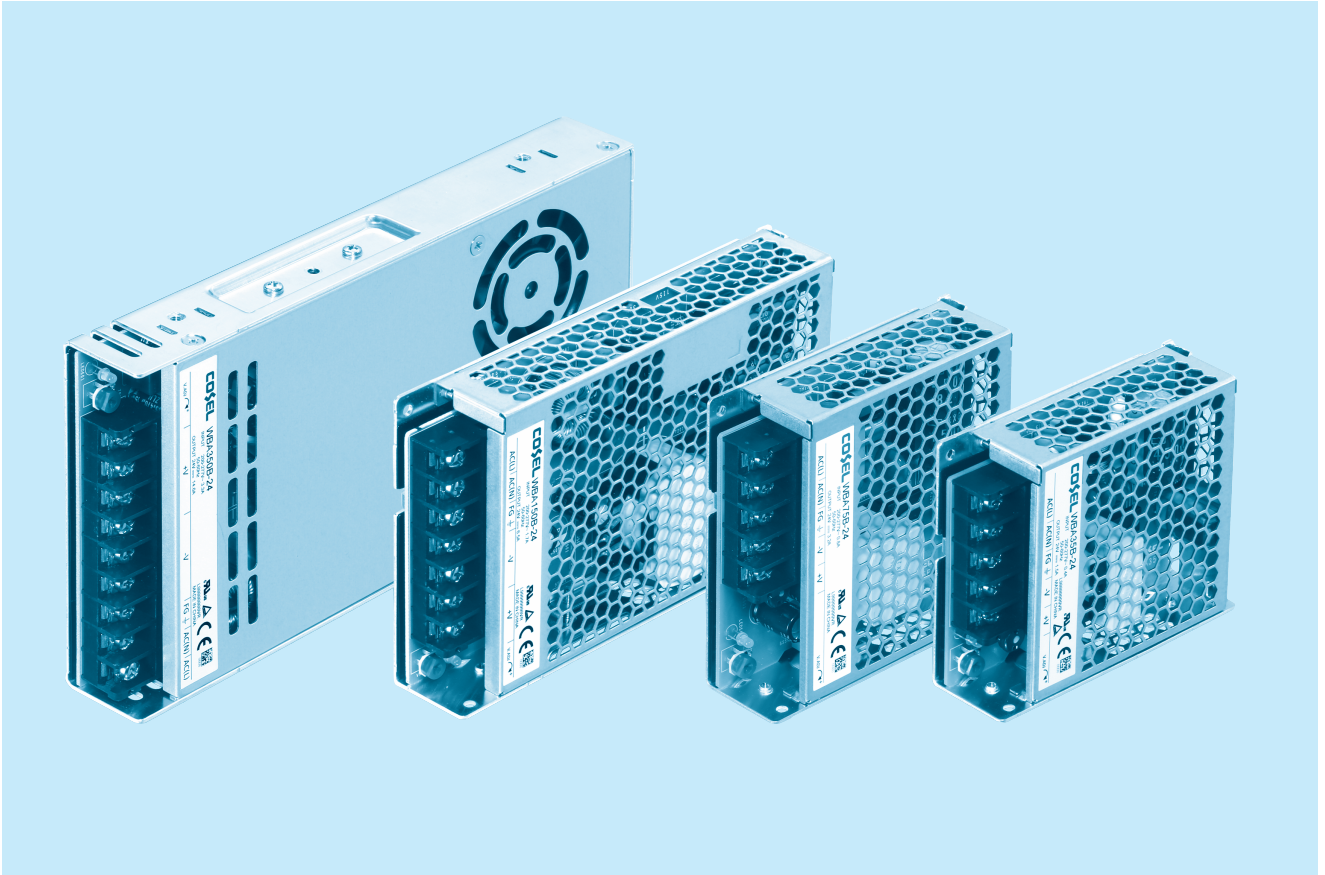




WBA-series



Feature

Wide input 170 - 305VAC (Accepts 230/277VAC Nominal Inputs)
 Wide temperature range (-20°C to +70°C, Derating is required)
 Operating altitude up to 5000 meters
 4kV isolation
 Low-profile
 Economical design
 Complies with SEMI F47 (See Instruction Manual)

Safety agency approvals

UL62368-1, EN62368-1,
 C-UL (CAN/CSA-C22.2 No.62368-1)

CE marking

Low Voltage Directive
 RoHS Directive

5-year warranty (See Instruction Manual)

EMI

Complies with CISPR32-B, EN55032-B and EN55011-B
 (WBA350B: Class A In radiated noise, it can meet class B by additional EMI/EMC filter.)

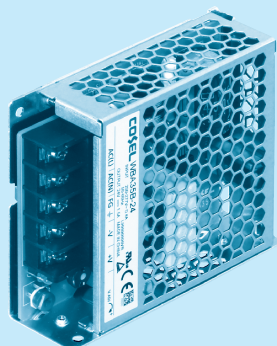
EMS Compliance : EN61204-3, EN61000-6-2 IEC60601-1-2 (2014), EN60601-1-2 (2015)

EN61000-4-2
 EN61000-4-3
 EN61000-4-4
 EN61000-4-5
 EN61000-4-6
 EN61000-4-8
 EN61000-4-11

WBA35B

WB A 35 B - -

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Output wattage
- ④ 230/277VAC input
- ⑤ Output voltage
- ⑥ Optional : *5
- C : With Coating
- G : Low leakage current
- T1: Horizontal terminal block

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	WBA35B-5	WBA35B-12	WBA35B-24	WBA35B-48
MAX OUTPUT WATTAGE[W]	35	36	36	38.4
DC OUTPUT	5V 7A	12V 3A	24 1.5A	48V 0.8A

SPECIFICATIONS

	MODEL	WBA35B-5	WBA35B-12	WBA35B-24	WBA35B-48
INPUT	VOLTAGE[V]	AC170 - 305 1φ			
	CURRENT[A]	0.4			
	FREQUENCY[Hz]	50/60 (47-63)			
	EFFICIENCY[%]	ACIN 230V 81typ	85typ	87typ	88typ
		ACIN 277V 81typ	85typ	87typ	88typ
	INRUSH CURRENT[A]	ACIN 230V 40typ Ta=25°C (at cold start)			
OUTPUT		ACIN 277V 50typ Ta=25°C (at cold start)			
	LEAKAGE CURRENT[ma]	ACIN 240V 0.5max			
		ACIN 277V 0.75max			
	VOLTAGE[V]	5	12	24	48
	CURRENT[A]	7	3	1.5	0.8
	WATTAGE[W]	35	36	36	38.4
PROTECTION CIRCUIT AND OTHERS	LINE REGULATION[mV] *1	50max	120max	240max	480max
	LOAD REGULATION[mV] *1	50max	120max	240max	480max
	RIPPLE NOISE [mVp-p] *2 Io=100%	150max (Bandwidth 20MHz)			
	TEMPERATURE REGULATION[mV] 0~+50°C	100max	180max	360max	720max
	START-UP TIME[ms]	100typ			
	HOLD-UP TIME[ms]	ACIN 230V 30typ			
ISOLATION		ACIN 277V 60typ			
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	4.5 to 5.5	10.8 to 13.2	21.6 to 26.4	43.2 to 52.8
	OUTPUT VOLTAGE SETTING[V]	4.9 to 5.3	11.75 to 12.25	23.5 to 24.5	47.0 to 49.0
	OVERCURRENT PROTECTION [A]	Works over 105% of rating and recovers automatically			
	OVERVOLTAGE PROTECTION[V]	5.75 to 7.00	13.8 to 16.8	27.6 to 33.6	54.0 to 67.2
	OPERATING INDICATION	LED (Green)			
ENVIRONMENT	INPUT-OUTPUT	AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)			
	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)			
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)			
	OPERATING TEMP., HUMID.*3	-20 to +70°C, 20 - 90%RH (Non condensing)			
SAFETY AND EMC	STORAGE TEMP., HUMID.	-20 to +75°C, 20 - 90%RH (Non condensing)			
	VIBRATION	10 - 55Hz, 19.6m/s² (2G) , 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT	196.1m/s² (20G) , 11ms, once each X, Y and Z axis			
OTHERS	AGENCY APPROVALS	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1			
	EMC EMISSION	Complies with CISPR32 (EN55032) class B			
	EMC IMMUNITY	Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11			
WARRANTY	CASE SIZE/WEIGHT	30X82X99mm (WxHxD) / 200g max			
	COOLING METHOD	Convection			

*1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%Atyp) load.

*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.
When the load factor is low (Io=0~20%Atyp), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.

*3 Output power derating is required. Refer to "Derating"

*4 Consult us about details.

*5 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.

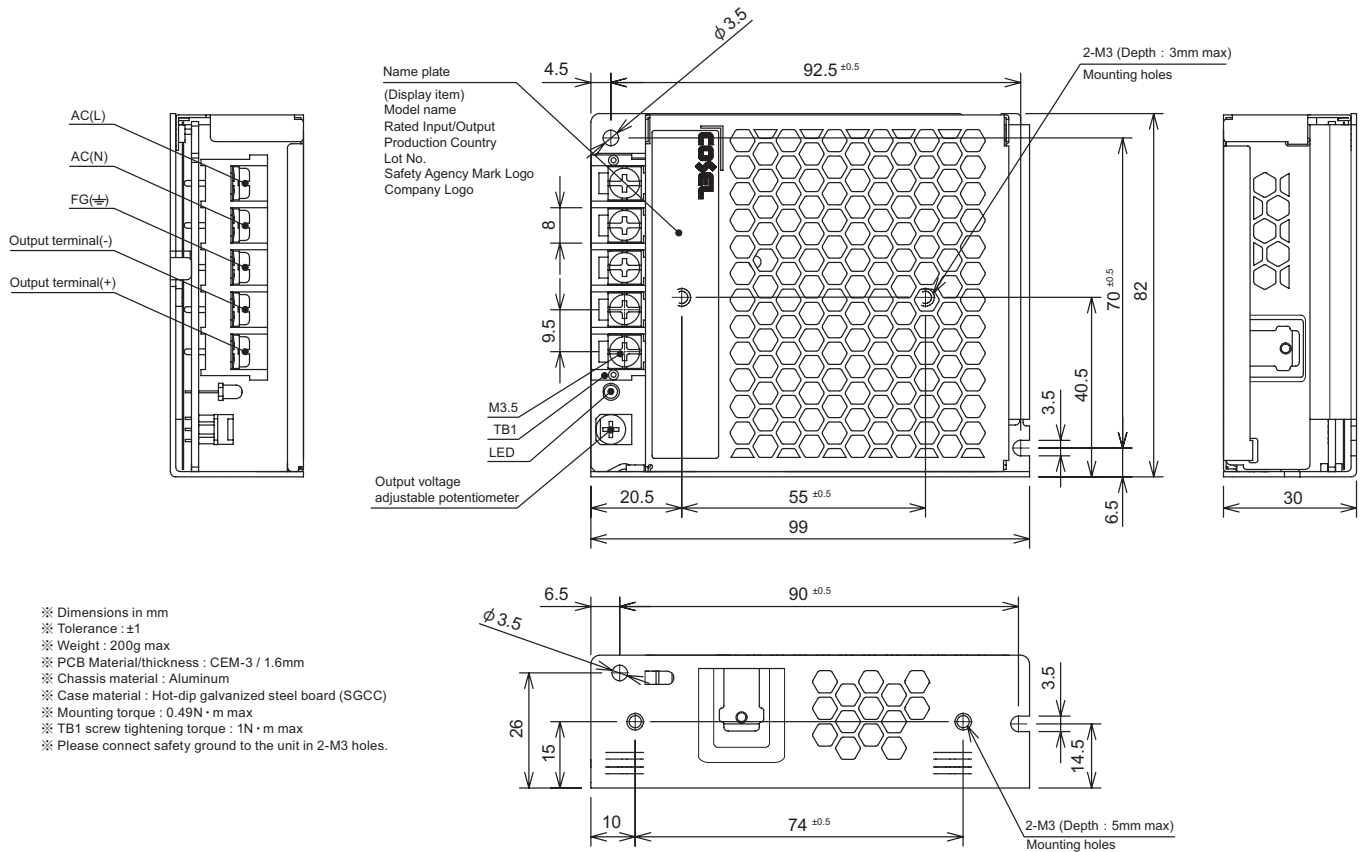
* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

* Parallel operation is not possible with this model.

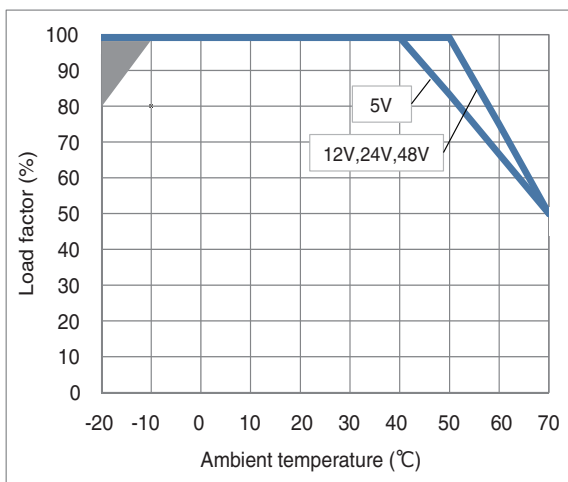
* Acoustic noise may be heard from the power supply when used for pulse load.

External view

WBA



Derating Curve



*The shaded area is the derating required at start-up.

Fig.1 Derating curve depending on ambient temperature

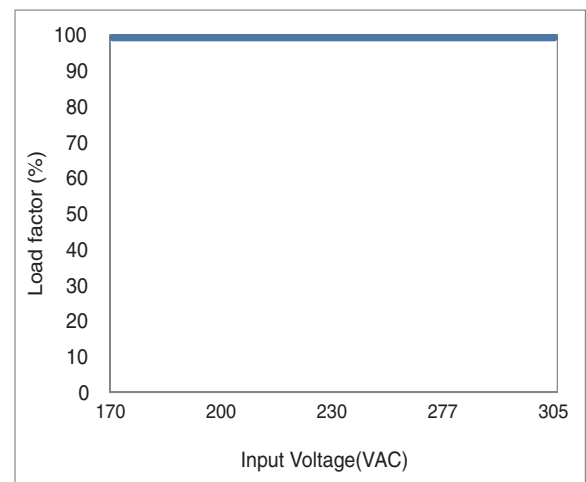


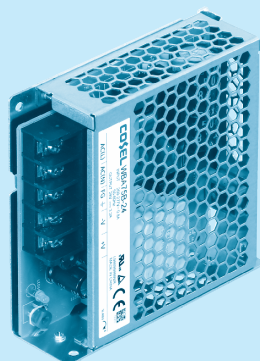
Fig.2 Derating curve depending on input voltage

■ The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply. Please consult us for more details.

WBA75B

WB A 75 B - -

① ② ③ ④ ⑤ ⑥



- ① Series name
② Single output
③ Output wattage
④ 230/277VAC input
⑤ Output voltage
⑥ Optional : *5
C : With Coating
G : Low leakage current
T1 : Horizontal terminal block

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	WBA75B-12	WBA75B-24	WBA75B-48
MAX OUTPUT WATTAGE[W]	72	76.8	76.8
DC OUTPUT	12V 6A	24V 3.2A	48V 1.6A

SPECIFICATIONS

	MODEL	WBA75B-12	WBA75B-24	WBA75B-48
INPUT	VOLTAGE[V]	AC170 - 305 1φ		
	CURRENT[A]	0.8		
	FREQUENCY[Hz]	50/60 (47-63)		
	EFFICIENCY[%]	ACIN 230V	85typ	88typ
		ACIN 277V	85typ	88typ
	INRUSH CURRENT[A]	ACIN 230V	40typ Ta=25°C (at cold start)	89typ
		ACIN 277V	50typ Ta=25°C (at cold start)	89typ
	LEAKAGE CURRENT[ma]	ACIN 240V	0.5max	
		ACIN 277V	0.75max	
OUTPUT	VOLTAGE[V]	12	24	48
	CURRENT[A]	6	3.2	1.6
	WATTAGE[W]	72	76.8	76.8
	LINE REGULATION[mV] *1	120max	240max	480max
	LOAD REGULATION[mV] *1	120max	240max	480max
	RIPPLE NOISE [mVp-p] *2 Io=100%	150max (Bandwidth 20MHz)		
	TEMPERATURE REGULATION[mV] 0~+50°C	180max	360max	720max
	START-UP TIME[ms]	100typ		
	HOLD-UP TIME[ms]	ACIN 230V	30typ	
		ACIN 277V	60typ	
PROTECTION CIRCUIT AND OTHERS	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	10.8 to 13.2	21.6 to 26.4	43.2 to 52.8
	OUTPUT VOLTAGE SETTING[V]	11.75 to 12.25	23.5 to 24.5	47.0 to 49.0
	OVERCURRENT PROTECTION [A]	Works over 105% of rating and recovers automatically		
	OVERVOLTAGE PROTECTION[V]	13.8 to 16.8	27.6 to 33.6	55.2 to 67.2
ISOLATION	OPERATING INDICATION	LED (Green)		
	INPUT-OUTPUT	AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
ENVIRONMENT	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
	OPERATING TEMP., HUMID. *3	-20 to +70°C, 20-90%RH (Non condensing)		
	STORAGE TEMP., HUMID.	-20 to +75°C, 20-90%RH (Non condensing)		
	VIBRATION	10-55Hz, 19.6m/s ² (2G) , 3minutes period, 60minutes each along X, Y and Z axis		
SAFETY AND EMC	IMPACT	196.1m/s ² (20G) , 11ms, once each X, Y and Z axis		
	AGENCY APPROVALS	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1		
	EMC EMISSION	Complies with CISPR32 (EN55032) class B		
OTHERS	EMC IMMUNITY	Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11		
	CASE SIZE/WEIGHT	30X97X99mm (W×H×D) / 250g max		
WARRANTY	COOLING METHOD	Convection		
	WARRANTY	*4 5 years (subject to the operating conditions)		

*1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%Atp) load.

*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.
When the load factor is low (Io=0~20%Atp), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.

*3 Output power derating is required. Refer to "Derating"

*4 Consult us about details.

*5 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

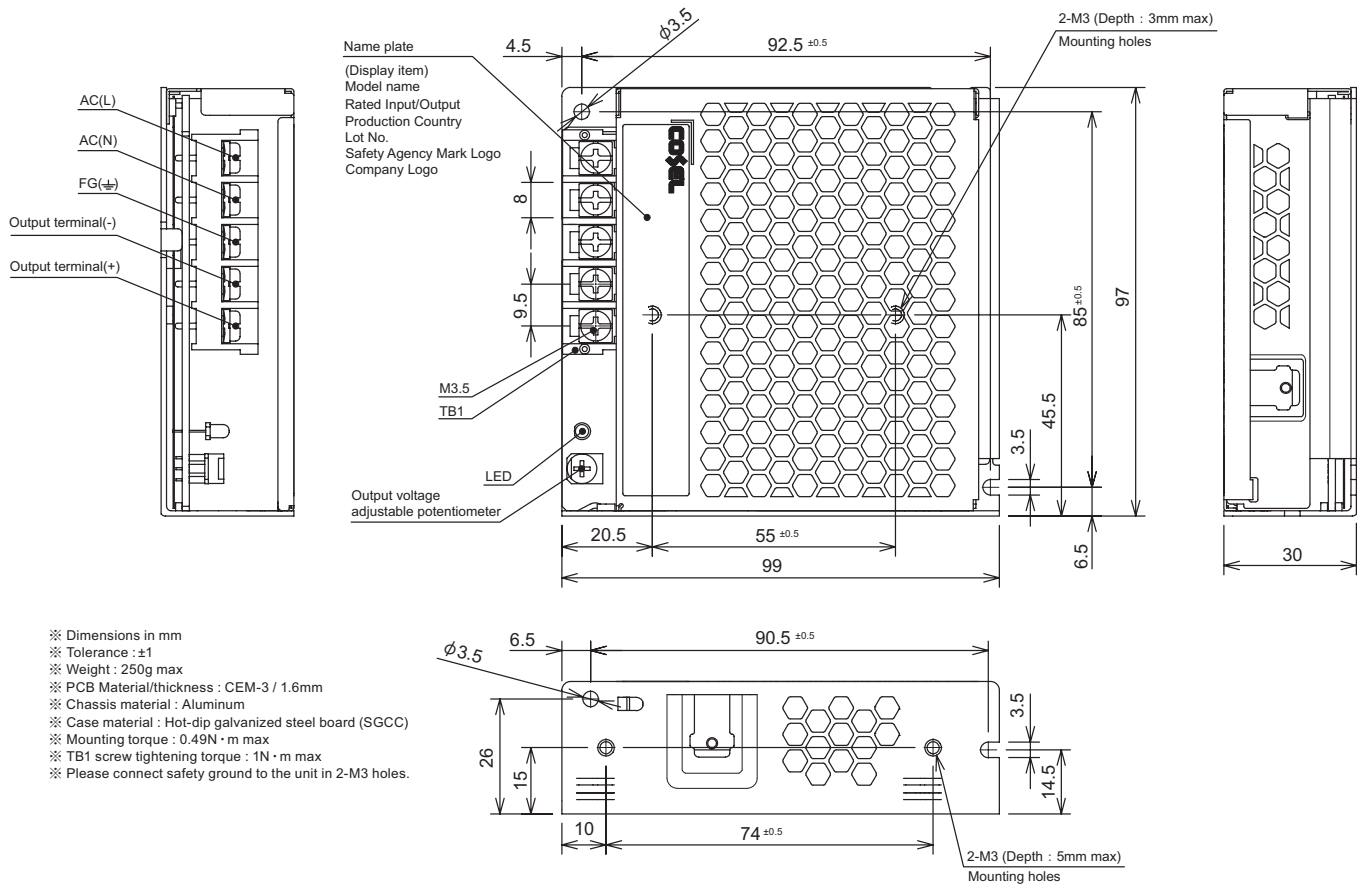
* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.

* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

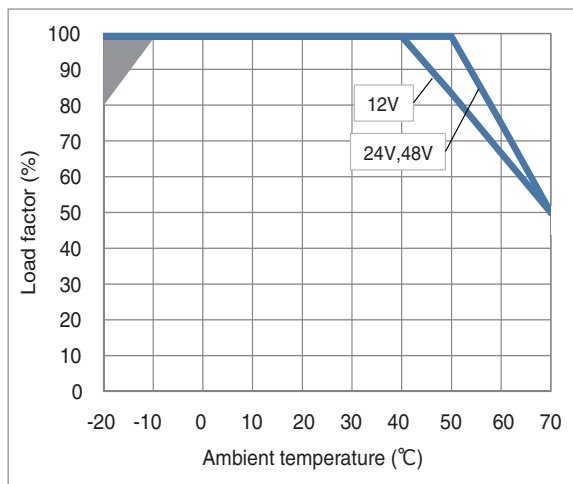
* Parallel operation is not possible with this model.

* Acoustic noise may be heard from the power supply when used for pulse load.

External view



Derating Curve



*The shaded area is the derating required at start-up.

Fig.1 Derating curve depending on ambient temperature

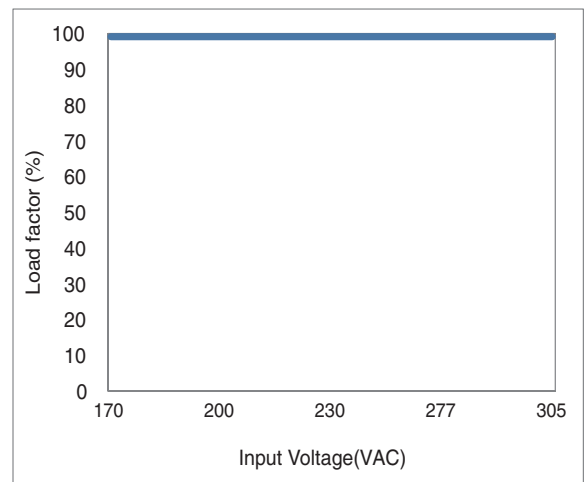


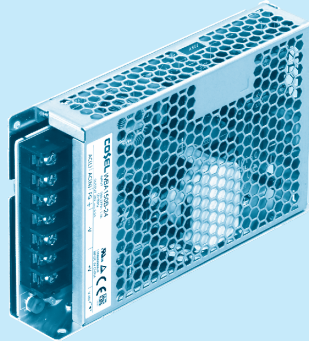
Fig.2 Derating curve depending on input voltage

■ The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply. Please consult us for more details.

WBA150B

WB A 150 B -□ -□

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Output wattage
- ④ 230/277VAC input
- ⑤ Output voltage
- ⑥ Optional : *5
- C : With Coating
- G : Low leakage current
- T1 : Horizontal terminal block

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	WBA150B-12	WBA150B-24	WBA150B-48
MAX OUTPUT WATTAGE[W]	150	156	158.4
DC OUTPUT	12V 12.5A	24V 6.5A	48V 3.3A

SPECIFICATIONS

	MODEL	WBA150B-12	WBA150B-24	WBA150B-48
INPUT	VOLTAGE[V]	AC170 - 305 1φ		
	CURRENT[A]	1.7		
	FREQUENCY[Hz]	50/60 (47-63)		
	EFFICIENCY[%]	ACIN 230V	86typ	89typ
		ACIN 277V	86typ	90typ
	INRUSH CURRENT[A]	ACIN 230V	40typ Ta=25°C (at cold start)	90typ
		ACIN 277V	50typ Ta=25°C (at cold start)	90typ
OUTPUT	LEAKAGE CURRENT[ma]	ACIN 240V	0.5max	
		ACIN 277V	0.75max	
	VOLTAGE[V]	12	24	48
	CURRENT[A]	12.5	6.5	3.3
	WATTAGE[W]	150	156	158.4
	LINE REGULATION[mV] *1	120max	240max	480max
	LOAD REGULATION[mV] *1	120max	240max	480max
PROTECTION CIRCUIT AND OTHERS	RIPPLE NOISE [mVp-p] *2 Io=100%	150max (Bandwidth 20MHz)		
	TEMPERATURE REGULATION[mV] 0~+50°C	180max	360max	720max
	START-UP TIME[ms]	500typ		
	HOLD-UP TIME[ms]	ACIN 230V	20typ	
		ACIN 277V	40typ	
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	10.8 to 13.2	21.6 to 26.4	43.2 to 52.8
	OUTPUT VOLTAGE SETTING[V]	11.75 to 12.25	23.5 to 24.5	47.0 to 49.0
ISOLATION	OVERCURRENT PROTECTION [A]	Works over 105% of rating and recovers automatically		
	OVERVOLTAGE PROTECTION[V]	13.8 to 16.8	27.6 to 33.6	55.2 to 67.2
	OPERATING INDICATION	LED (Green)		
ENVIRONMENT	INPUT-OUTPUT	AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
SAFETY AND EMC	OPERATING TEMP., HUMID. *3	-20 to +70°C, 20-90%RH (Non condensing)		
	STORAGE TEMP., HUMID.	-20 to +75°C, 20-90%RH (Non condensing)		
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G) , 3minutes period, 60minutes each along X, Y and Z axis		
OTHERS	IMPACT	196.1m/s ² (20G) , 11ms, once each X, Y and Z axis		
	AGENCY APPROVALS	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1		
	EMC EMISSION	Complies with CISPR32 (EN55032) class B		
WARRANTY	EMC IMMUNITY	Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11		
	CASE SIZE/WEIGHT	30X97X159mm (W×H×D) / 500g max		
	COOLING METHOD	Convection		
WARRANTY	WARRANTY	*4	5 years (subject to the operating conditions)	

*1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%Atyp) load.

*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.
When the load factor is low (Io=0~20%Atyp), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.

*3 Output power derating is required. Refer to "Derating"

*4 Consult us about details.

*5 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

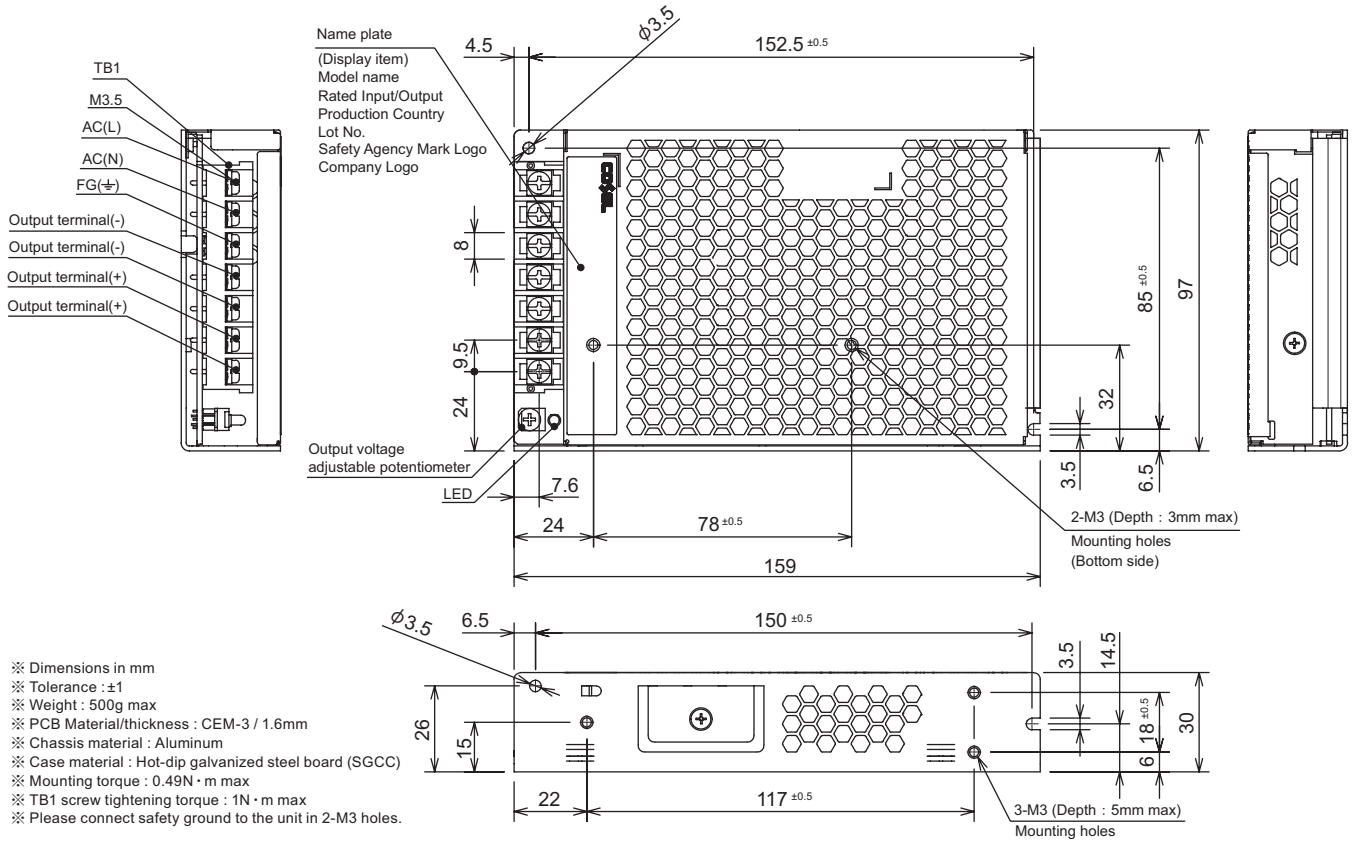
* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.

* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

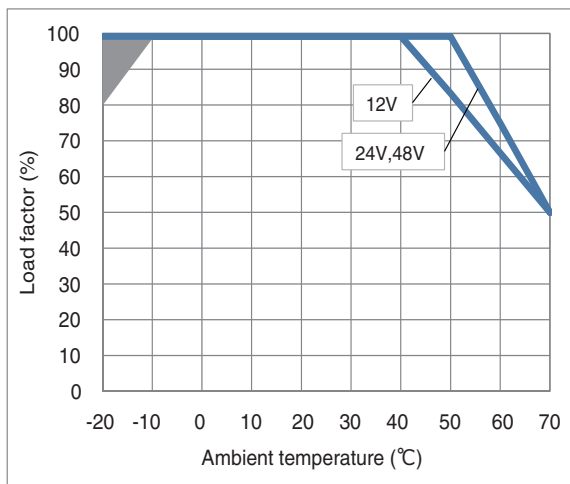
* Parallel operation is not possible with this model.

* Acoustic noise may be heard from the power supply when used for pulse load.

External view



Derating Curve



*The shaded area is the derating required at start-up.

Fig.1 Derating curve depending on ambient temperature

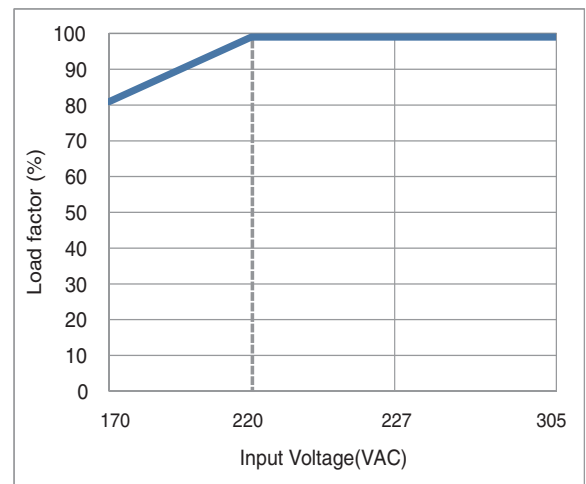


Fig.2 Derating curve depending on input voltage

■ The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply. Please consult us for more details.

WBA350B

WB A 350 B - -

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Output wattage
- ④ 230/277VAC input
- ⑤ Output voltage
- ⑥ Optional : *6
- C : With Coating
- G : Low leakage current
- T1 : Horizontal terminal block

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.
*Please note that the unit's internal components is damaged if the output is short-circuit.

MODEL	WBA350B-12	WBA350B-24	WBA350B-36	WBA350B-48
MAX OUTPUT WATTAGE[W]	348	350.4	349.2	350.4
DC OUTPUT	12V 29A	24V 14.6A	36V 9.7A	48V 7.3A

SPECIFICATIONS

	MODEL		WBA350B-12	WBA350B-24	WBA350B-36	WBA350B-48
INPUT	VOLTAGE[V]		AC170 - 305 1ϕ			
	CURRENT[A]		3.3			
	FREQUENCY[Hz]		50/60 (47-63)			
	EFFICIENCY[%]	ACIN 230V	86typ	88typ	89typ	89typ
		ACIN 277V	86typ	88typ	89typ	89typ
	INRUSH CURRENT[A]	ACIN 230V	40typ Ta=25°C (at cold start)			
		ACIN 277V	50typ Ta=25°C (at cold start)			
LEAKAGE CURRENT[mA]	ACIN 240V	0.5max				
	ACIN 277V	0.75max				
OUTPUT	VOLTAGE[V]		12	24	36	48
	CURRENT[A]		29	14.6	9.7	7.3
	WATTAGE[W]		348	350.4	349.2	350.4
	LINE REGULATION[mV]	*1	120max	240max	360max	480max
	LOAD REGULATION[mV]	*1	120max	240max	360max	480max
	RIPPLE NOISE [mVp-p]	*2 Io=100%	150max (Bandwidth 20MHz)			
	TEMPERATURE REGULATION[mV]	0~+50°C	180max	360max	540max	720max
	START-UP TIME[ms]		1300typ			
	HOLD-UP TIME[ms]	ACIN 230V	12typ			
		ACIN 277V	20typ			
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.8 to 13.2	21.6 to 26.4	32.4 to 39.6	43.2 to 52.8
OUTPUT VOLTAGE SETTING[V]		11.75 to 12.25	23.5 to 24.5	35.0 to 37.0	47.0 to 49.0	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION [A]	Works over 105% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]	13.8 to 16.8	27.6 to 33.6	41.4 to 50.4	55.2 to 67.2	
	OPERATING INDICATION	LED (Green)				
ISOLATION	INPUT-OUTPUT	AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)				
	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)				
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)				
ENVIRONMENT	OPERATING TEMP.,HUMID.*3	-20 to +70°C, 20-90%RH (Non condensing)				
	STORAGE TEMP.,HUMID.	-20 to +75°C, 20-90%RH (Non condensing)				
	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 X, Y and Z axis				
SAFETY AND EMC	AGENCY APPROVALS	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1				
	EMC EMISSION	Complise wiht CISPR32 (EN55032) class B (Conducted noise), class A (Radiated noise) *5				
	EMC EMMUNITY	Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11				
OTHERS	CASE SIZE/WEIGHT	115×30×215mm (W×H×D) / 800g max				
	COOLING METHOD	Forced cooling (internal fan)				
WARRANTY	WARRANTY	*4	5 years (subject to the operating conditions)			

*1 Consult us about dynamic load and input response.

*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.

*3 Output power derating is required. Refer to "Derating"

*4 Consult us about details.

*5 Radiated noise can meet class B by additional EMI/EMC filter.

*6 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.

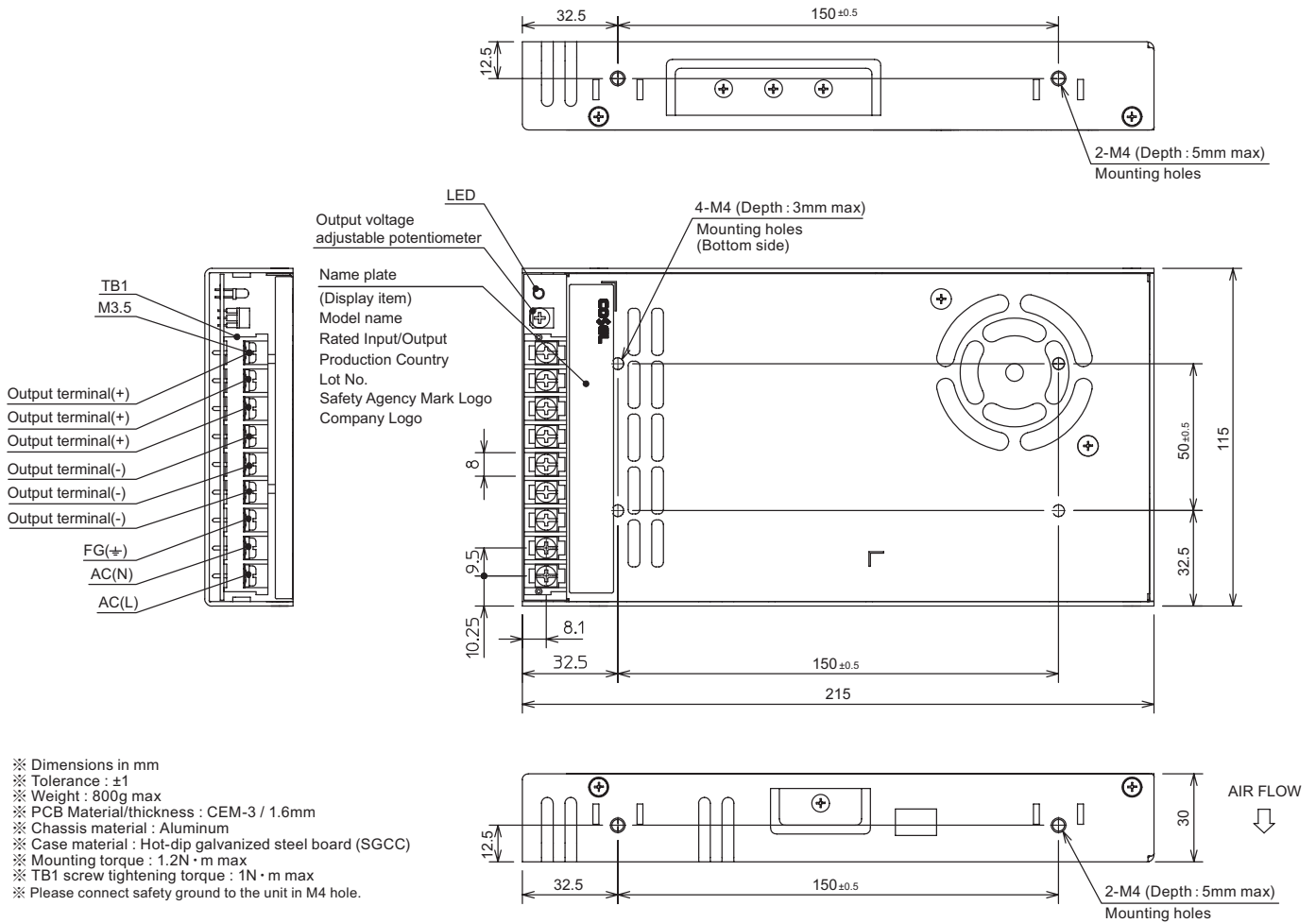
* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

* Parallel operation is not possible with this model.

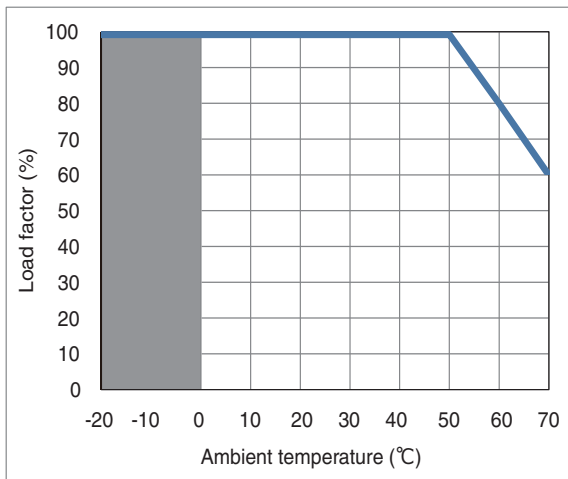
* Acoustic noise may be heard from the power supply when used for pulse load.

External view

WBA



Derating Curve



*In the shaded area, it may take several seconds to determine the output voltage during cold start, but it can be used without any problems.

Fig.1 Derating curve depending on ambient temperature

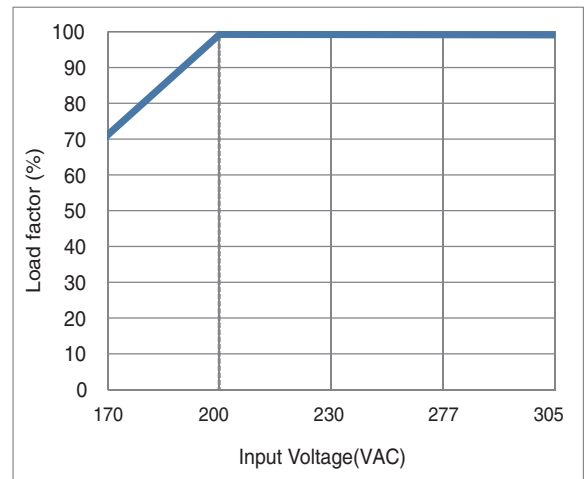
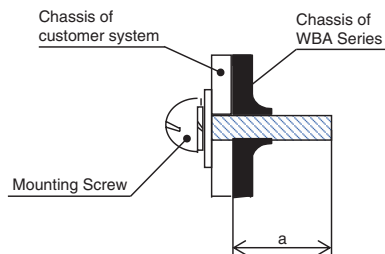


Fig.2 Derating curve depending on input voltage

■ The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply. Please consult us for more details.

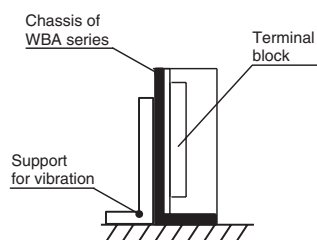
Assembling and Installation Method

■ To keep enough isolation between screws and internal components, the length of the mounting screw should not exceed recommendation as shown in the figure.

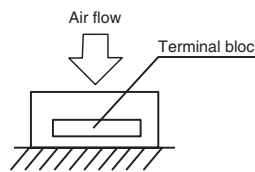


Model	Mounting screw	Mounting hole	a (Max penetration length)
WBA35B WBA75B WBA150B	M3	Bottom	3mm max
		Side	5mm max
WBA350B	M4	Bottom	3mm max
		Side	5mm max

■ In order to withstand vibrations and impact, support which is shown in the figure is necessary.



WBA35B WBA75B WBA150B



WBA350B

■ If you use two or more power supplies side by side, please keep a sufficient distance between them to allow enough air ventilation.

■ Ambient temperature around each power supply should not exceed the temperature range shown in the derating curve.

■ The unit has cooling fan. (WBA350B)

Ensure that the inlet and outlet vents are not blocked.

Instruction Manual

■ Please read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual <https://www.coselasia.com/product/index01#post-5-1643>
 Before using our product <https://en.cosel.co.jp/technical/caution/index.html>



Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Parallel operation
						Material	Single sided	Double sided	
WBA35B	Flyback converter	50 to 120	0.4	300V 2.5A	Thermistor	CEM-3	Yes		No
WBA75B	Flyback converter	50 to 120	0.8	300V 2.5A	Thermistor	CEM-3	Yes		No
WBA150B	Flyback converter	50 to 120	1.7	300V 6.3A	Thermistor	CEM-3	Yes		No
WBA350B	Forwrad converter	65	3.3	300V 6.3A	Thermistor	CEM-3	Yes		No