



Isolated



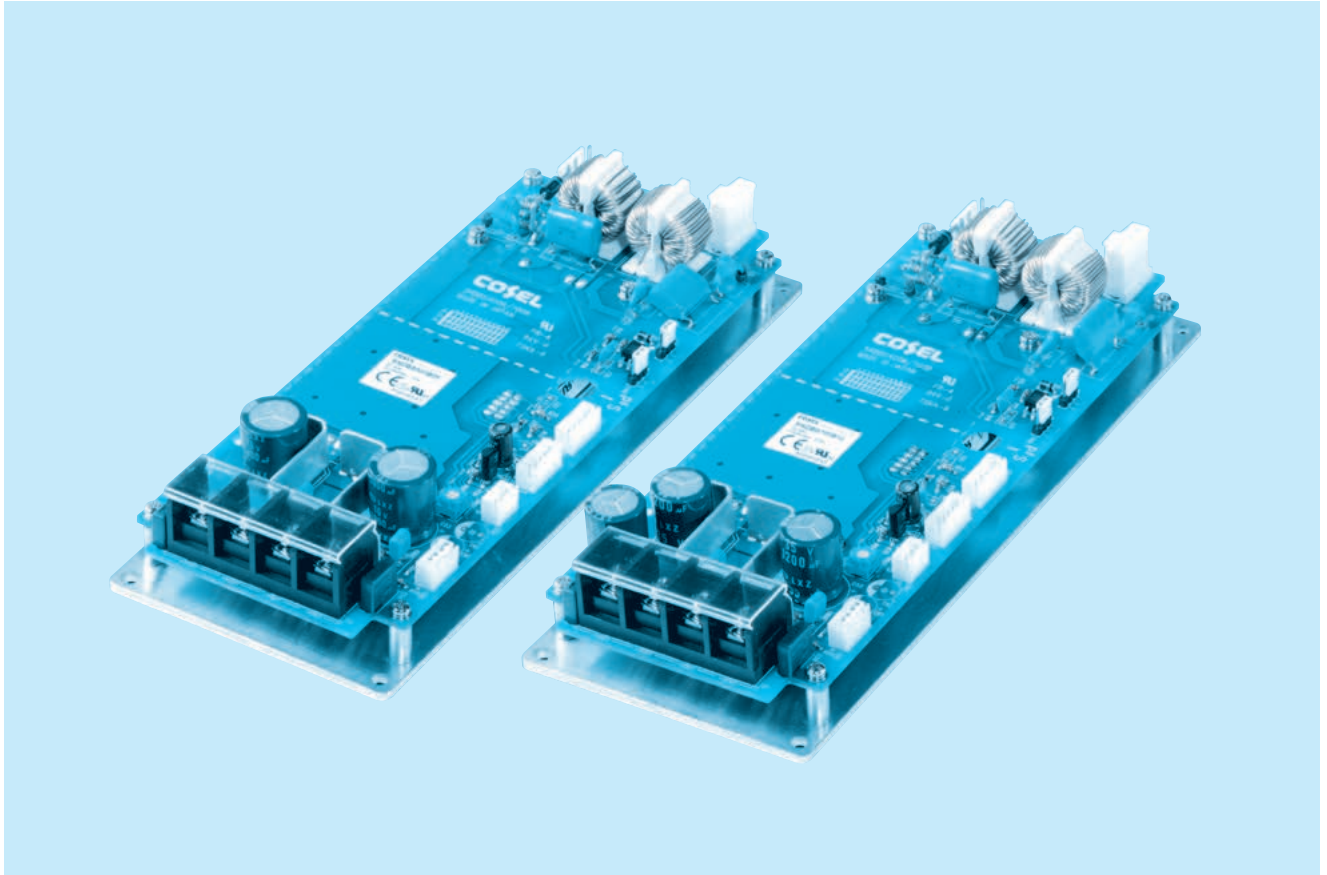
OCP



OVP

Remote
ON/OFFSafety
ApprovalsParallel
Operation

SNDBS-series



Feature

- Compact DC-DC converter, SNDBS series includes DBS series
- Conduction cooling is possible by the combination with SNDPF and SNDPG series
- Built-in overcurrent, overvoltage and thermal protection circuits
- Built-in remote ON/OFF
- Inverter operating monitoring (IOG)
- Parallel operation

Safety agency approvals

UL60950-1, C-UL, EN62368-1

CE marking

Low Voltage Directive
RoHS Directive

UKCA marking

Electrical Equipment Safety Regulations
RoHS Regulations

3-year warranty

SNDBS400B

SNDB S 400 B 03

① ② ③ ④ ⑤



- ① Series name
 ② Single output
 ③ Output wattage
 ④ B : DC200-400V
 ⑤ Output voltage

* Please set short-pieces with 2-3 pins of CN8, when you do not use ENA. Refer to the manual.

MODEL	SNDBS400B03	SNDBS400B05	SNDBS400B07	SNDBS400B12	SNDBS400B15	SNDBS400B18	SNDBS400B24	SNDBS400B28
MAX OUTPUT WATTAGE[W]	264	400	405	408	405	396	408	406
DC OUTPUT	3.3V 80A	5V 80A	7.5V 54A	12V 34A	15V 27A	18V 22A	24V 17A	28V 14.5A

SPECIFICATIONS

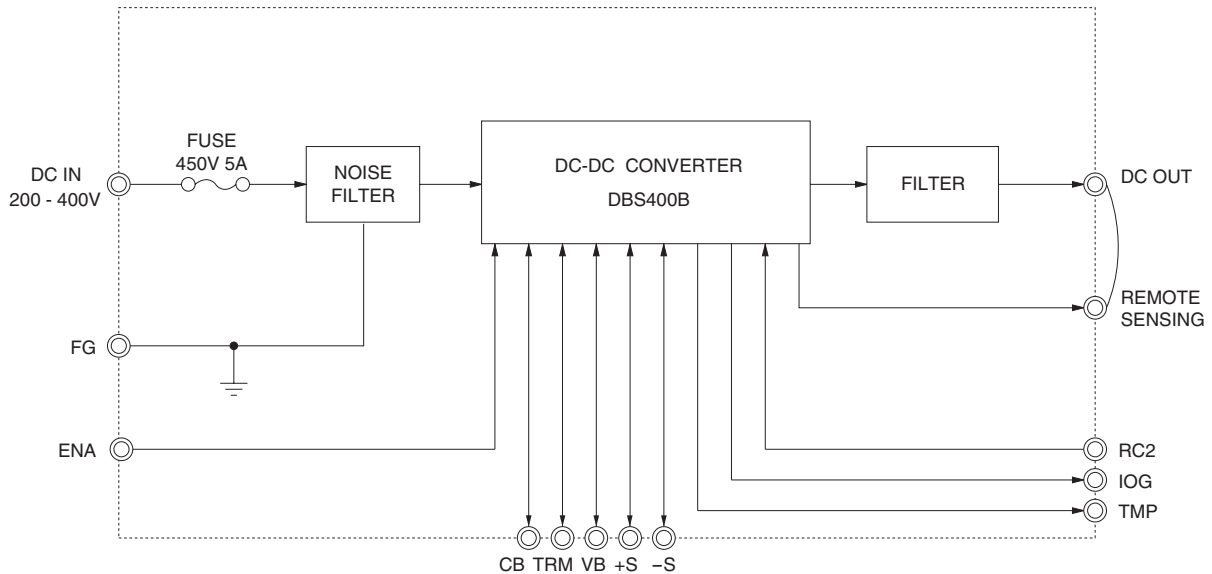
	MODEL	SNDBS400B03	SNDBS400B05	SNDBS400B07	SNDBS400B12	SNDBS400B15	SNDBS400B18	SNDBS400B24	SNDBS400B28
INPUT	VOLTAGE[V]	DC200 - 400							
	CURRENT[A]	*1 1.19typ	1.72typ	1.68typ	1.67typ	1.66typ	1.61typ	1.67typ	1.63typ
	EFFICIENCY[%]	*1 79typ	83typ	86typ	87typ	87typ	89typ	87typ	88typ
OUTPUT	VOLTAGE[V]	3.3	5	7.5	12	15	18	24	28
	CURRENT[A]	80	80	54	34	27	22	17	14.5
	LINE REGULATION[mV]	16max	20max	30max	40max	60max	60max	95max	95max
	LOAD REGULATION[mV]	150max	150max	150max	150max	150max	150max	190max	190max
	RIPPLE[mVp-p]	0 to +80℃ *2 80max	80max	100max	120max	120max	120max	120max	120max
		-20 to 0℃ *2 140max	140max	150max	160max	160max	160max	160max	160max
	RIPPLE NOISE[mVp-p]	0 to +80℃ *2 160max	160max	200max	200max	200max	200max	200max	200max
		-20 to 0℃ *2 250max	250max	280max	280max	280max	280max	280max	280max
	TEMPERATURE REGULATION[mV]	0 to +65℃ 35max	50max	75max	120max	180max	180max	280max	280max
		-20 to +80℃ 60max	85max	130max	200max	310max	310max	480max	480max
	DRIFT[mV]	*3 16max	20max	30max	40max	60max	60max	90max	90max
PROTECTION CIRCUIT AND OTHERS	START-UP TIME[ms]	200max (DCIN 280V, Io=100%)							
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.97 - 3.63	4.50 - 5.50	6.75 - 8.25	10.80 - 13.20	13.50 - 16.50	16.20 - 19.80	21.60 - 26.40	25.20 - 30.80
	OUTPUT VOLTAGE SETTING[V]	3.25 - 3.45	4.90 - 5.20	7.25 - 7.85	11.60 - 12.60	14.40 - 15.60	17.28 - 18.72	23.04 - 24.96	26.88 - 29.12
	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically							
	OVERVOLTAGE PROTECTION[V]	4.00 - 5.50	5.75 - 7.00	8.60 - 10.50	13.80 - 16.80	17.25 - 21.00	20.70 - 25.20	27.60 - 33.60	32.20 - 39.20
ISOLATION	REMOTE SENSING	Provided							
	REMOTE ON/OFF	Provided (Input side : ENA, Output side : RC2)							
	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15℃)							
ENVIRONMENT	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15℃)							
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (20±15℃)							
	OPERATING TEMP., HUMID. AND ALTITUDE	-20 to +80℃ (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000 feet) max							
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +85℃, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max							
SAFETY	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT	196.1m/s ² (20G), 11ms, once each along X, Y and Z axis							
OTHERS	AGENCY APPROVALS	UL60950-1, C-UL, EN62368-1							
OTHERS	CASE SIZE/WEIGHT	89×44.5×222mm [3.51×1.75×8.75 inches](W×H×D) / 570g max							
	COOLING METHOD	Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)							

*1 At rated input (DC280V) and rated load.

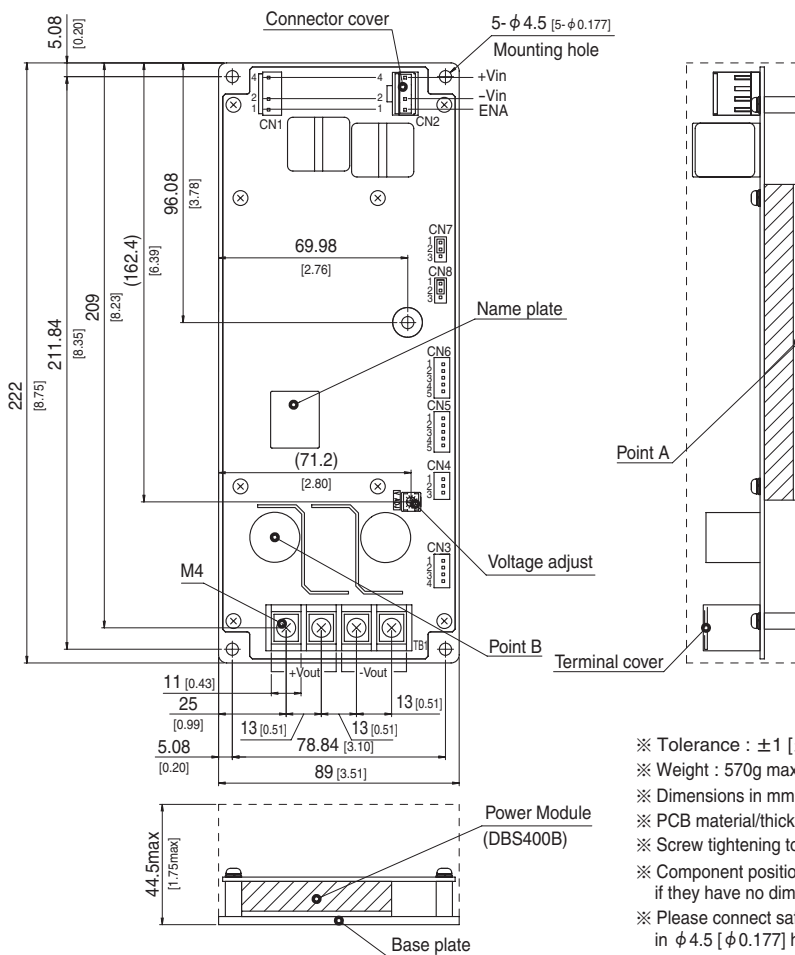
*2 Refer to Instruction manual for the measuring method of an electrical property.

*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input / output.

Block diagram



External view



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 570g max
- ※ Dimensions in mm, []=inches
- ※ PCB material/thickness : FR-4 / 1.6mm [0.06]
- ※ Screw tightening torque : 1.6N · m (16.9kgf · cm)max
- ※ Component positions and sizes are for your reference if they have no dimensions.
- ※ Please connect safety ground to the base plate in $\phi 4.5$ [$\phi 0.177$] hole.
- ※ The following parts are attached at shipping from factory
 - CN2 : Housing for protection
 - CN3 : Short-pieces for without remote sensing
 - CN7, CN8 : Short-piece for setting
- ※ Keep drawing current per pin below 7A for CN1/CN2.

SNDBS700B

SNDB S 700 B 28

① ② ③ ④ ⑤



- ① Series name
 ② Single output
 ③ Output wattage
 ④ B : DC200-400V
 ⑤ Output voltage

* Please set short-pieces with 2-3 pins of CN8, when you do not use ENA. Refer to the manual.

MODEL	SNDBS700B12	SNDBS700B24	SNDBS700B28	SNDBS700B36	SNDBS700B48
MAX OUTPUT WATTAGE[W]	696	696	700	702	696
DC OUTPUT	12V 58A	24V 29A	28V 25A	36V 19.5A	48V 14.5A

SPECIFICATIONS

	MODEL	SNDBS700B12	SNDBS700B24	SNDBS700B28	SNDBS700B36	SNDBS700B48
INPUT	VOLTAGE[V]	DC200 - 400				
	CURRENT[A]	*1 2.76typ	2.76typ	2.76typ	2.76typ	2.73typ
	EFFICIENCY[%]	*1 90.0typ	90.0typ	90.5typ	90.0typ	91.0typ
OUTPUT	VOLTAGE[V]	12	24	28	36	48
	CURRENT[A]	58	29	25	19.5	14.5
	LINE REGULATION[mV]	40max	95max	95max	95max	120max
	LOAD REGULATION[mV]	150max	190max	190max	200max	240max
	RIPPLE[mVp-p]	0 to +95°C *2 120max	120max	120max	150max	200max
		-20 to 0°C *2 160max	160max	160max	200max	250max
	RIPPLE NOISE[mVp-p]	0 to +95°C *2 200max	200max	200max	200max	250max
		-20 to 0°C *2 280max	280max	280max	280max	400max
	TEMPERATURE REGULATION[mV]	0 to +65°C 120max	280max	280max	360max	480max
		-20 to +95°C 200max	480max	480max	680max	960max
PROTECTION CIRCUIT AND OTHERS	DRIFT[mV]	*3 40max	90max	90max	120max	180max
	START-UP TIME[ms]	200max (DCIN 280V, Io=100%)				
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V] *4	10.80 - 13.20	21.60 - 26.40	25.20 - 30.80	32.40 - 39.60	43.20 - 52.80
	OUTPUT VOLTAGE SETTING[V] *1	11.64 - 12.36	23.28 - 24.72	27.16 - 28.84	34.92 - 37.08	46.56 - 49.44
	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]	13.80 - 16.80	27.60 - 33.60	32.20 - 39.20	41.40 - 50.40	55.20 - 63.00
ISOLATION	REMOTE SENSING	Provided				
	REMOTE ON/OFF	Provided (On both side of input output)				
	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)				
ENVIRONMENT	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)				
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (20±15°C)				
	OPERATING TEMP., HUMID. AND ALTITUDE	-20 to +95°C (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000 feet) max				
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +95°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max				
SAFETY	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis				
	IMPACT	196.1m/s ² (20G), 11ms, once each along X, Y and Z axis				
OTHERS	AGENCY APPROVALS	UL60950-1, C-UL, EN62368-1				
OTHERS	CASE SIZE/WEIGHT	89×44.5×222mm [3.51×1.75×8.75 inches] (W×H×D) / 570g max				
	COOLING METHOD	Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)				

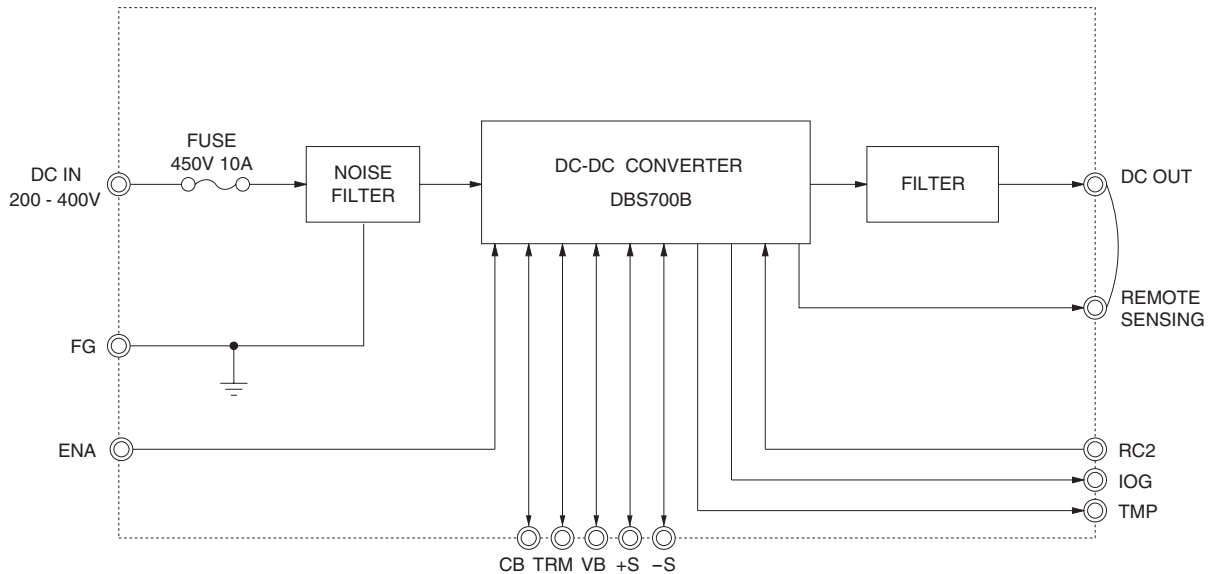
*1 At rated input(DC280V) and rated load.

*2 Refer to Instruction manual for the measuring method of an electrical property.

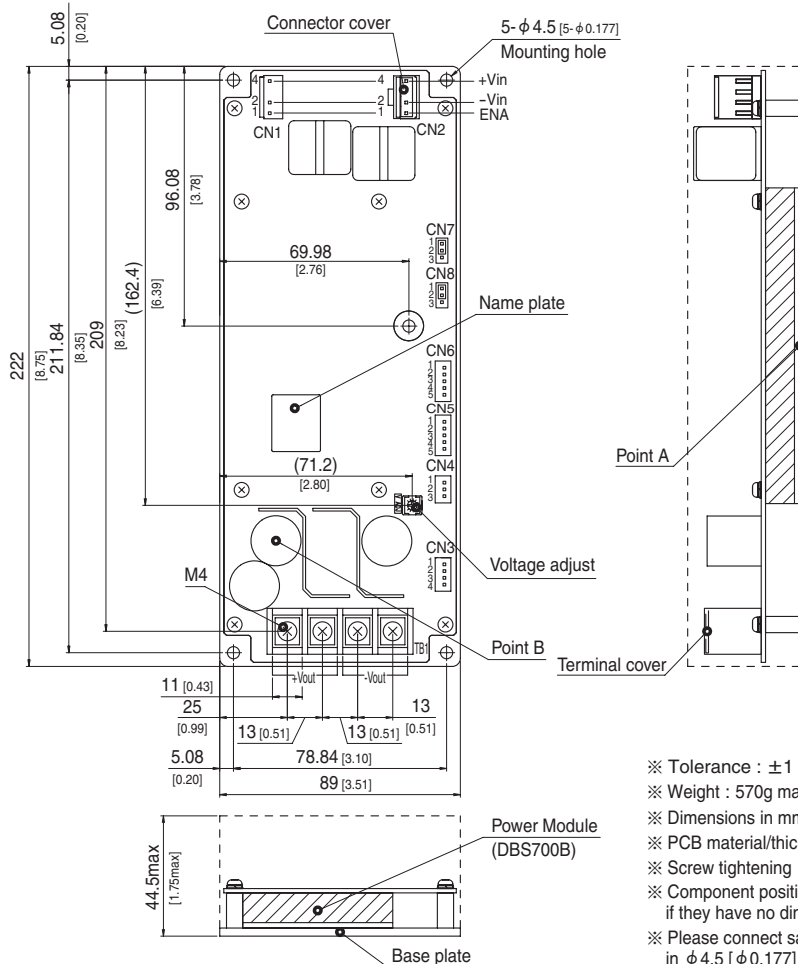
*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input / output.

*4 Refer to the manual for the input range.

Block diagram



External view



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 570g max
- ※ Dimensions in mm, []=inches
- ※ PCB material/thickness : FR-4 / 1.6mm [0.06]
- ※ Screw tightening torque : 1.6N · m (16.9kgf · cm) max
- ※ Component positions and sizes are for your reference if they have no dimensions.
- ※ Please connect safety ground to the base plate in $\phi 4.5$ [$\phi 0.177$] hole.
- ※ The following parts are attached at shipping from factory
- CN2 : Housing for protection
- CN3 : Short-pieces for without remote sensing
- CN7, CN8 : Short-piece for setting
- ※ Keep drawing current per pin below 7A for CN1/CN2.

Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
SNDBS400B	Forward converter	370	1.72 *1	450V 5A	–	FR-4		Yes	Yes	Yes *2
SNDBS700B	Forward converter	381	2.76 *1	450V 10A	–	FR-4		Yes	Yes	Yes *2

*1 Refer to specification.

*2 Refer to Instruction Manual.