁾									
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 Pin				-0.5		1		mA	
Remote OFF Input Current					3			mA	
Sync Pin Signal				-0.3		5.6		VDC	
PROTECTION									
Short Circuit Protection				Continuous, Automatic Recovery					
Over Load Protection		% of Iout rated; Hiccup mode		120		150		%	
Over Voltage Protection		% of Vout (nominal); Hiccup Mode		115		130		%	
Over Temperature Protection					120			°C	
ENVIRONMENTAL SPECIFICATIONS									
Operating Case Temperature		Base-Plate		-40		+115		°C	
Storage Temperature		Terminal Block Type		-40		+105		°C	
		Others		-55		+125			
Thermal Impedance		Standard Module Without Assembly Options			6.1			°C/W	
		Only Mount on the Iron Base-Plate			2.8				
		With 0.45" Heatsink			4.6				
		With 0.65" Heatsink			3.2				
		With 1" Heatsink			2.5				
Maximum Case Temperature						+115		°C	
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		296,100 hours					
GENERAL SPECIFICATIONS									
Efficiency				See Table					
Switching Frequency				225	250	275		kHz	
Isolation Voltage	110VDC Input Models	1 minute (reinforced insulation)	Input to Output	3000				VAC	
			Input (Output) to Case	1500					
	Others	1 minute	Input to Output	3000			VDC		
			Input (Output) to Case	1600					
Isolation Resistance		500VDC		1				GΩ	
Isolation Capacitance						2500		pF	
PHYSICAL SPECIFICATIONS									
Weight		Standard		3.70oz (105g)					
		Terminal Block ("T" Suffix)		8.29oz (235g)					
		Terminal Block with EMC Filter, connected to PE ("TF1" suffix)		10.12oz (287g)					
Dimensions (L x W x H)		Standard		2.4 x 2.28 x 0.5in (61 x 57.9 x 12.7mm)					
		Terminal Block ("T" Suffix)		3.35 x 2.4 x 1.35in (85 x 61 x 34.2mm)					
		Terminal Block with EMC Filter, connected to PE ("TF1" suffix)		3.35 x 2.4 x 1.59in (85.0 x 61 x 40.5mm)					
Case Material		24VDC and 48VDC Nominal Input Voltage Models		Metal					
Base Material		110VDC Nominal Input Voltage Models		Aluminum Base-Plate with Plastic Case					
Potting Material		24VDC and 48VDC Nominal Input Voltage Models		FR4 PCB					
				Silicone (UL94 V-0)					
SAFETY & EMC CHARACTERISTICS									
Safety Approvals ⁽⁴⁾				IEC/EN/UL62368-1		CB:UL (Demko)			
Standard Approvals				EN50155, EN45545-2					
EMI ⁽⁵⁾		EN55032, EN50121-3-2	"TF1" Suffix Models	Class A					
EMS		EN55035, EN50121-3-2	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	20 V/m	Perf. Criteria A					
Fast Transient ⁽⁶⁾		EN61000-4-4	±2KV	Perf. Criteria A					
Surge ⁽⁶⁾		EN61000-4-5	±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

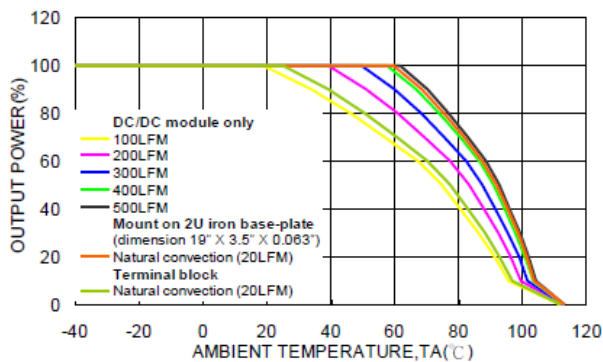
- (1) This series comes with several different options that will affect model name: Negative remote on/off control, heatsinks, pin length, thru-hole inserts, conformal coating, and terminal blocks. See the "Product Options" table on page 5 for more ordering information.
- (2) Input source impedance: the power module will operate as specified without external components, assuming that the source voltage has a very low impedance and reasonable input voltage regulation. Highly inductive source impedances can affect the stability of the power module. Since real-world voltage source has finite impedance, performance can be improved by adding external filter capacitor. For 24V and 48V input models, we recommend Nippon Chemi-con KY series, 100 μ F/100V. For 110V input models, we recommend Ruby-con BXF series, 68 μ F/200V
- (3) Referred to -Vin pin
- (4) This product is Listed to applicable standards and requirements by UL.
- (5) Connecting four screw bolts to shield plane will help to reduce the EMI.
- (6) With 2pcs of aluminum electrolytic capacitor:
For 24 & 48VDC nominal input models: Nippon Chemi-con KY series, 220 μ F/100V
For 110VDC nominal input models: Nippon Chemi-con KXJ series, 150 μ F/200V

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

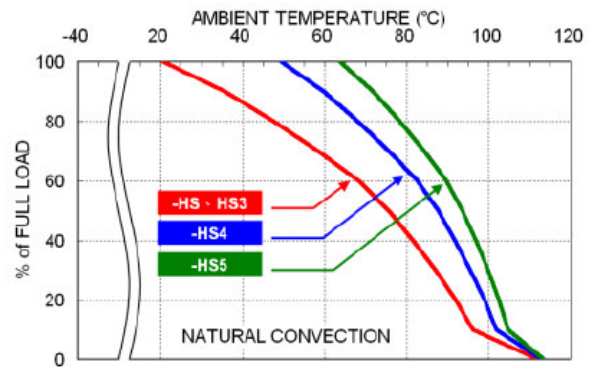
Due to advances in technology, specifications are subject to change without notice.

DERATING CURVES

DCHBW200-48S05 Derating Curve (See Thermal Considerations)

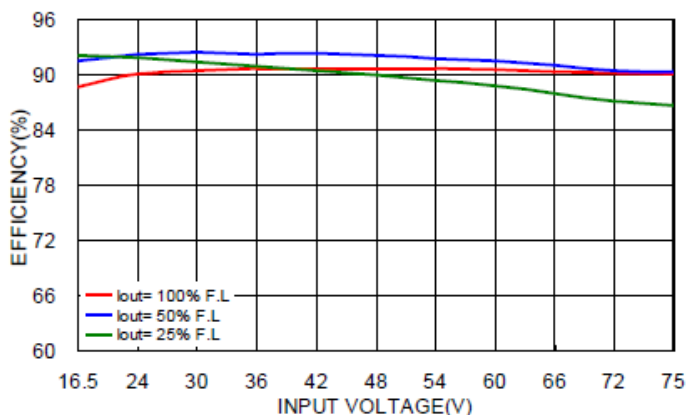


DCHBW200-48S05 Derating Curve with Heatsink

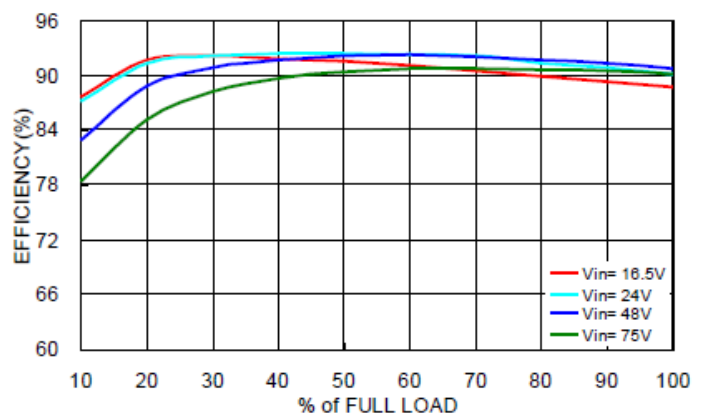


EFFICIENCY GRAPHS

DCHBW200-48S05 Efficiency vs. Input Voltage

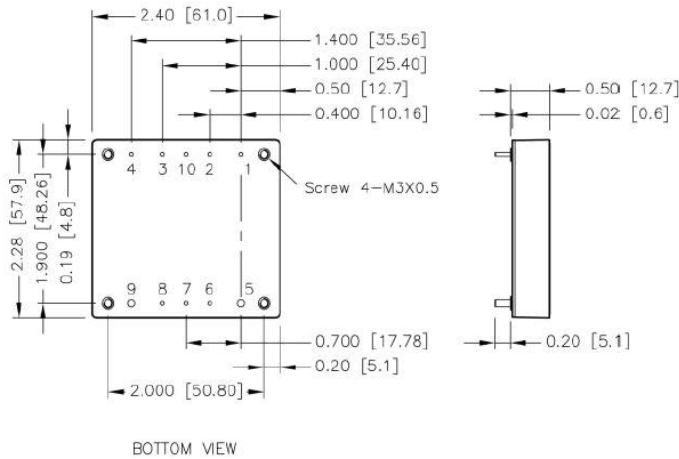


DCHBW200-48S05 Efficiency vs. Output Load



MECHANICAL DRAWINGS

METAL CASE (24VDC & 48VDC Nominal Input Models)



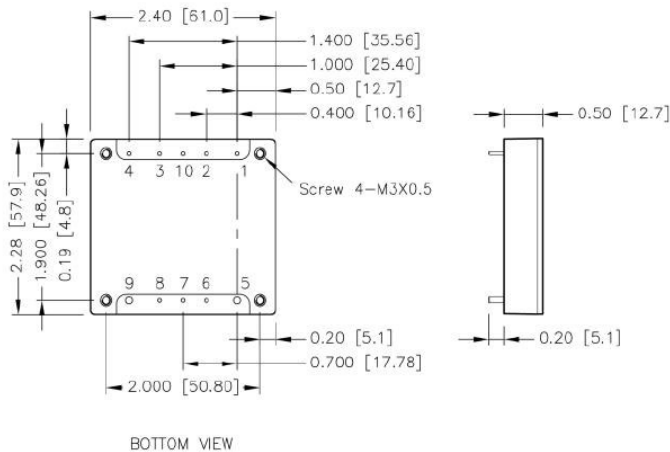
BOTTOM VIEW

Screw Locked Torque: MAX 5.0kgf-cm/0.49N-m

PIN CONNECTION

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

PLASTIC CASE (110VDC Nominal Input Models)



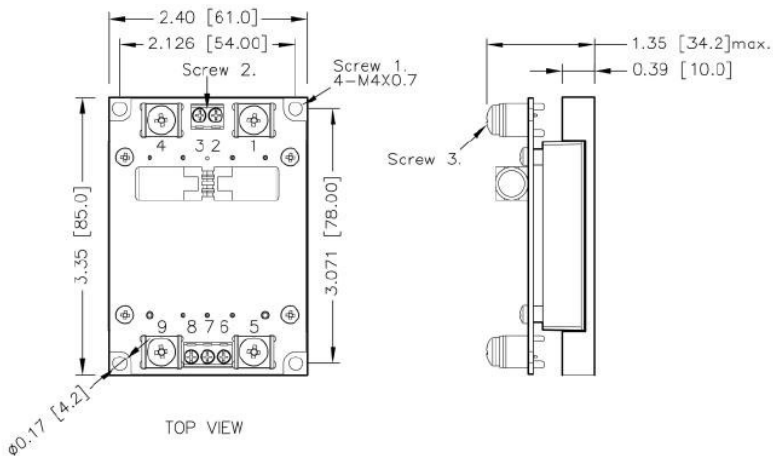
BOTTOM VIEW

Screw Locked Torque: MAX 3.5kgf-cm/0.34N-m

Notes:

1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$)
 $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. Pin Dimension Tolerance ± 0.004 (0.1)

Terminal Block without EMC Filter, Suffix: -T



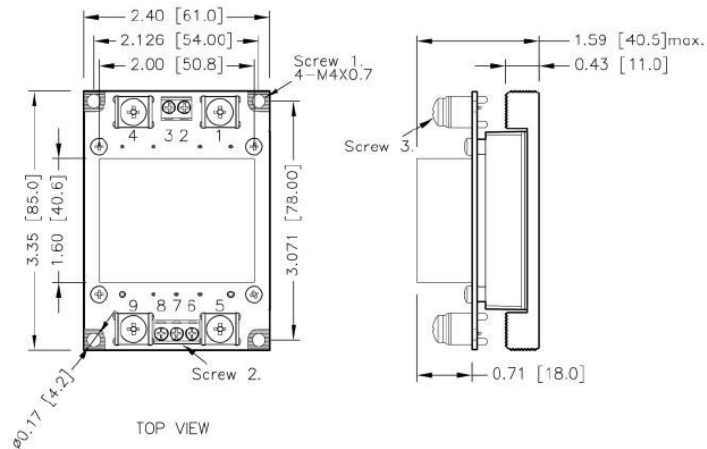
TOP VIEW

TERMINAL CONNECTION

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

1. All dimensions in Inch (mm)
2. Tolerance: $X.XX \pm 0.02$ ($X.X \pm 0.5$)
 $X.XXX \pm 0.01$ ($X.XX \pm 0.25$)
3. The screw 1 locked torque: MAX 11.2kgf-cm (1.10N-m)
4. The screw 2 locked torque: MAX 5.2kgf-cm (0.51N-m)
5. The screw 3 locked torque: MAX 12kgf-cm (1.18N-m)

Terminal Block with EMC Filter: -TF1



TERMINAL CONNECTION

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

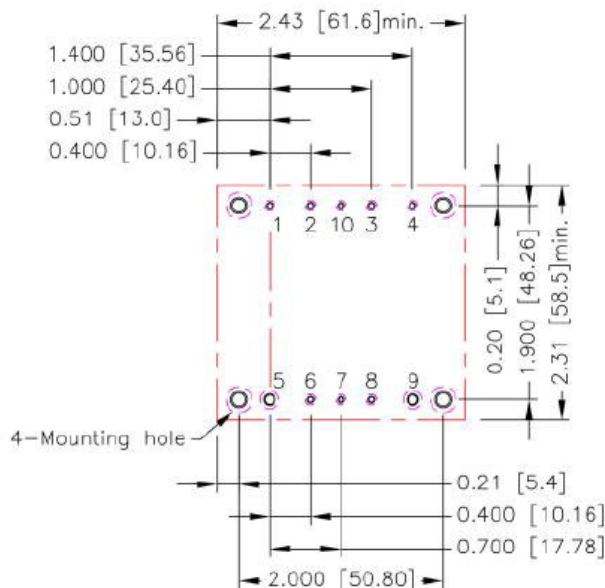
1. All dimensions in Inch (mm)
2. Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
3. The screw 1 locked torque: MAX 11.2kgf-cm (1.10N-m)
4. The screw 2 locked torque: MAX 5.2kgf-cm (0.51N-m)
5. The screw 3 locked torque: MAX 12kgf-cm (1.18N-m)

Product Options			Product Options		
Negative Remote	0.200" pin length	R	Heatsinks	H = 0.45" 7G-0021A-F	H
ON/OFF Logic	0.145" pin length	RL		H = 0.45" 7G-0024A-F	H3
Positive Remote	0.200" pin length	None		H = 0.65" 7GA0127P01-F	H4
ON/OFF Logic	0.145" pin length	S		H = 1" 7GA0128P01	H5
Thru-Hole Inserts	No Thread	TH ⁽¹⁾	Terminal Block	Chassis Mounted without EMC Filter	T ⁽³⁾
Sync Pin		SY ⁽²⁾		Chassis Mounted with integrated EMC filter & meets EN55032 Class A; can be connected to PE	TF1 ⁽³⁾
Case Pin		CP ⁽²⁾	Conformal Coating ⁽⁴⁾	Conformal Coating	Q

NOTES

1. Model with thru-hole inserts cannot be equipped with a heatsink.
2. No "SY" or "CP" function for terminal block types.
3. Only 0.200" pin length is available with terminal block options.
4. Conformal coating only available for chassis mount types

RECOMMENDED PAD LAYOUT



All dimensions in inch[mm]

Pad size (lead free recommended)

Through hole 1,2,3,4,6,7,8,10: $\Phi 0.051[1.30]$

Through hole 5,9: $\Phi 0.091[2.30]$

Through hole of mounting: $\Phi 0.126[3.20]$

Top view pad 1,2,3,4,6,7,8,10: $\Phi 0.064[1.63]$

Top view pad 5,9: $\Phi 0.113[2.88]$

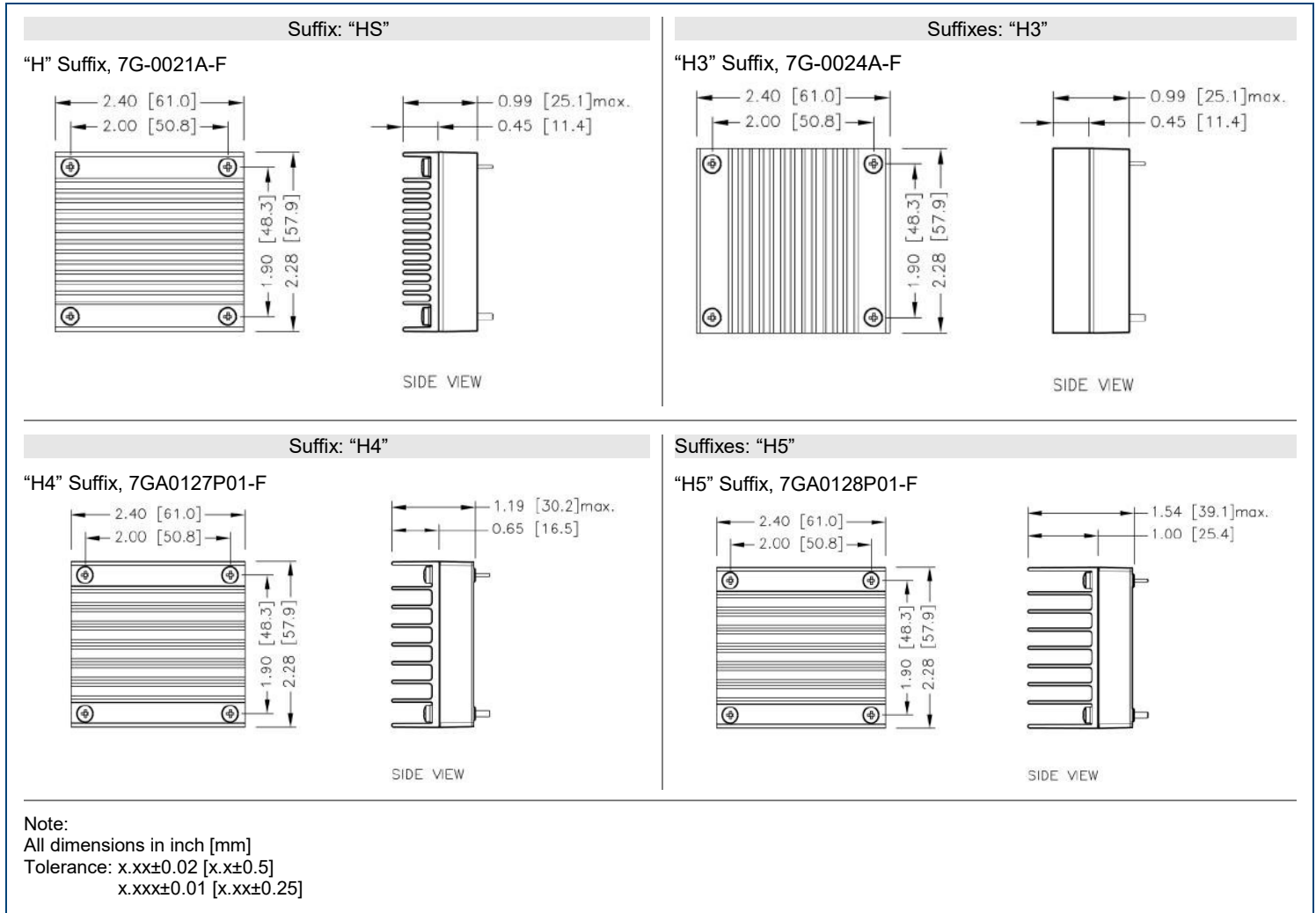
Top view pad of mounting: $\Phi 0.157[4.00]$

Bottom view pad 1,2,3,4,6,7,8,10: $\Phi 0.102[2.60]$

Bottom view pad 5,9: $\Phi 0.181[4.60]$

Bottom view pad of mounting: $\Phi 0.252[6.40]$

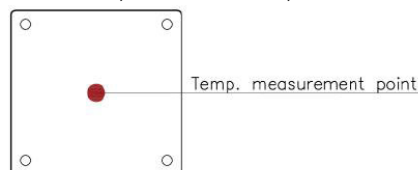
HEATSINK OPTIONS



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.

- 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-0024A-F, 7GA0127P01-F, 7GA0128P01-F.



BASE PLATE

FUSE CONSIDERATIONS

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.

To maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse.

Model	Fuse Rating (A)	Fuse Type
DCHBW200-24Sxx	32	Fast-Acting
DCHBW200-48Sxx	20	Fast-Acting
DCHBW200-110Sxx	10	Fast-Acting

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 or -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

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

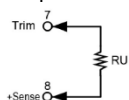
Trim Down Equation

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

External Output Trimming

Output can be externally trimmed by using the method shown below.

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
R _U (k Ω)	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
R _U (k Ω)	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
R _U (k Ω)	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
R _U (k Ω)	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
R _U (k Ω)	1876.776	947.184	637.320	482.388	389.429	327.456	283.190	249.990	224.168	203.510

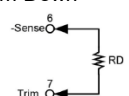
28V Models

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
R _U (k Ω)	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
R _U (k Ω)	3855.551	1946.367	1309.973	991.776	800.857	673.578	582.665	514.480	461.447	419.020

Trim Down

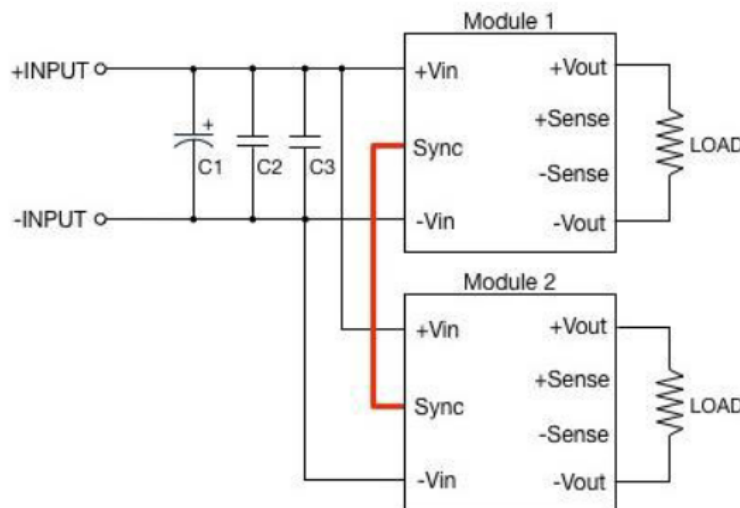


All Models

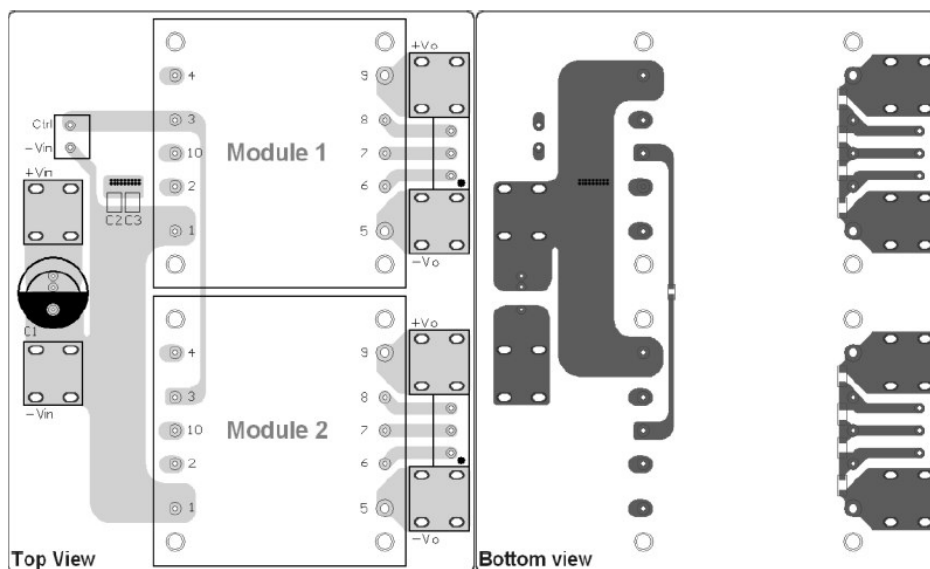
ΔV (%)	1	2	3	4	5	6	7	8	9	10
R _D (k Ω)	98.000	48.000	31.333	23.000	18.000	14.667	12.286	10.500	9.111	8.000
ΔV (%)	11	12	13	14	15	16	17	18	19	20
R _D (k Ω)	7.091	6.333	5.692	5.143	4.667	4.250	3.882	3.556	3.263	3.000

SYNCHRONOUS PIN

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



Synchronous Circuits



Recommended Layout

24V, 48V Input

Component	Value	Voltage	Reference
C1	220 μ F	100V	Nippon chemi-con KY-series
C2, C3	2.2 μ F	100V	1812 MLCC

110V Input

Component	Value	Voltage	Reference
C1	150 μ F	200V	Nippon chemi-con KXJ-series
C2, C3	1 μ F	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 modules.
- Up to three modules can be synchronized using this technique.

MODEL NUMBER SETUP

DCHBW		200	-	24	S	12	R
Series Name	Output Power			Input Voltage	Output Quantity	Output Voltage	Remote On/Off & Pin Length
	200: 200 Watts			24: 8.5-36 VDC 9-36 VDC 48: 16.5-75 VDC 110: 43-160 VDC	S: single	3.3: 3.3 VDC 05: 5 VDC 12: 12 VDC 15: 15 VDC 24: 24 VDC 28: 28 VDC 48: 48 VDC	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

Y	C	TH	H	TF	Q
Sync Pin ⁽²⁾	Case Pin ⁽²⁾	Thru-Hole Inserts ⁽¹⁾	Heatsink ⁽¹⁾	Terminal Block ⁽³⁾	Conformal Coating ⁽⁴⁾
SY: Sync Pin	CP: Case Pin	None: Threaded Inserts TH: No Thread	None: No Heatsink H: 0.45" 7G-0021A-F H3: 0.45" 7G-0024A-F H4: 0.65" 7GA0127P01-F H5: 1" 7GA0128P01-F	None: No Terminal Block T: Chassis Mounted without EMC Filter Chassis Mounted with Integrated EMI Filter and Meets EN55032 Class A; Can be Connected to PE TF1:	None: None Q: Conformal Coated

Notes

1. Model with thru-hole inserts cannot be equipped with a heatsink.
2. No "SY" or "CP" function for terminal block types.
3. Only 0.200" pin length is available with terminal block options.
4. Conformal coating only available for chassis mount types

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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