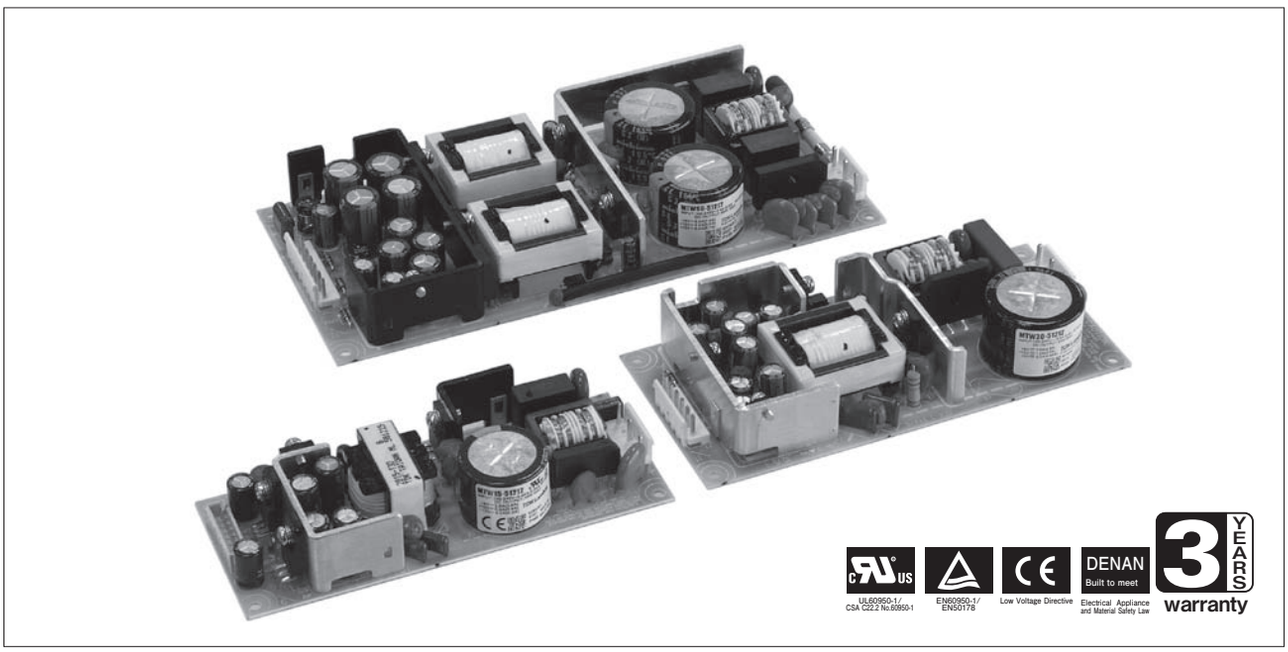
MTW SERIES

Multiple outputs/for general use 15-60W



■ Features

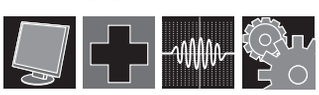
- Worldwide-applicable input, triple-output type
- Compact, slim and lightweight contributing to energy-saving and environmental protection
- Approved by safety standards (UL, C-UL, TÜV), complying with Electrical Appliance and Material Safety Law, CE marking applicable
- EMI: Complying with FCC-Class B, VCCI-Class B, EN55011-B, EN55022-B
- Immunity : Complying with EN61000-4-2,-3,-4,-5, -6,-8,-11
- Peak load accommodatable

■ Model naming logic

MTW 15-5 12 12 □

- Option
  –V: With output voltage trim-mer
- Nominal output voltage(output 3)
  12: –12V
  15: –15V
- Nominal output voltage(output 2)
  12: +12V
  15: +15V
- Nominal output voltage(output 1)
  5: 5V
- Rated capacity
  15: 15W
  30: 30W
  60: 60W
- Series name

■ Applications



COMP MED MEASURE F A

■ Conformity to RoHS Directive

This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

■ Product line up

Output voltage		15W		30W		60W	
		Output current (Peak current)/Model		Output current (Peak current)/Model		Output current (Peak current)/Model	
V1	+5V	2.0A(3.0A)	MTW15-51212	3.0A(4.5A)	MTW30-51212	5.0A(7.0A)	MTW60-51212
V2	+12V	0.3A(0.6A)		1.2A(2.0A)		2.5A(3.5A)	
V3	-12V	0.2A(0.3A)		0.3A(0.45A)		0.5A(0.7A)	

Output voltage		15W		30W		60W	
		Output current (Peak current)/Model		Output current (Peak current)/Model		Output current (Peak current)/Model	
V1	+5V	2.0A(3.0A)	MTW15-51515	3.0A(4.5A)	MTW30-51515	5.0A(7.0A)	MTW60-51515
V2	+15V	0.3A(0.6A)		0.8A(2.0A)		2.0A(3.5A)	
V3	-15V	0.2A(0.3A)		0.3A(0.45A)		0.5A(0.7A)	

Option symbol	Function
None	Fixed output voltage type
-V	Output voltage adjustable type

＊Output voltage adjustable type: Indicated by "-V" added at the end of model

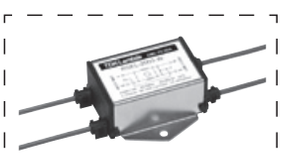
MTW15W Specifications

ITEMS/UNITS		MODEL / CH	MTW15-51212 1	MTW15-51212 2	MTW15-51212 3	MTW15-51515 1	MTW15-51515 2	MTW15-51515 3
Input	Voltage Range (Nominal: 100-240VAC) (*1)	V	AC85-265					
	Frequency (Nominal: 50-60 single phase)	Hz	47-440					
	Power Factor (100/240VAC)(typ)		0.55/0.45					
	Efficiency (100/240VAC)(typ)	%	71/70			68/70		
	Current (100/240VAC)(typ)	A	0.42/0.25					
	Inrush Current (100/240VAC)(typ) (*2)	A	25/50					
	Leakage Current(max)	mA	0.75 (Complying with 100VAC (Den-an Appendix 8) / 240VAC (UL, EN) 60Hz)					
Output	Nominal Voltage (*3)	VDC	+5 [V1]	+12 [V2]	-12 [V3]	+5 [V1]	+15 [V2]	-15 [V3]
	Maximum Current (*4)	A	2	0.3	0.2	2	0.3	0.2
	Maximum Peak Current (*5)	A	3	0.6	0.3	3	0.6	0.3
	Maximum Power (P0[V1]+P0[V2]+P0[V3])	W	16			17.5		
	Voltage Setting Accuracy (100/240VAC,100% load)	VDC	+5 ± 0.25	+12 ± 0.6	-12 ± 0.6	+5 ± 0.25	+15 ± 0.6	-15 ± 0.6
	Maximum Line Regulation (Within input voltage range)(max)	%	0.4					
	Maximum Load Regulation (10-100% load)(max)	%	2.0	1.0		2.0	1.0	
	Temperature Coefficient (Ambient temperature -10° C to +50° C)(max)	%	1.0					
	Warm Up Drift (max) (*6)	%	2.0	1.0		2.0	1.0	1.0
	Max Power Total Regulation (max)(*3)	%	± 2.0					
	Maximum Ripple Voltage (max) (*7)	mVp-p	100	120		100	120	
	Maximum Ripple & Noise (max) (*7)	mVp-p	120	150		120	150	
	Start Up Time (100VAC)(max) (*8)	ms	100					
	Hold-up Time (100/240VAC)(typ)	ms	20/150					
	Voltage Adjustable Range (*9)		Fixed					
Function	Over Current Protection (min)(*10)	A	3.15	0.63	0.32	3.15	0.63	0.32
	Over Voltage Protection (min)(*11)	VDC	5.7	Not available		5.7	Not available	
	Over Temperature Protection		Not available					
	Remote Sensing		Not available					
	Remote ON/OFF Control		Not available					
	Parallel Operation		Not available					
	Series Operation		Not available					
	Operation Indicator		Not available					
	Monitoring Signal		Not available					
Environment	Operating Temperature	℃	-10 to +60					
	Storage Temperature	℃	-30 to +75					
	Operating Humidity	% RH	10-90 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Humidity	% RH	10-90 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		5-10Hz, 10 minutes sweep, 10mmp-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s² (2G) acceleration, 3 directions, 1h for each, in non-operation					
	Shock		588m/s² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage (*12)		For 1 minute at ordinary temperature and humidity Input - FG: 2.0kVAC, 10mA cutout current Input - Output: 3.0kVAC, 10mA cutout current Output - FG: 500VAC, 20mA cutout current					
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Input - FG, Input - Output, Output - FG					
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1-07 (C-UL), EN60950-1 (TÜV), Complying with Den-an Appendix 8 at 100VAC only					
	EMI (*13)		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B					
	Immunity		Complying with EN61000-6-2, EN61000-4-2, -3, -4, -5, -6, -8, -11					
Mechanical	Weight (max)	g	150					
	Size (W x H x D)	mm	26 x 50 x 127 (Refer to Outline Drawing)					

With nominal input/output, and Ta=25°C, if not specified separately

(*1) Do not use it beyond the rating input voltage.
(*2) In primary surge current, 25°C, and cold starting. Not applicable for the inrush current to Noise Filter.
(*3) Overshoot in starting input is 4%typ. Floating system is used for V1-V2 and V1-V3.
(*4) The maximum output current value is between -10°C and +50°C. For use in outside this temperature range, derating is needed.
(*5) Flowing time should be within 10 seconds and the effective current/power should be the same as or less than the maximum current/power.
(*6) 30min to 8h after the start of input voltage application.
(*7) In 20MHz, -10 to 0°C. Ripple: V1-140mVp-p max, V2, V3-160mVp-p max. Ripple noise : V1-160mVp-p max, V2/V3-180mVp-p max.
(*8) When connecting constant current source load, in case of the peak output current, the output voltage isn't sometimes output. When input voltage sagged, output current sometimes goes out a little.
(*9) For output voltage adjustable types (option -V), output voltage can be varied in the range of +5V through +5.25V for CH1 (+5V) only, by the output voltage trimmer.
(*10) When the other channels are in 0A. Current limiting (hiccup) with automatic recovery. Avoid to operate at over load or short circuit condition for more than 30seconds.
(*11) For V1 only: Zener clamp system. When this circuit operated, it cannot reboot.
(*12) Ordinary temperature and humidity: 5 to 35°C, 45 to 85 %RH.
(*13) The power supply is considered a component which will be installed into a final equipment. The final equipment should be re-evaluated that it meets EMC directives.

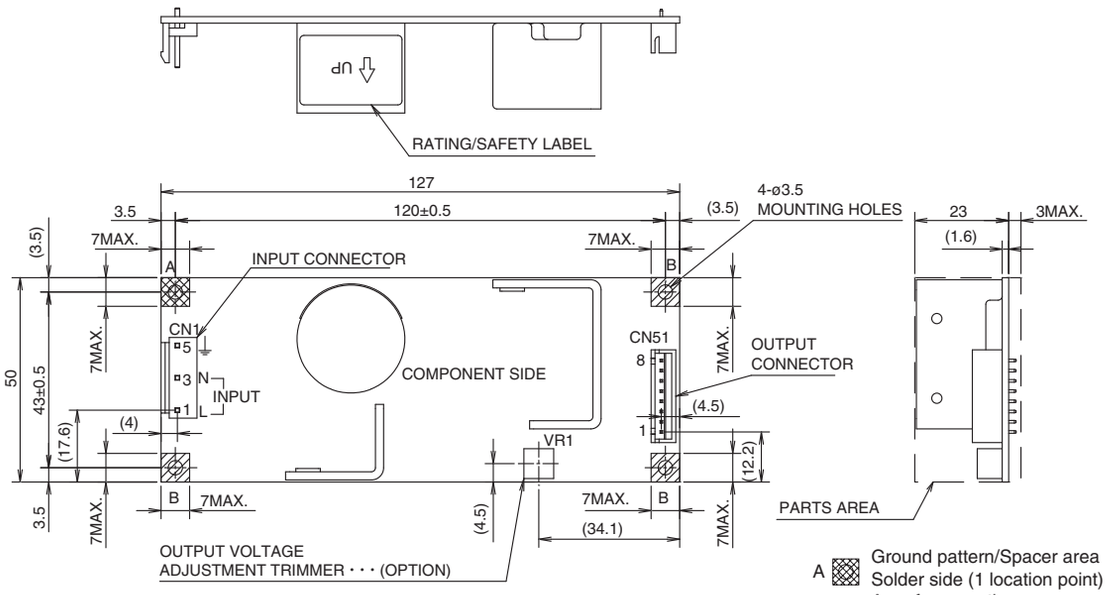
●Recommended EMC Filter



RSEL-2001W

Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing



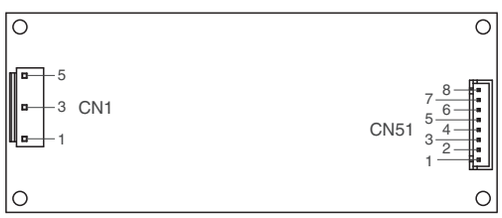
A Ground pattern/Spacer area
Solder side (1 location point)
Area for mounting screw
Side with components (1 location point)

B Spacer area
Solder side (3 location points)
Area for mounting screw
Side with components (3 location points)

Specifications of terminals

Unit: mm

Allowable difference is ±1mm if not specified separately.



CN1 : Input side

P5	⏚	Ground
P3	N	Neutral
P1	L	Live

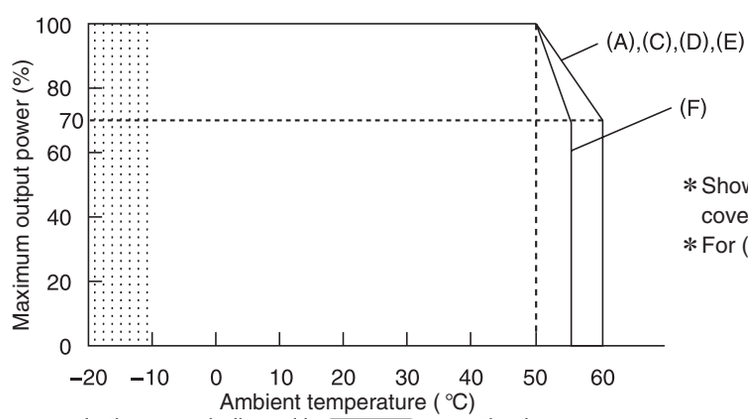
- VH series B3P5-VH-B
by J.S.T. Mfg. Co., Ltd.

CN51 : Output side

P8	V3	Output 3
P7	G2	Ground 2
P6		
P5	V2	Output 2
P4	G1	Ground 1
P3		
P2	V1	Output 1
P1		

- XH series B8B-XH-2
by J.S.T. Mfg. Co., Ltd.

Output Power - Ambient Temperature (Derating Curve)



In the range indicated by ⋮⋮⋮, operation is possible but the characteristics are not guaranteed.

∗ Shows derating for products without covers.

∗ For (A)-(F), refer to the item regarding

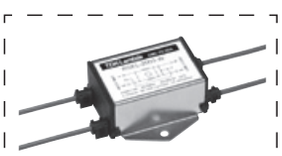
MTW30W Specifications

ITEMS/UNITS		MODEL / CH	MTW30-51212 1	MTW30-51212 2	MTW30-51212 3	MTW30-51515 1	MTW30-51515 2	MTW30-51515 3
Input	Voltage Range (Nominal: 100-240VAC) (*1)	V	AC85-265					
	Frequency (Nominal: 50-60 single phase)	Hz	47-440					
	Power Factor (100/240VAC)(typ)		0.55/0.45					
	Efficiency (100/240VAC)(typ)	%	76/77					
	Current (100/240VAC)(typ)	A	0.8/0.4					
	Inrush Current (100/240VAC)(typ) (*2)	A	20/40					
	Leakage Current (max)	mA	0.55/0.75 (Complying with 100VAC (Den-an Appendix 8) / 240VAC (UL, EN) 60Hz)					
Output	Nominal Voltage (*3)	VDC	+5 [V1]	12 [V2]	-12 [V3]	+5 [V1]	+15 [V2]	-15 [V3]
	Maximum Current (*4)	A	3	1.2	0.3	3	0.8	0.3
	Maximum Peak Current (*5)	A	4.5	2	0.45	4.5	2	0.45
	Maximum Power (P0[V1]+P0[V2]+P0[V3])	W	30			33		
	Voltage Setting Accuracy (100/240VAC,100% load)	VDC	+5 +0.3, -0.1	+12 ± 0.6	-12 ± 0.6	+5 +0.3, -0.1	+15 ± 0.75	-15 ± 0.75
	Maximum Line Regulation (Within input voltage range)(max)	%	1.0	0.4		1.0	0.4	
	Maximum Load Regulation (10-100% load)(max)	%	2.0	1.0		2.0	1.0	
	Temperature Coefficient (Ambient temperature -10°C to +50°C) (max)	%	2.0	1.0		2.0	1.0	
	Warm Up Drift (max) (*6)	%	1.0					
	Max Power Total Regulation (max)(*3)	%	± 3.0	± 2.0		± 3.0	± 2.0	
	Maximum Ripple Voltage (max) (*7)	mVp-p	80	100		80	100	
	Maximum Ripple & Noise (max) (*7)	mVp-p	120	150		120	150	
	Start Up Time (100/240VAC)(max) (*8)	ms	300/320					
	Hold-up Time (100/240VAC)(typ)	ms	20/140					
	Voltage Adjustable Range (*9)	VDC	Fixed					
Function	Over Current Protection (min)(*10)	A	4.7	2.1	0.48	4.7	2.1	0.48
	Over Voltage Protection (min)(*11)	VDC	5.8	Not available		5.8	Not available	
	Over Temperature Protection		Not available					
	Remote Sensing		Not available					
	Remote ON/OFF Control		Not available					
	Parallel Operation		Not available					
	Series Operation		Not available					
	Operation Indicator		Not available					
	Monitoring Signal		Not available					
Environment	Operating Temperature	℃	-10 to +60					
	Storage Temperature	℃	-30 to +75					
	Operating Humidity	% RH	10-90 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Humidity	% RH	10-90 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		5-10Hz, 10 minutes sweep, 10mmp-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s² (2G) acceleration, 3 directions, 1h for each, in non-operation					
	Shock		588m/s² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage (*12)		For 1 minute at ordinary temperature and humidity Input - FG: 2.0kVAC, 10mA cutout current Input - Output: 3.0kVAC, 10mA cutout current Output - FG: 500VAC, 20mA cutout current					
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Input - FG, Input - Output, Output - FG					
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1-07 (C-UL), EN60950-1 (TÜV), Complying with Den-an Appendix 8 at 100VAC only					
	EMI (*13)		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B					
	Immunity		Complying with EN61000-6-2, EN61000-4-2, -3, -4, -5, -6, -8, -11					
Mechanical	Weight max	g	210					
	Size (WxHxD)	mm	26 x 65 x 140 (Refer to Outline Drawing)					

With nominal input/output, and Ta=25°C, if not specified separately

(*1) Do not use it beyond the rating input voltage.
(*2) In primary surge current, 25°C, and cold starting. Not applicable for the inrush current to Noise Filter.
(*3) Overshoot in starting input is 4%typ. Floating system is used for V1-V2 and V1-V3.
(*4) The maximum output current value is between -10°C and +50°C. For use in outside this temperature range, derating is needed.
(*5) Flowing time should be within 10 seconds and the effective current/power should be the same as or less than the maximum current/power.
(*6) 30min to 8h after the start of input voltage application.
(*7) In 20MHz, -10 to 0°C. Ripple: V1-140mVp-p max, V2, V3-160mVp-p max. Ripple noise : V1-160mVp-p max, V2/V3-180mVp-p max.
(*8) When connecting constant current source load, in case of the peak output current, the output voltage isn't sometimes output. When input voltage sagged, output current sometimes goes out a little.
(*9) For output voltage adjustable types (option -V), output voltage can be varied in the range of +5V through +5.25V for CH1 (+5V) only, by the output voltage trimmer.
(*10) When the other channels are in 0A. Current limiting (hiccup) with automatic recovery. Avoid to operate at over load or short circuit condition for more than 30seconds.
(*11) For V1 only: Zener clamp system. When this circuit operated, it cannot reboot.
(*12) Ordinary temperature and humidity: 5 to 35°C, 45 to 85 %RH.
(*13) The power supply is considered a component which will be installed into a final equipment. The final equipment should be re-evaluated that it meets EMC directives.

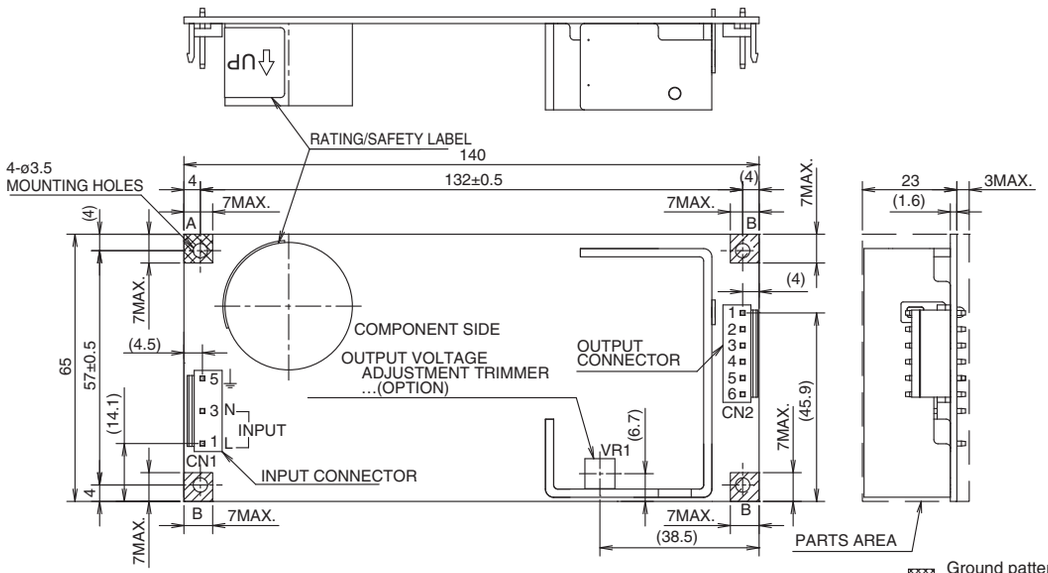
●Recommended EMC Filter



RSEL-2001E

Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing



A Ground pattern/Spacer area
Solder side (1 location point)
Area for mounting screw
Side with components (1 location point)

B Spacer area
Solder side (3 location points)
Area for mounting screw
Side with components (3 location points)

Specifications of terminals

Unit: mm

Allowable difference is ±1mm if not specified separately.

CN1 : Input side

P5	⏚	Ground
P3	N	Neutral
P1	L	Live

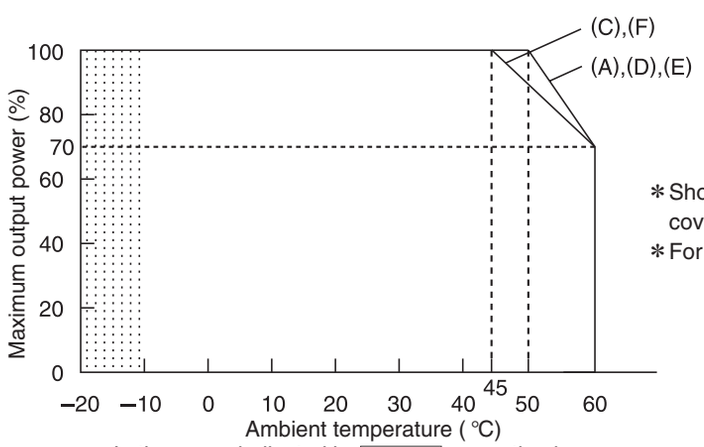
- VH series B3P5-VH-B
by J.S.T. Mfg. Co., Ltd.

CN2 : Output side

P1	V3	Output 3
P2	G2	Ground 2
P3		
P4	V2	Output 2
P5	G1	Ground 1
P6	V1	Output 1

- VH series B6P-VH-B
by J.S.T. Mfg. Co., Ltd.

Output Power - Ambient Temperature (Derating Curve)



In the range indicated by ⋮⋮⋮⋮⋮⋮, operation is possible but the characteristics are not guaranteed.

∗ Shows derating for products without covers.

∗ For (A)-(F), refer to the item regarding

MTW60W Specifications

ITEMS/UNITS		MODEL / CH	MTW60-51212 1	MTW60-51212 2	MTW60-51212 3	MTW60-51515 1	MTW60-51515 2	MTW60-51515 3
Input	Voltage Range (Nominal: 100-240VAC) (*1)	V	AC85-265					
	Frequency (Nominal: 50-60 single phase)	Hz	47-440					
	Power Factor (100/240VAC)(typ)		0.55/0.45					
	Efficiency (100/240VAC)(typ)	%	76					
	Current (100/240VAC)(typ)	A	1.4/0.8					
	Inrush Current (100/240VAC)(typ) (*1)	A	20/40					
	Leakage Current (max)	mA	0.6/0.75 (100VAC) (Complying with 100VAC (Den-an Appendix 8) / 240VAC (UL, EN) 60Hz)					
Output	Nominal Voltage (*3)	VDC	+5 [V1]	12 [V2]	-12 [V3]	+5 [V1]	+15 [V2]	-15 [V3]
	Maximum Current (*4)	A	5	2.5	0.5	5	2	0.5
	Maximum Peak Current (*5)	A	7	3.5	0.7	7	3.5	0.7
	Maximum Power (P0[V1]+P0[V2]+P0[V3])	W	60			62.5		
	Voltage Setting Accuracy (100/240VAC,100% load)	%	+5 +0.3, -0.1	+12 ± 0.6	-12 ± 0.6	+5 +0.3, -0.1	+15 ± 0.6	-15 ± 0.75
	Maximum Line Regulation (Within input voltage range)(max)	%	1.0	0.4		1.0	0.4	
	Maximum Load Regulation (10-100% load)(max)	%	2.0		1.0	2.0		1.0
	Temperature Coefficient (Ambient temperature -10° C to +50° C)(max)	%	2.0		1.0	2.0		1.0
	Warm Up Drift (max) (*6)	%	1.0					
	Max Power Total Regulation (max) (*3)	%	± 2.5		± 2.0	± 2.5		± 2.0
	Maximum Ripple Voltage (max) (*7)	mVp-p	80	100		80	100	
	Maximum Ripple & Noise (max) (*7)	mVp-p	120	150		120	150	
	Start Up Time (100/240VAC)(max) (*8)	ms	350			550/350		
	Hold-up Time (100/240VAC)(typ)	ms	20/180					
	Voltage Adjustable Range (*9)	VDC	Fixed					
Function	Over Current Protection (min)(*10)	A	7.4	3.7	0.75	7.4	3.7	0.75
	Over Voltage Protection (min)(*11)	VDC	5.8	13.8	Not available	5.8	16.5	Not available
	Over Temperature Protection		Not available					
	Remote Sensing		Not available					
	Remote ON/OFF Control		Not available					
	Parallel Operation		Not available					
	Series Operation		Not available					
	Operation Indicator		Not available					
	Monitoring Signal		Not available					
Environment	Operating Temperature	℃	-10 to +60					
	Storage Temperature	℃	-30 to +75					
	Operating Humidity	% RH	10-90 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Humidity	% RH	10-90 (the conditions of maximum 35°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		5-10Hz, 10 minutes sweep, 10mmp-p total amplitude, 3 directions, 1h for each, in non-operation 10-200Hz, 10 minutes sweep, 19.6m/s² (2G) acceleration, 3 directions, 1h for each, in non-operation					
	Shock		588m/s² (60G), 11 ± 5ms, 3 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage (*12)		For 1 minute at ordinary temperature and humidity Input - FG: 2.0kVAC, 10mA cutout current Input - Output: 3.0kVAC, 10mA cutout current Output - FG: 500VAC, 20mA cutout current					
	Isolation Resistance		In 500VDC and 100MΩ or over at ordinary temperature and humidity Input - FG, Input - Output, Output - FG					
Standards	Safety Standards		Approved by UL60950-1, CSA C22.2 No.60950-1-07 (C-UL), EN60950-1 (TÜV), Complying with Den-an Appendix 8 at 100VAC only					
	EMI (*13)		Complying with FCC-Class B / VCCI-Class B / EN55011-B / EN55022-B					
	Immunity (*13)		Complying with EN61000-6-2, EN61000-4-2, -3, -4, -5, -6, -8, -11					
Mechanical	Weight max	g	330					
	Size (W x H x D)	mm	26 x 83 x 185 (Refer to Outline Drawing)					

With nominal input/output, and Ta=25°C, if not specified separately

(*1) Do not use it beyond the rating input voltage.

(*2) In primary surge current, 25°C, and cold starting. Not applicable for the inrush current to Noise Filter.

(*3) Overshoot in starting input is 4%typ. Floating system is used for V1-V2 and V1-V3.

(*4) The maximum output current value is between -10°C and +50°C. For use in outside this temperature range, Derating is needed.

(*5) Flowing time should be within 10 seconds and the effective current/power should be the same as or less than the maximum current/power.

(*6) 30min to 8h after the start of input voltage application.

(*7) In 20MHz, -10°C-0°C. Ripple: V1-140mVp-p max, V2/V3-160mVp-p. Ripple noise : V1-160mVp-p max, V2/V3-180mVp-p max.

(*8) When connecting constant current source load, in case of the peak output current, the output voltage isn't sometimes output. When input voltage sagged, output current sometimes goes out a little.

(*9) For output voltage adjustable types (Option -V), output voltage can be varied in the range of 4.5V through 5.5V for CH1 (+5V) only, by the output voltage trimmer.

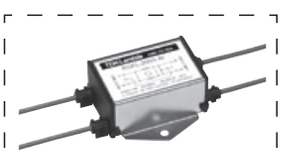
(*10) When the other channels are in 0A. Current limiting (hiccup) with automatic recovery. Avoid to operate at over load or short circuit condition for more than 30seconds.

(*11) For V1 only: Zener clamp system. When this circuit operated, it cannot reboot.

(*12) Ordinary temperature and humidity :5 to 35°C, 45 to 85 %RH.

(*13) The power supply is considered a component which will be installed into a final equipment. The final equipment should be re-evaluated that it meets EMC directives.

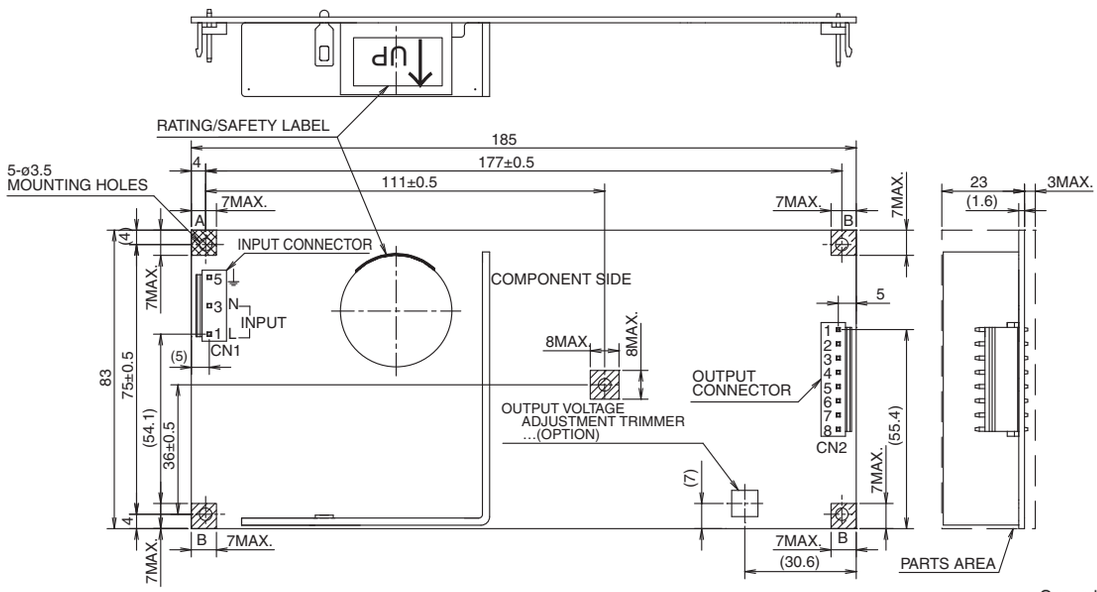
●Recommended EMC Filter



RSEL-2003W

Please refer to "TDK-Lambda EMC Filters" catalog.

Outline Drawing



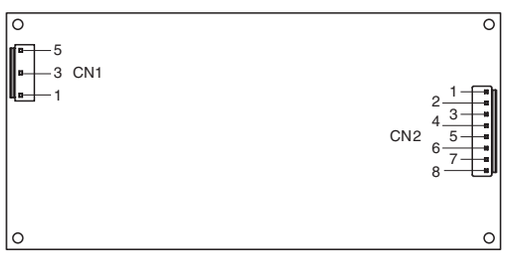
A Ground pattern/Spacer area
Solder side (1 location point)
Area for mounting screw
Side with components (1 location point)

B Spacer area
Solder side (4 location points)
Area for mounting screw
Side with components (4 location points)

Unit: mm

Allowable difference is ±1mm if not specified separately.

Specifications of terminals



CN1 : Input side

P5	⏚	Ground
P3	N	Neutral
P1	L	Live

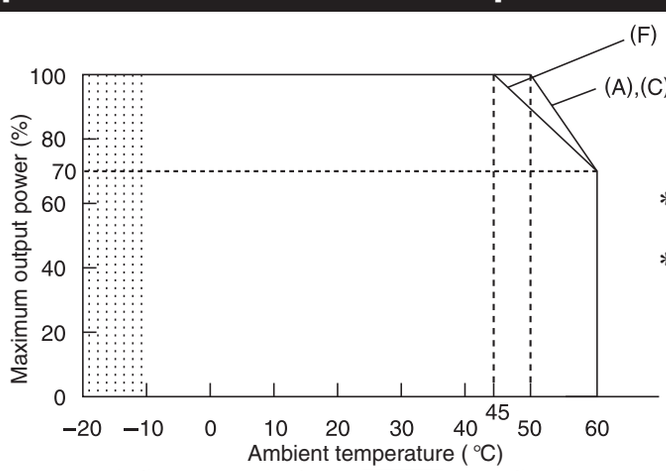
- VH series B3P5-VH-B
by J.S.T. Mfg. Co., Ltd.

CN2 : Output side

P1	V3	Output 3
P2	G2	Ground 2
P3		
P4	V2	Output 2
P5	G1	Ground 1
P6		
P7	V1	Output 1
P8		

- VH series B8P-VH-B
by J.S.T. Mfg. Co., Ltd.

Output Power - Ambient Temperature (Derating Curve)



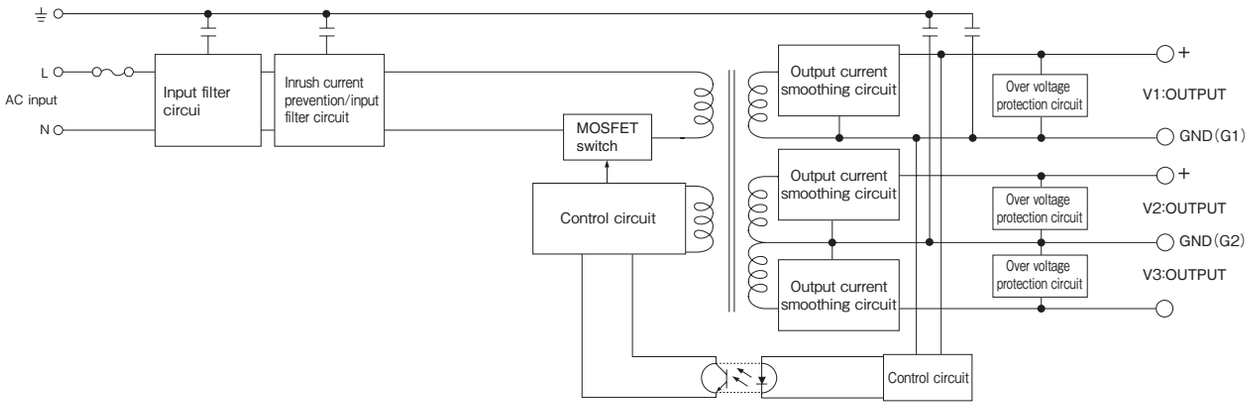
In the range indicated by ⋯, operation is possible but the characteristics are not guaranteed.

✻ Shows derating for products without covers.

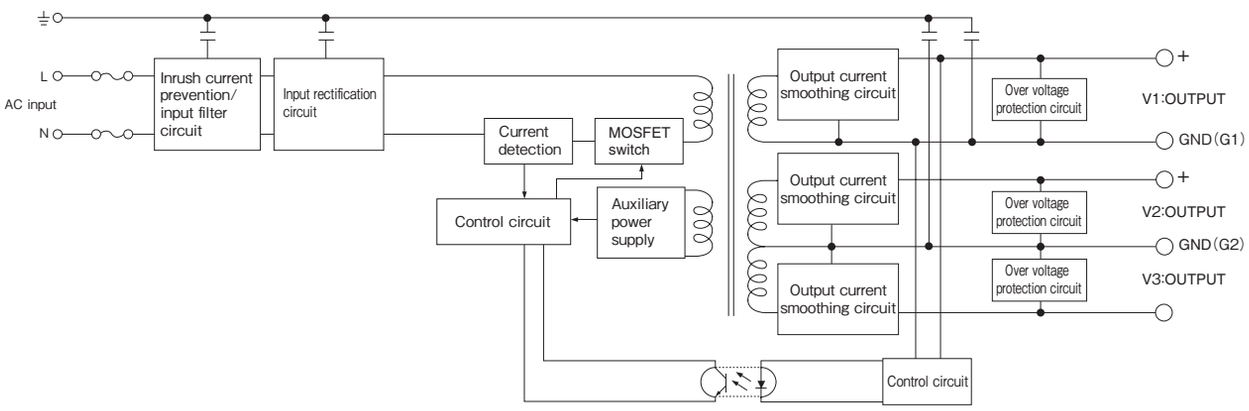
✻ For (A)-(F), refer to the item regarding

Block Diagram

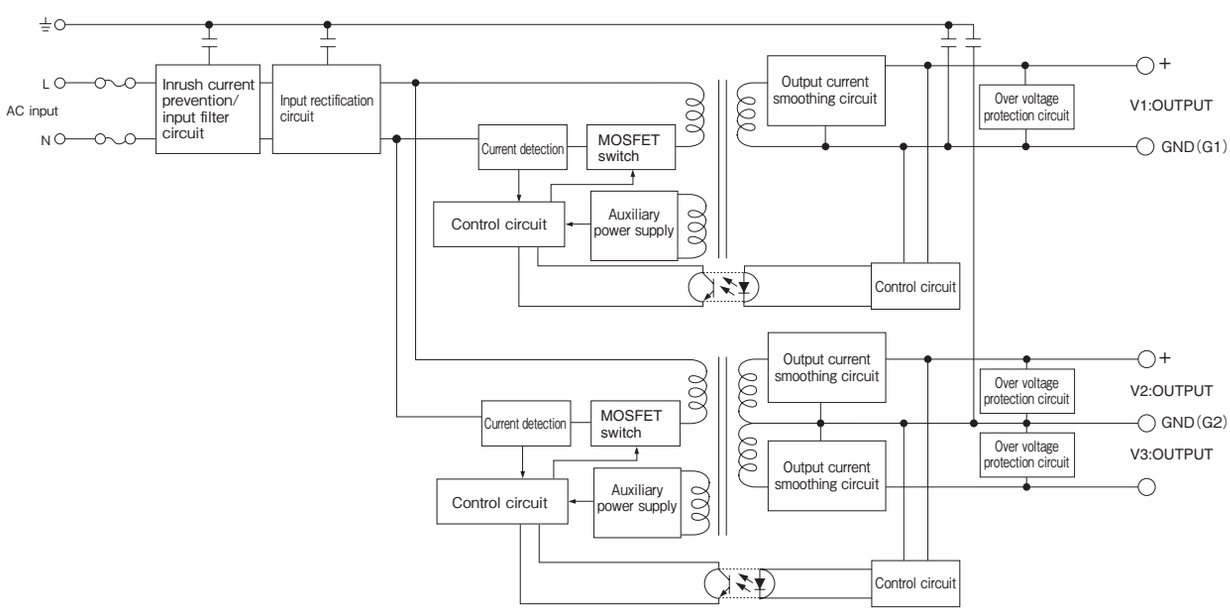
【MTW15W】



【MTW30W】



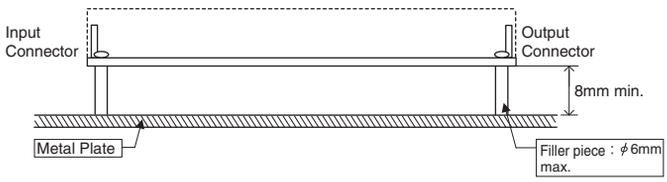
【MTW60W】



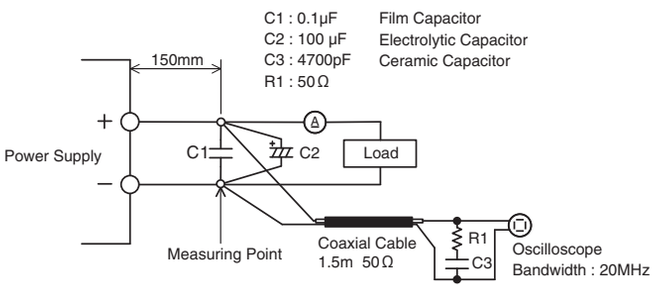
MTW series Instruction Manual

1. Explanation of functions and notes

1 EMI and ESD measurement method

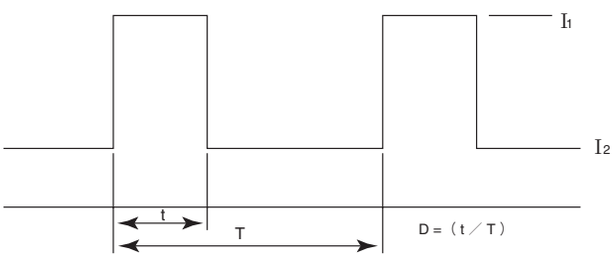


2 Ripple and ripple noise measurement



3 Maximum peak current

Peak current flow can be allowed. However, observe the conditions shown below for a peak current over the nominal value.



(1) Condition of time $t \leqq 10$ seconds
(2) Condition of peak current $I_1 \leqq$ Maximum peak current
(3) Condition of effective current $\sqrt{DI_1^2 + (1\text{-}D) \times I_2^2} \leqq$ Maximum current
(4) Condition of effective power $P \leqq$ Maximum power

4 Minimum output current

15W/60W type

There is no restriction in minimum output current value.

30W type

The CH1 (+5V) output current should be 0.5A or over when in use.

If it is 0.5A or lower, the regulations for the other channels cannot be satisfied.

5 CE marking

MTW series meets the EN60950-1 standards and the CE marking is applicable to this series, based on 73/23/EEC and 93/68/EEC. The custom-made power supply units (variation models) modified from this DC power supply device are not basically CE-marking applicable, except when
"CE-marking applicable" is specifically declared in their specification documents.

6 Over Current Protection OCP

Note that if nonlinear loading such as by lamp or motor, and constant current load is connected, output voltage may not be generated when starting up. Also, there is a restriction in the connectable load capacity. Check it in the specification document.

7 Over Voltage Protection OVP

A protection circuit which clamps the output voltage with the zener diode is incorporated, in order to prevent the over voltage output when in an unusual current condition.
When this circuit is activated, restart is impossible.

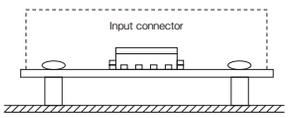
8 Other points to be noted

This product has surface-mount components on the bottom panel (solder side). Vibration, impact, and distortion, etc. in the board can cause failure due to chip crack. Be careful in handling.

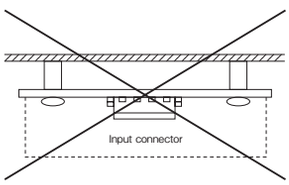
2.Mounting

1 Mounting direction

(A) Standard mounting



(B)

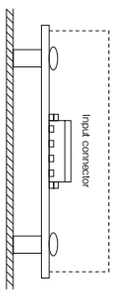


The standard mounting method of the power supply unit to a device is (A). The methods (C) through (F) are also available.

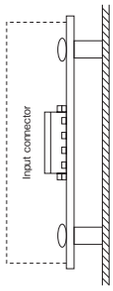
※The method (B) should not be used. This can cause overheating.

When using for mounting methods (A) and (C) through (F), operate the unit within the derating curve shown in Fig-1.

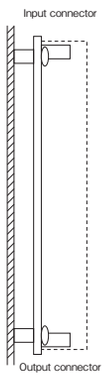
(C)



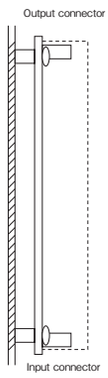
(D)



(E)

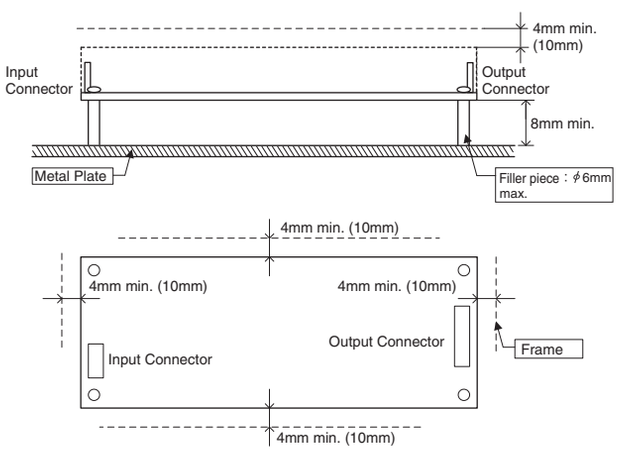


(F)



2 Mounting method

Use spacers (filler pieces: ø6mm max) in the mounting holes on the board. Keep a space of 8mm or over. Also keep a spacial distance (4mm or over) in order to satisfy the insulation regulations/withstand voltage. If a spacial distance (4mm or over) cannot be kept, insert an insulating plate, etc. It is also recommended to keep a distance of 10mm or over from adjacent devices, in order to generate thermal convection.



3. Precautions in use

- Be sure to read the following next precautions thoroughly before using this power supply.
  Incorrect usage could lead to an electric shock, damage to the power supply or a fire hazard.
  - This careful item and a product specification.
  - Safe careful instructions and instruction manual bundled by a product.
- When this product is in use, confirm that the power supply's ambient temperature is within the range of operating temperatures. The power supply's ambient temperature means the temperature around the power supply unit, causing a temperature rise inside the device.
- For use with natural air cooling, locate the unit so as to generate thermal convection. Also keep a distance of 10mm or over from adjacent devices, from each side of the unit.
- Select input/output wire materials and noise filters, etc. which have enough allowance in their respective current capacity.
- If the power supply unit is not in use for a long period of time, it is recommended to apply input voltage for approximately 1 hour, every 2 years, to maintain the quality of the electrolytic capacitor.
- No materials used in this product contain the bromine fire retardant (PBB, PBDE).
- No ODS are used in the production of this product.

4. Troubleshooting

- Is the specified input voltage being applied to the input terminal?
- Are the connections of input/output terminals correct?
- Check that the connecting wires are not too thin.