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Computer Power Supply - BRAIN

Control & Mechanism System Power Supply - LIMBS

Multiple Booster TB series

※ This product specification is subject to change as development is under way.

"Tajubu" Multiple Booster DC to DC Step-up Converter Ultra high Efficiency : 90% or more



TB4S-4000-280

Other	
Continuous max.	Peak
2kW	3kW
~4kW	~9kW

Model	Description	Stock	Standard price (before TAX)
TB4S-4000-280	48V input/284V output type	Contact us.	¥190,000
TB4S-4000-140	48V input/142V output type	Contact us.	¥190,000
TB2S-3000-280	24V input/284V output type	Contact us.	¥205,000
TB2S-3000-140	24V input/142V output type	Contact us.	¥205,000

■ Model name coding ① Series name ④ Output power
 TB ** - **00 - **0 ② Input voltage ⑤ Output voltage
 ③ S: Single type

Features

- Ten times high of input voltage with ultra high efficiency (90%*)
 - Regulated output voltage
 - To endure overcurrent more than double of rated load for 10 seconds. (max 4.5kW output for 10 seconds)
 - Up to three units in parallel to correspond to large power
 - Compact design due to 500kHz switching frequency
- * TB4 series only.

See "Product page guideline" on page C-B1 for Icons explanation.

Safety Standard	UL	CSA	EN	CE	CCC
Reliability Grade	HFA	FA	HOA	OA	

● Input

DC input	TB4S series	18V~32V
	TB2S series	37V~63V

● Output

Model	TB4S-4000-280	TB4S-4000-140	TB2S-3000-280	TB2S-3000-140
Output voltage	284V	142V	284V	142V
Rated current/ Rated power (continuous)	14A	28A	7.04A	14.08A
	3976W	3976W	1999W	1999W
Peak current/ Peak power (within 1 sec)	32A	64A	10.56A	21.12A
	9088W	9088W	2999W	2999W
Min. Load	0A	0A	0A	0A

● Dimension

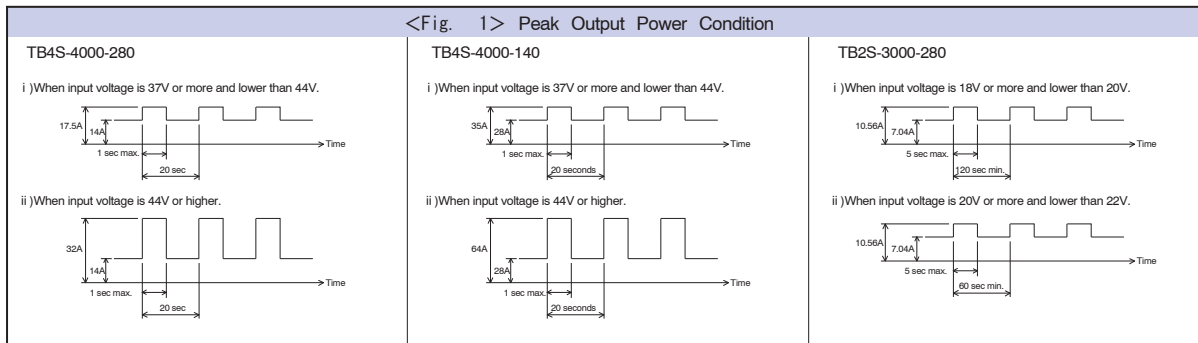
W × H × D (mm)	290 × 200 × 200
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General Specification (All items are provided at normal temperature and humidity unless otherwise specified.)

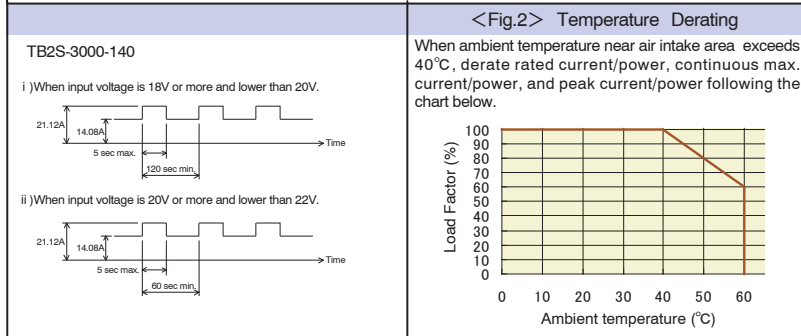
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Page	Items	Specification	Measurement conditions, etc.
DC input	D-6 (1) Rated voltage	TB2S DC 24V TB4S DC4 8V	
	Voltage range	TB2S DC18 to 32V TB4S DC37 to 63V	
		D-6 (3) Efficiency	TB2S 85% min TB4S 90% min
	Input voltage at Startup	DC 40V min.	Startup voltage when input is applied.
	Protection	No protection such fuse in input side is equipped. Employ external protections such as fuse or circuit breaker.	At rated input
	Output	Model	TB4S-4000-280 TB4S-4000-140 TB2S-3000-280 TB2S-3000-140
Rated voltage		284V 142V 284V 142V	
Rated Current/Power		14A 28A 7.04A 14.08A	
		3976W 3976W 1999W 1999W	
D-6 (9) Peak Current/Power		17.5A/32A* 35A/64A* 10.56A 21.12A	*Refer to <Fig.1> "Peak output power condition" below.
		4970W/9088W* 4970W/9088W* 2999W* 2999W*	
Setup voltage		Voltage 284V ± 3V 142V ± 3V 284V ± 3V 142V ± 3V	Setup voltage at Factory and the load current at voltage setup with rated input.
	Current 14A 28A 7.04A 14.08A		
D-7 (12) Max. ripple voltage (Vp-p)	3 max.		
Protection	D-7 (13) Overcurrent Protection	OCP point (A) 17~20A 31~40A 11.6~16.0A 23.2~32.0A	
		Method Hold-down current limiting. When load current exceeding OCP point continues for 2 seconds or longer, boosting operation stops. (Output is not shut down). Recovery Automatic recovery (Reclosing of Input after boosting operation stops)	
	D-7 (14) Overvoltage Protection	OVP point (V) 390±10V 195±20V 390±10V 195±20V	
		Method Halt of boosting operation Recovery Reclosing of Input	
Environment	D-7 (16) Operating Temperature/Humidity	0-60°C/30-95%	Refer to <Fig.2> "Temperature derating" below. No condensation
	D-7 (17) Storage Temp./Humidity	-25-85°C/30-95%	No condensation
	D-7 (18) Vibration	To endure for one hour in each of X-, Y-, and -Z with acceleration of 29.4m/s ² , frequency of 5 to 100Hz, and sweep cycle of three minute.	at No operation
	D-7 (19) Mechanical strength	Apply acceleration of 196m/s ² , shock operation time for 10 msec in each direction of X-, Y-, and X, one time, and no malfunction shall be observed.	at No operation
Insulation	D-7 (20) Dielectric strength	AC 1500V for one minute between DC input/DC output/Signal and Chassis AC 1000V for one minute between DC input/DC output and Signal.	Increased test voltage by 20% for one second is acceptable at final test.
	D-7 (21) Insulation resistance	30MΩ min. between DC input/DC output and Chassis	DC500 Megger
EMC	D-8 (31) Conducted emission	N/A	
	D-7 (24) Electrostatic discharge	EN61000-4-2 Compliant	
	D-7 (29) Power source frequency magnetic field immunity	EN61000-4-8 Compliant	
Others	D-8 (34) Cooling system	Forced air cooling	
	D-8 (35) Output GND grounding	Floating	
	F-3 Reliability Grade	FA (Industrial equipment grade and Double sided PWB with through holes)	To follow our standard
	D-8 (41) MTBF	70,000 hours min.	To follow EIAJ RCR-9102
	F-3 Warranty	3 years after delivery. However, If any faults belong to us, the defective unit shall be repaired or replaced at our cost.	Except wrong operation out of product specification.

<Fig. 1> Peak Output Power Condition



<Fig.2> Temperature Derating



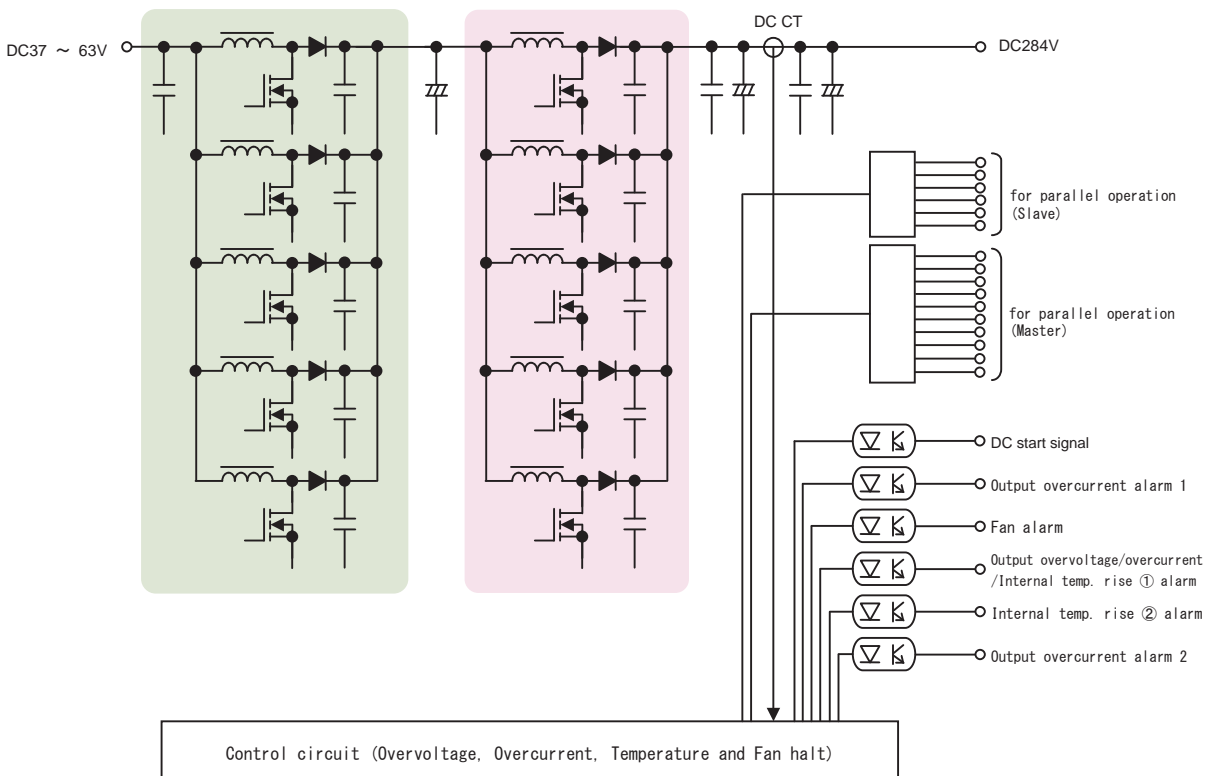
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Signal Input/Output specification (All items are provided at normal temperature and humidity unless otherwise specified).

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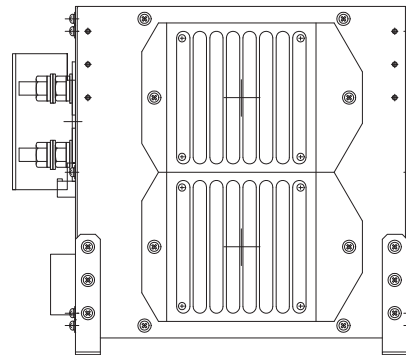
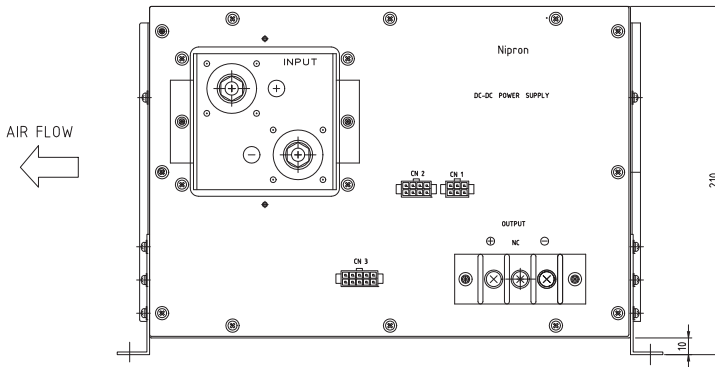
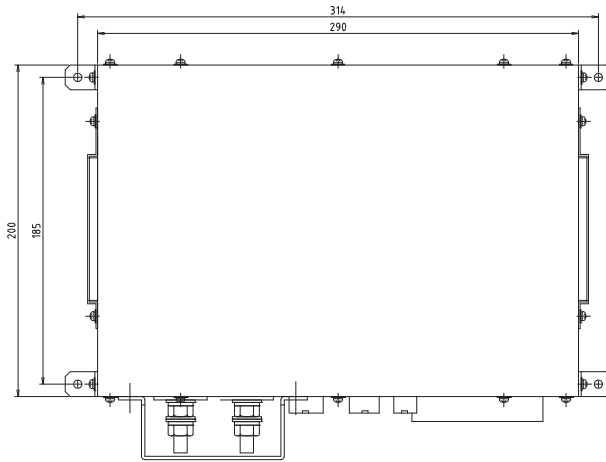
	Items	Specification	Note
Output signal	DC-DC start signal	'L' is delivered at DC-DC startup	CN2 pin 1
	N.C.	—	CN2 pin 2
	Output OCP alarm1	'L' is delivered when output current is 7.5A or more.	CN2 pin 3
	Fan alarm	'L' is delivered when the fan is in normal operation, and 'OPEN' when the fan stops.	CN2 pin 4
	OVP, OCP, Internal Temp. rise ① alarm	'L' is delivered when overvoltage, overcurrent, or internal temp. is detected.	CN2 pin 5
	Internal Temp. rise ② alarm	'L' is delivered when internal fan's temperature rises.	CN2 pin 6
	Output OCP alarm 2	'L' is delivered at OCP detection, and booster operation halt 2 seconds or more after 'L' is delivered.	CN2 pin 7
	COM	GND is in common use for signal output.	CN2 pin 8
Output signal circuit	Signal circuit		

Block Diagram



Outline Drawing

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Items	Specification	Note
DC-DC start signal	'L' is delivered at DC-DC startup.	CN2 pin 1
N.C.	—	CN2 pin 2
Output OCP alarm 1	'L' is delivered when output current is 7.5A or more.	CN2 pin 3
Fan alarm	'L' is delivered when Fan is normal, and 'OPEN' for fan halt.	CN2 pin 4
OVP, OCP, Internal Temp. rise (1) alarm	'L' is delivered when OVP, OCP, or internal temp. rise is detected.	CN2 pin 5
Internal Temp. rise (2) alarm	'L' is delivered at internal fan's temp. rise.	CN2 pin 6
Output OCP alarm 2	'L' is delivered at OCP detector, and boosting stops 2 seconds or more after 'L' is delivered.	CN2 pin 7
COM	GND is in common use for signal output.	CN2 pin 8

■ **Installation direction:**
Installation direction is not limited.

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