Standards Models

Size: 2.40 x 2.28 x 0.50 inches

Heatsink Models ("H3" suffix)

Size: 3.35 x 2.40 x 1.27 inches

Wall Mount without EMC Filter ("T" suffix)

Size: 3.35 x 2.40 x 1.47 inches

Terminal Block w/ EMC Filter ("TF1" suffix)

Size: 3.35 x 2.40 x 1.59 inches

OPTIONS

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

FEATURES

- 2:1 Wide Input Voltage Ranges
- 165~255 Watts Output Power
- No Minimum Load Requirements
- Adjustable Output Voltage
- Remote On/Off Control
- Industry Standard Half-Brick Footprint
- High Efficiency up to 93%
- Single Outputs Ranging from 3.3VDC to 53VDC
- Threaded Inserts and Thru-Hole Inserts Available
- Short Circuit, Over Voltage, Over Load, & Over Temp. Protection
- -40°C to +115°C Operating Case Temperature
- RoHS & REACH Compliant
- CE Marked
- IEC/EN/UL62368-1 Safety Approvals
- Several Mechanical Options Available

APPLICATIONS

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

DESCRIPTION

The DCHB200 series of DC/DC power converters provides up to 255 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 53VDC with 2:1 wide input voltage ranges. Some features include high efficiency up to 93%, adjustable output voltage, and remote on/off control. These converters also have short circuit, over voltage, over current, and over temperature protection. The DCHB200 series is RoHS compliant and IEC/EN/UL62368-1 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.

MODEL SELECTION TABLE

Model Number	Input Voltage	Output Voltage	Output Current		No Load [2] Input Current	Ripple & Noise [3] [4]	Output Power	Maximum Capacitive Load [5]	Efficiency [3]
			Min. load	Full load					
DCHB200-12S3.3	12 VDC (9 - 22 VDC)	3.3 VDC	0mA	50A	25mA	75mVp-p	165W	151000µF	87%
DCHB200-12S05		5 VDC	0mA	36A	90mA	75mVp-p	180W	72000µF	90%
DCHB200-12S12	12 VDC (8.5 - 22 VDC)	12 VDC	0mA	15A	90mA	100mVp-p	180W	12500µF	90%
DCHB200-12S15		15 VDC	0mA	12A	55mA	100mVp-p	180W	8000µF	90%
DCHB200-12S24		24 VDC	0mA	7.5A	70mA	200mVp-p	180W	3100µF	90%
DCHB200-12S28		28 VDC	0mA	6.5A	55mA	200mVp-p	182W	2300µF	90%
DCHB200-12S48		48 VDC	0mA	3.7A	75mA	300mVp-p	177.6W	770µF	89%
DCHB200-24S3.3	24 VDC (16.5 - 36 VDC)	3.3 VDC	0mA	50A	20mA	75mVp-p	165W	151000µF	88%
DCHB200-24S05		5 VDC	0mA	40A	35mA	75mVp-p	200W	80000µF	91%
DCHB200-24S12		12 VDC	0mA	18A	45mA	100mVp-p	216W	15000µF	91%
DCHB200-24S15		15 VDC	0mA	15A	45mA	100mVp-p	225W	10000µF	91%
DCHB200-24S24		24 VDC	0mA	9A	40mA	200mVp-p	216W	3700µF	93%
DCHB200-24S28		28 VDC	0mA	7.5A	50mA	200mVp-p	210W	2600µF	93%
DCHB200-24S48		48 VDC	0mA	4.5A	50mA	300mVp-p	216W	930µF	91%
DCHB200-48S3.3	48 VDC (33 - 75 VDC)	3.3 VDC	0mA	60A	20mA	75mVp-p	198W	181000µF	90%
DCHB200-48S05		5 VDC	0mA	46A	20mA	75mVp-p	230W	92000µF	91%
DCHB200-48S12		12 VDC	0mA	21A	25mA	100mVp-p	252W	17500µF	91%
DCHB200-48S15		15 VDC	0mA	17A	25mA	100mVp-p	255W	11300µF	93%
DCHB200-48S24		24 VDC	0mA	10.5A	25mA	200mVp-p	252W	4300µF	92%
DCHB200-48S28		28 VDC	0mA	9A	25mA	200mVp-p	252W	3200µF	92%
DCHB200-48S48		48 VDC	0mA	5.2A	25mA	300mVp-p	249.6W	1000µF	92%
DCHB200-48S53		53 VDC	0mA	4.7A	25mA	300mVp-p	249.1W	880µF	92%

SPECIFICATIONS: DCHB200 SERIES

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	12VDC nominal input models	3.3Vout & 5Vout models	9	12	22	VDC
		Other models	8.5	12	22	
	24VDC nominal input models		16.5	24	36	
	48VDC nominal input models		33	48	75	
Start-Up Voltage	12VDC nominal input models				9	VDC
	24VDC nominal input models				18	
	48VDC nominal input models				34	
Shutdown Voltage	12VDC nominal input models		7.3	7.7	8.1	VDC
	24VDC nominal input models		15.5	16	16.3	
	48VDC nominal input models		31.6	32	32.5	
Input Surge Voltage (1sec, max.)	12VDC nominal input models				30	VDC
	24VDC nominal input models				50	
	48VDC nominal input models				100	
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	Maximum output deviation is inclusive of remote sense		-20		+10	%
Remote Sense (See Note 3)	% of nominal Vout				10	%
Output Power			See Table			
Output Current			See Table			
Minimum Load			0			%
Maximum Capacitive Load			See Table			
Ripple & Noise (20MHz bandwidth)	With a 1µF/25V X7R MLCC and a 22µF/25V POS-CAP	3.3Vout & 5Vout		75		mVp-p
	With a 1µF/25V X7R MLCC and a 22µF/25V POS-CAP	12Vout & 15Vout		100		
	With a 4.7µF/50V X7R MLCC	24Vout & 28Vout		200		
	With a 2.2µF/100V X7R MLCC	48Vout & 53Vout		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
REMOTE ON/OFF CONTROL (See Note 4)						
Positive Logic (standard)		DC/DC ON	Open or 3~12 VDC			
		DC/DC OFF	Short or 0~1.2VDC			
Negative Logic (optional)		DC/DC ON	Short or 0~1.2VDC			
		DC/DC OFF	Open or 3~12 VDC			
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 rated Iout; hiccup mode		120		150	%
Over Voltage Protection	% of nominal Vout; hiccup mode		115		130	%
Over Temperature Protection				+120		°C
ENVIRONMENTAL SPECIFICATIONS						
Operating Case Temperature	Base-plate		-40		+115	°C
Maximum Case Temperature					+115	°C
Storage Temperature	Terminal block types		-40		+105	°C
	Others		-55		+125	
Thermal Impedance (See Note 5)	Module without assembly option			6.1		°C/W
	Only mounted on iron base-plate			2.8		
	0.24” height heatsink			5.1		
	0.45” height heatsink			4.6		
	0.65” height heatsink			3.2		
	1” height heatsink			2.5		
Relative Humidity			5		95	% RH
Thermal Shock			MIL-STD-810F			
Vibration			MIL-STD-810F			
MTBF	MIL-HDBK-217F, full load		318,200			hours

SPECIFICATIONS: DCHB200 SERIES

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
GENERAL SPECIFICATIONS						
Efficiency			See Table			
Switching Frequency			225	250	275	kHz
Isolation Voltage	1 minute (basic insulation)	Input to Output	3000			VDC
		Input to Case	1600			
		Output to Case	1600			
Isolation Resistance	500VDC		1			GΩ
Isolation Capacitance					2500	pF
PHYSICAL SPECIFICATIONS						
Weight	Standard models		3.70oz (105g)			
	"T" suffix models		8.29oz (235g)			
	"TF1" suffix models		10.12oz (287g)			
Dimensions (L x W x H)	Standard models		2.40 x 2.28 x 0.50 inches (61.0 x 57.9 x 12.7 mm)			
	"T" suffix models		3.35 x 2.40 x 1.27 inches (85.0 x 61.0 x 32.3 mm)			
	"TF1" suffix models		3.35 x 2.40 x 1.59 inches (85.0 x 61.0 x 40.5 mm)			
Case Material			Metal			
Base Material			FR4 PCB			
Potting Material			Silicon (UL94-V0)			
SAFETY & EMC CHARACTERISTICS						
Safety Approvals (See Note 9)	IEC/EN/UL62368-1		CB: UL (Demko)			
EMI (See Note 6)	EN55022	"TF1" suffix models	Class A			
		Other models, with external components	Class A, Class B			
EMS	EN55024					
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 (See Note 7)	EN61000-4-4	±2kV	Perf. Criteria A			
Surge (See Note 7)	EN61000-4-5	EN55024 ±2kV	Perf. Criteria A			
Conducted Immunity	EN61000-4-6	10 Vrms	Perf. Criteria A			
Power Frequency Magnetic Field	EN61000-4-8	100A/m continuous; 1000A/m 1 second	Perf. Criteria A			

NOTES

1. Input Source Impedance: These converters will operate under all listed specifications without external components assuming that the source voltage has very low impedance and reasonable input voltage regulation. Highly inductive source impedances can affect the stability of the converter. Since real world voltage sources have finite impedance, performance can be improved by adding an external filter capacitor. We recommend Nippon chemi-con KY series, 100µF/100V.

2. (1) Multiple DCHB200 series modules can be synchronized together simply by connecting the module SYNC pins together. Care should be taken to ensure the ground potential differences 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 the application notes.

3. If remote sense is not being used the Sense pins should be connected to its corresponding polarity OUTPUT pins.
4. Referred to -Vin pin
5. (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 the "Model Number Setup" table on page 7 for suffix options.

6. Connecting four screw bolts to shield plane will help to reduce EMI.

7. With 2 pcs of aluminum electrolytic capacitor (Nippon chemi-con KY series, 220µF/100V) in parallel.

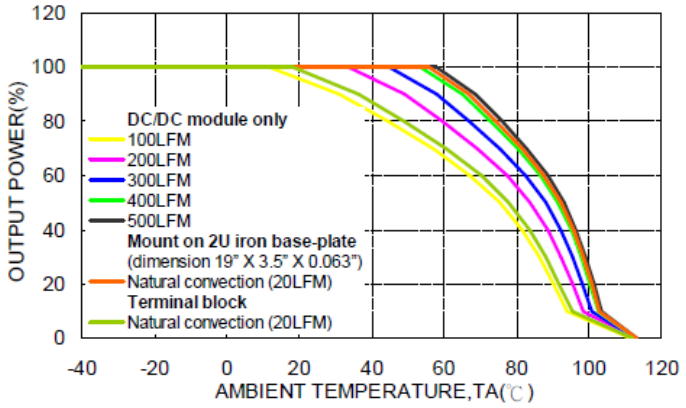
8. This series comes with several different options: negative remote on/off control, heatsinks, case pin, sync pin, pin length, terminal block, and thru-hole inserts. See the "Model Number Setup" table on page 7 for more ordering information.

9. This product is Listed to applicable standards and requirements by UL.

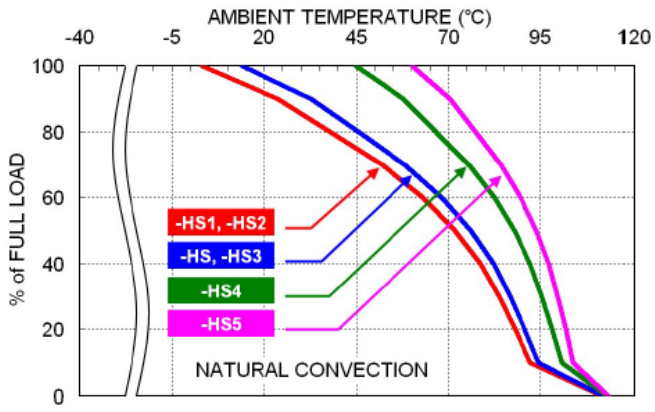
CAUTION: This power converter is not internally fused. An input line fuse must always be used.
Due to advances in technology, specifications are subject to change without notice.

DERATING CURVES

DCHB200-48S05 Derating Curve (Note 5)

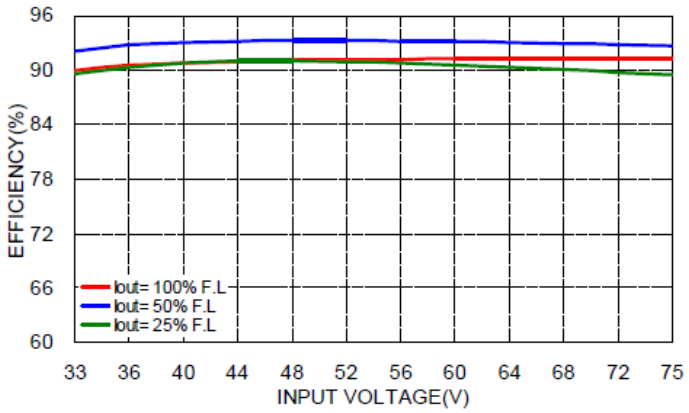


DCHB200-48S05 Derating Curve with 0.24" Height Heatsink (Note 5)

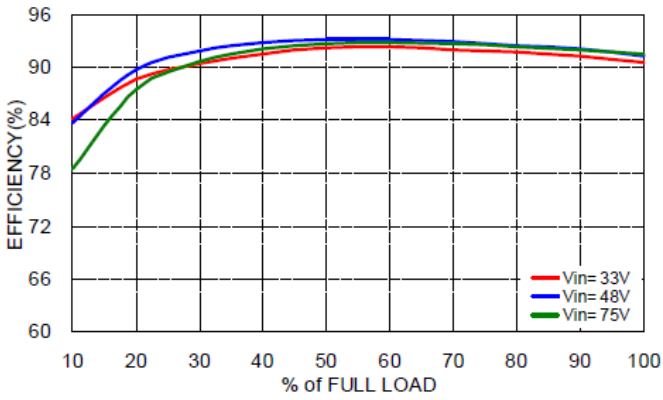


EFFICIENCY GRAPHS

DCHB200-48S05 Efficiency vs Input Voltage

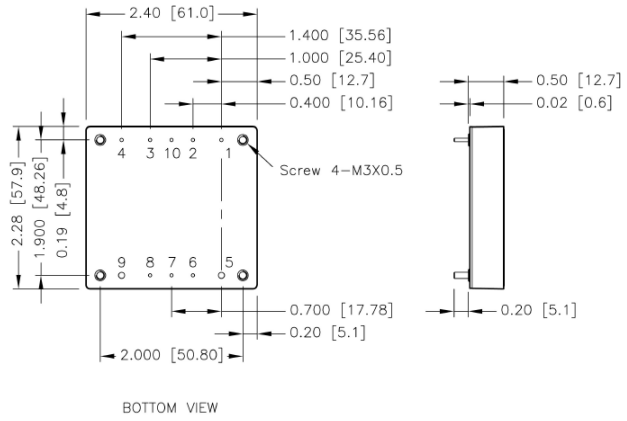


DCHB200-48S05 Efficiency vs Output Load



MECHANICAL DRAWINGS

Standard Model



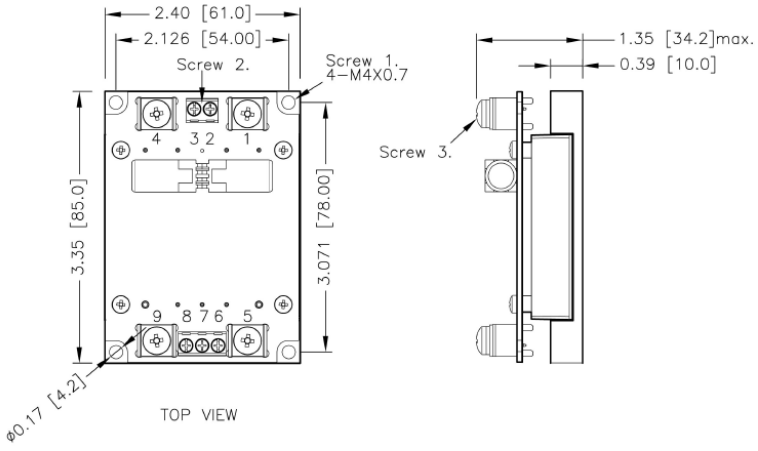
PIN CONNECTION

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

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 dimension tolerance ±0.004(0.1)

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

DCHB200-xxSxx-T

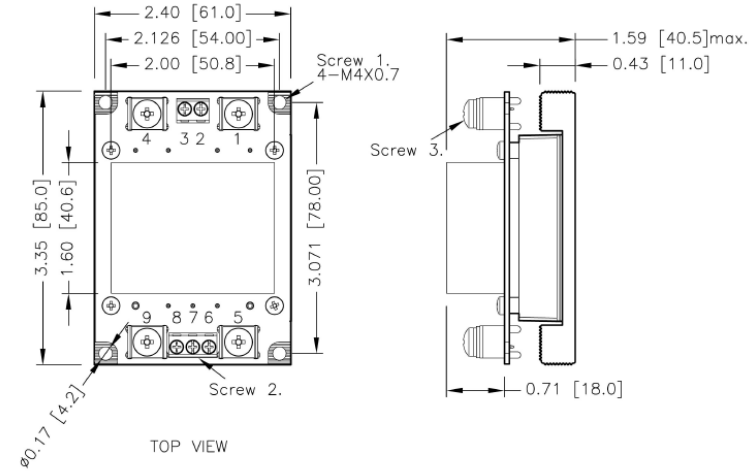


TERMINAL CONNECTION

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. 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

DCHB200-xxSxx-TF1



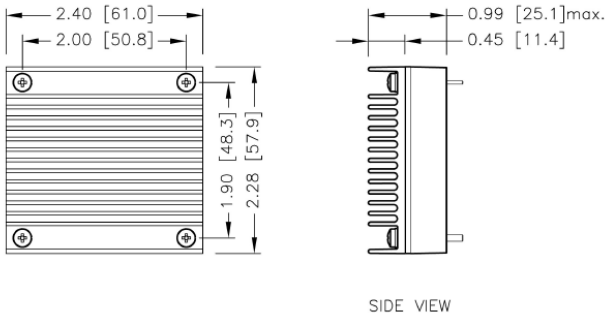
TERMINAL CONNECTION

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

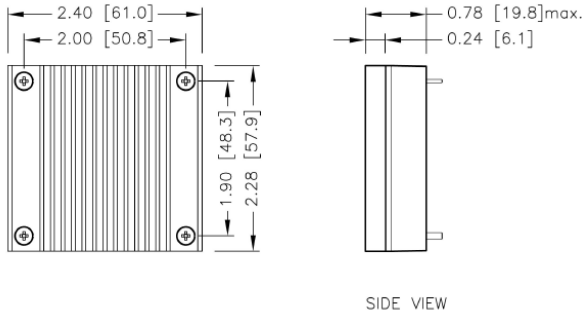
1. All dimensions in inch (mm)
2. Tolerance: x.xx±0.02 (x.x±0.5)
   x.xxx±0.01 (x.xx±0.25)
3. Screw 1 locked torque: MAX 11.2kgf-cm/1.10N-m
4. Screw 2 locked torque: MAX 5.2kgf-cm/0.51N-m
5. Screw 3 locked torque: MAX 16.8kgf-cm/1.65N-m
6. Screw 2：M2.6
7. Screw 3: M5

HEATSINK OPTIONS

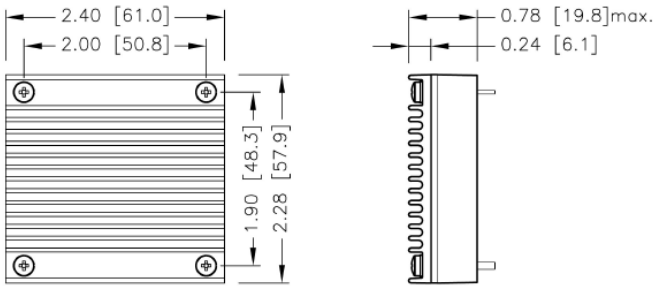
-H Suffix (7G-0021A-F)



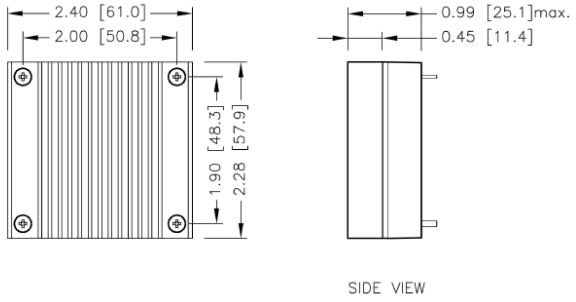
-H1 Suffix (7G-0022A-F)



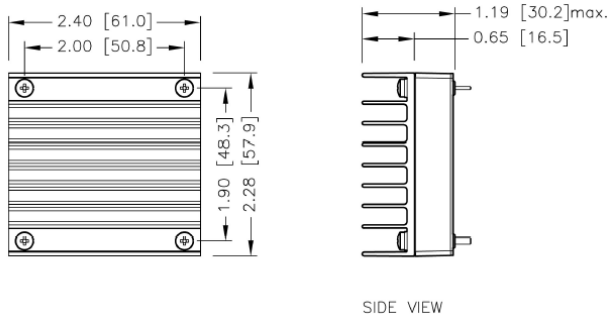
-H2 Suffix (7G-0023A-F)



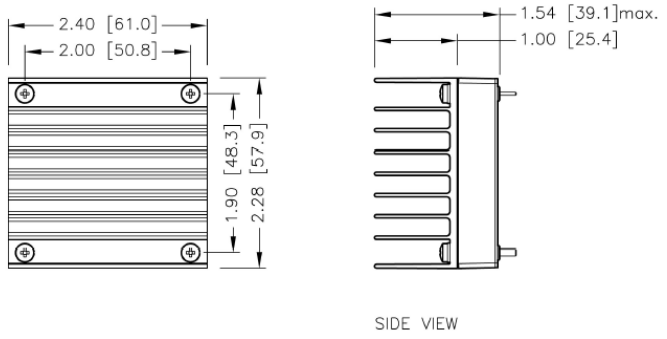
-H3 Suffix (7G-0024A-F)



-H4 Suffix (7GA0127P01-F)

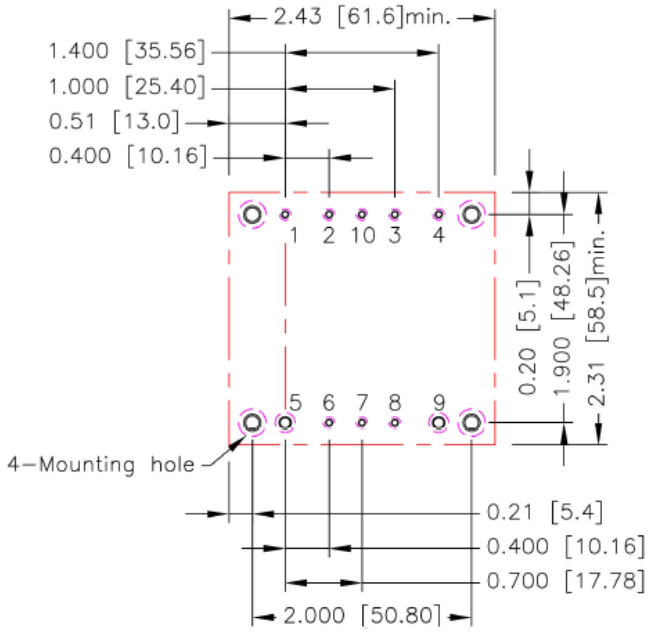


-H5 Suffix (7GA0128P01-F)



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

RECOMMENDED PAD LAYOUT

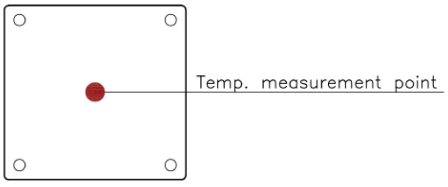


All dimensions in inch[mm]
Pad size(lead free recommended)
Through hole 1,2,3,4,6,7,8,10: Φ0.051[1.30]
Through hole 5,9: Φ0.091[2.30]
Through hole of mounting: Φ0.126[3.20]
Top view pad 1,2,3,4,6,7,8,10: Φ0.064[1.63] Top view pad 5,9: Φ0.113[2.88]
Top view pad of mounting: Φ0.157[4.00] Bottom view pad 1,2,3,4,6,7,8,10: Φ0.102[2.60] Bottom view pad 5,9: Φ0.181[4.60]
Bottom view pad of mounting: Φ0.252[6.40]

THERMAL CONSIDERATION

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-0022A-F, 7G-0023A-F, 7G-0024A-F, 7GA0127P01-F, 7GA0128P01-F.



BASE PLATE

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

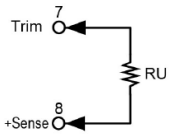
$$R_U = \left(\frac{V_{OUT}(100 + \Delta\%)}{1.225\Delta\%} - \frac{100 + 2\Delta\%}{\Delta\%} \right) k\Omega$$

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

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

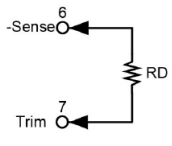
48V Models

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

53V Models

ΔV (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	53.53	54.06	54.59	55.12	55.65	56.18	56.71	57.24	57.77	58.3
RU (kΩ)	4267.796	2154.531	1450.109	1097.898	886.571	745.687	645.055	569.582	510.880	463.918

Trim-Down

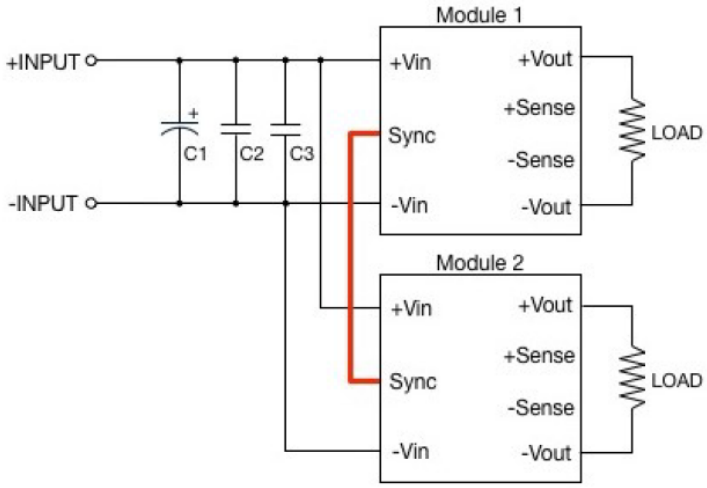


All Models

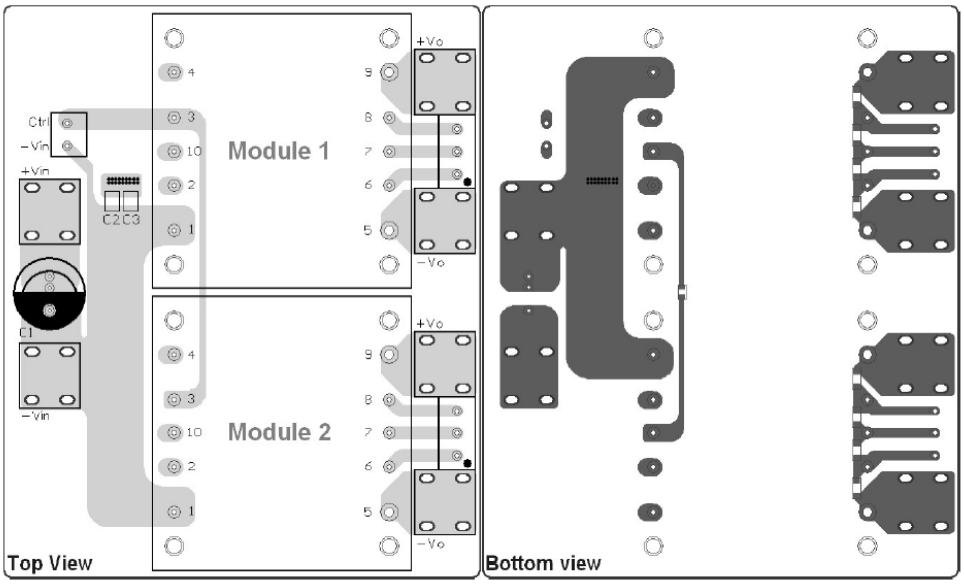
ΔV (%)	1	2	3	4	5	6	7	8	9	10
RD (kΩ)	98.000	48.000	31.333	23.000	18.000	14.667	12.286	10.500	9.111	8.000
ΔV (%)	11	12	13	14	15	16	17	18	19	20
RD (kΩ)	7.091	6.333	5.692	5.143	4.667	4.250	3.882	3.556	3.263	3.000

SYNCHRONOUS PIN

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



Synchronous Circuits



Recommended Layout

"Y" Suffix Models

Component	Value	Voltage	Reference
C1	220µF	100V	Nippon Chemi-Con KY-Series
C2, C3	2.2 µF	100V	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 modules can be synchronized using this technique.

MODEL NUMBER SETUP

DIP Type

DCHB	200	-	24	S	12	P
Series Name	Output Power		Input Voltage	Output Quantity	Ouptut Voltage	Remote On/Off & Pin Length
	200: 200 Watts		**12:** 8.5~22 VDC 9~22 VDC **24:** 16.5~36 VDC **48:** 33~75 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 **53:** 53 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
Sync Pin(2)	Case Pin(2)	Thru-Hole Inserts(1)	Heatsink
Blank: No Pin **SY:** sync pin	**Blank:** No Pin **CP:** case pin	**None:** threaded inserts **TH:** No Thread	**None:** no heatsink **H:** H=0.45” vertical 7G-0021A-F **H1:** H=0.24” horizontal 7G-0022A-F **H2:** H=0.24” vertical 7G-0023A-F **H3:** H=0.45” horizontal 7G-0024A-F **H4:** H=0.65” 7GA0127P01-F **H5:** H=1” 7GA0128P01-F

Wall Mounted Type

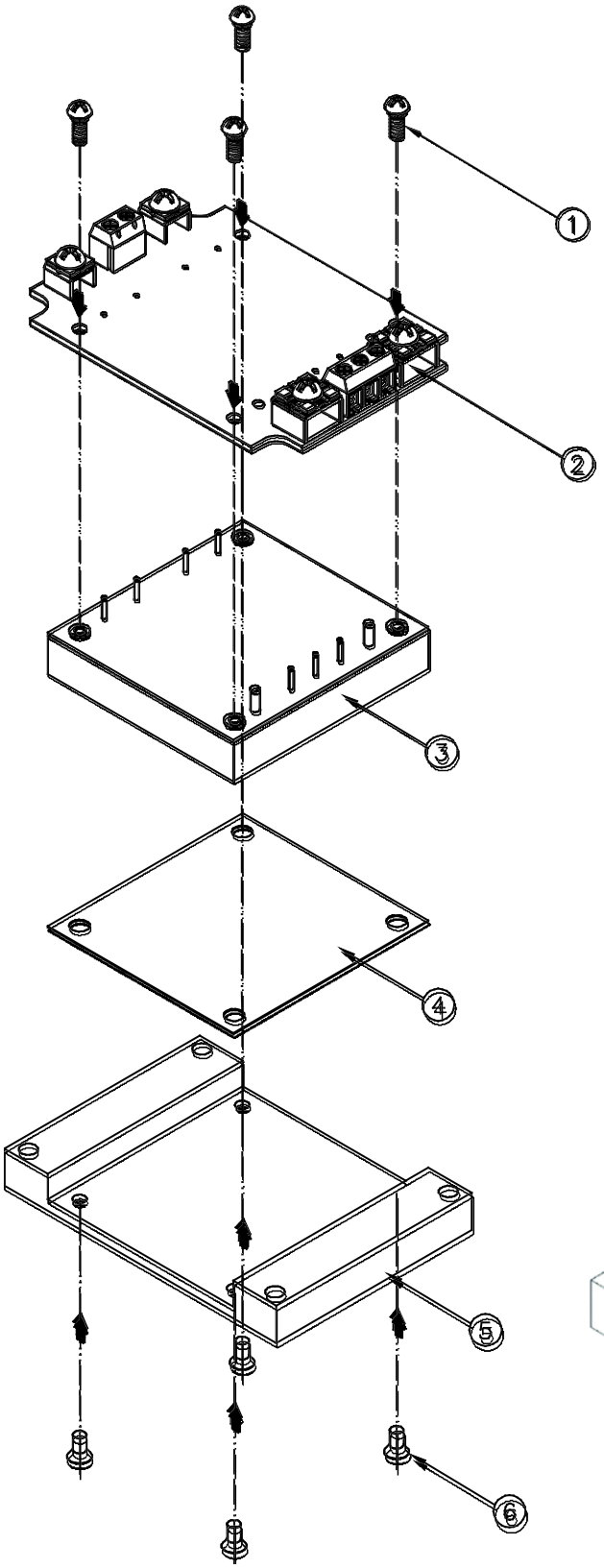
DCHB	200	-	24	S	12	P
Series Name	Output Power		Input Voltage	Output Quantity	Ouptut Voltage	Ctrl and Pin Options
	200: 200 Watts		**12:** 8.5~22 VDC 9~22 VDC **24:** 16.5~36 VDC **48:** 33~75 VDC	**S:** Single	**3.3:** 3.3 VDC **05:** 5 VDC **12:** 12 VDC **15:** 15 VDC **24:** 24 VDC **28:** 28 VDC **48:** 48 VDC **53:** 53 VDC	**None:** positive Logic, 0.200” pin length **R:** negative Logic, 0.200” pin length

TF1	R
Assembly Options	Conformal Coating Options
T: Without EMC Filter **TF1:** Integrated EMC filter and meets EN55032 Class A can be connected to PE	**None:** None **T:** Conformal Coating

NOTES
1. Models with thru-hole inserts cannot be equipped with a heatsink.
2. No “SY” or “CP” functions for terminal block types.
3. Only 0.200” pin length is available with terminal block options.

APPLICATION NOTES

Assembly



① Round-Head screw and spring washer (see note)

② Terminal block

③ DC/DC converter

④ Thermal pad

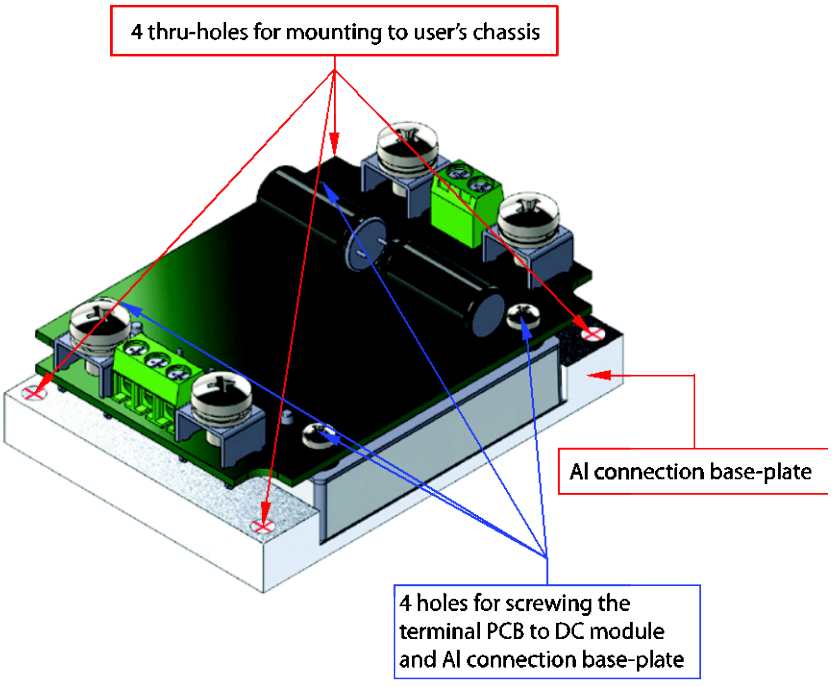
⑤ Aluminum connection base-plate

⑥ Flat-head screw M3X0.5-6L (see note)

Note: Information for Assemble Screw

1. Tools: Automatic screwdriver
2. Torque: 4~5 kgf.cm
3. Assembly Sequence of Screw

   Screw in opposite angles first, then fasten all four screws



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
Web: www.wallindustries.com
Address: 37 Industrial Drive
Exeter, NH 03833

©2021 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.