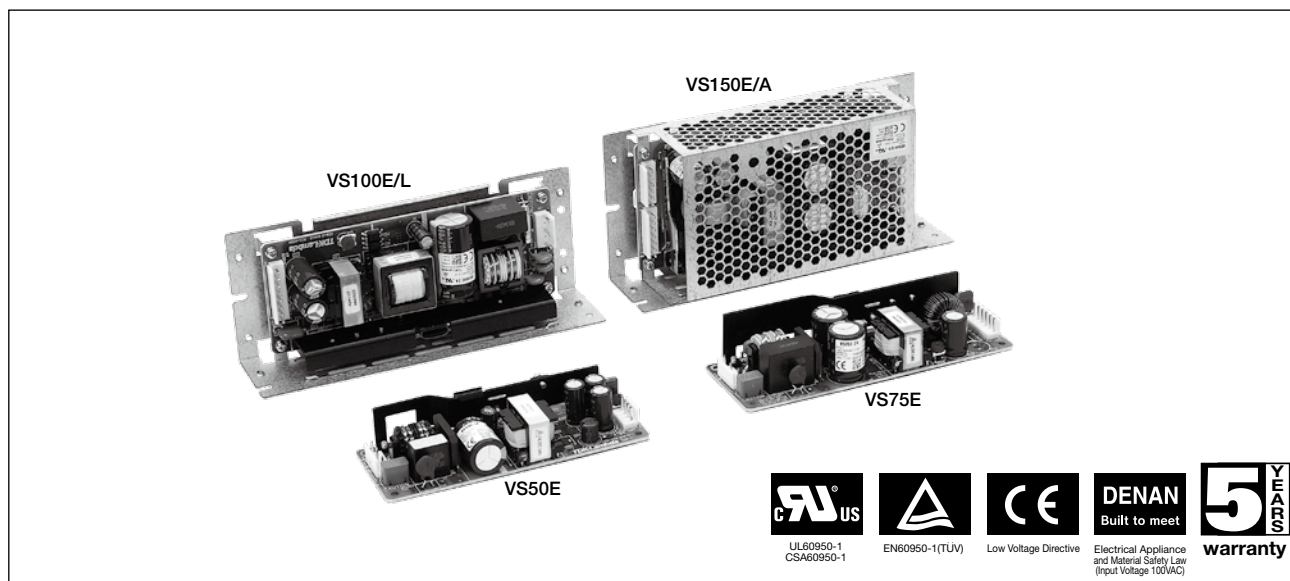


VS-E SERIES

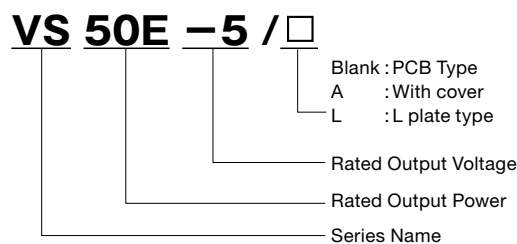
Single Output 50 - 150W



Features

- High efficiency and low standby power.
- 30% Miniaturization from previous models.
- 100% load at 50°C, suitable for industrial equipment.
- 5 Years warranty (conditions applied)

Model name identification method



Applications



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

| Model | VS50E 50W | | VS75E 75W | | VS100E 100W | | VS150E 150W | |
|-------|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| | Output Current | Efficiency(Typ) | Output Current | Efficiency(Typ) | Output Current | Efficiency(Typ) | Output Current | Efficiency(Typ) |
| 3.3V | 10A | 80% | 15A | 80% | 20A | 80% | 30A | 80% |
| 5V | 10A | 85% | 15A | 85% | 20A | 85% | 30A | 86% |
| 12V | 4.3A | 85% | 6.3A | 85% | 8.5A | 85% | 12.5A | 87% |
| 15V | 3.5A | 85% | 5.0A | 85% | 7.0A | 85% | 10.0A | 87% |
| 24V | 2.5A | 85% | 3.2A | 86% | 4.3A | 86% | 6.3A | 87% |
| 48V | 1.3A | 87% | 1.6A | 87% | 2.2A | 87% | 3.2A | 88% |

Option line up

| Model | VS50E 50W | | | | VS75E 75W | | | | VS100E 100W | | | | VS150E 150W | | | |
|-------|--------------|----|------|-----|--------------|----|------|-----|----------------|----|------|-----|----------------|----|------|-----|
| | /A | /L | /CO2 | /FV | /A | /L | /CO2 | /FV | /A | /L | /CO2 | /FV | /A | /L | /CO2 | /FV |
| 3.3V | ○ | ○ | ○ | - | ○ | ○ | ○ | - | ○ | ○ | ○ | - | ○ | ○ | ○ | - |
| 5V | ○ | ○ | ○ | - | ○ | ○ | ○ | - | ○ | ○ | ○ | - | ○ | ○ | ○ | - |
| 12V | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 15V | ○ | ○ | ○ | - | ○ | ○ | ○ | - | ○ | ○ | ○ | - | ○ | ○ | ○ | - |
| 24V | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 48V | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

VS50E Specifications

| ITEMS/UNITS | | MODEL | VS50E-3 | VS50E-5 | VS50E-12 | VS50E-15 | VS50E-24 | VS50E-48 | |
|-------------|------------------------------------|-----------|---------|---|-------------|-------------|-------------|-------------|-------------|
| | | | | | | | | | |
| Input | Voltage Range | (*2) | V | AC 85 - 132 | | | | | |
| | Frequency | (*2) | Hz | 47 - 63 | | | | | |
| | Efficiency (Typ) | (*1) | % | 80 | 85 | | | 87 | |
| | Current (Typ) | (*1) | A | 0.9 | 1.1 | | 1.3 | | |
| | Inrush Current (Typ) | (*1)(*11) | A | 30 at Cold Start | | | | | |
| | Leakage Current | (*8) | mA | Less than 0.5 | | | | | |
| Output | Nominal Voltage | | VDC | 3.3 | 5 | 12 | 15 | 24 | 48 |
| | Maximum Current | | A | 10 | | 4.3 | 3.5 | 2.5 | 1.3 |
| | Maximum Power | | W | 33.0 | 50.0 | 51.6 | 52.5 | 60.0 | 62.4 |
| | Maximum Line Regulation | (*3)(*4) | mV | 20 | | 48 | 60 | 96 | 192 |
| | Maximum Load Regulation | (*3)(*5) | mV | 40 | | 96 | 120 | 150 | 240 |
| | Temperature Coefficient | (*3) | | Less than 0.02% / °C | | | | | |
| | Maximum Ripple & Noise(0≤Ta≤70°C) | (*3) | mVp-p | 120 | | 150 | | 200 | |
| | Maximum Ripple & Noise(-10≤Ta<0°C) | (*3) | mVp-p | 160 | | 180 | | 240 | |
| | Hold-up Time (Typ) | (*1) | ms | 20 | | | | | |
| | Voltage Adjustable Range | (*12) | VDC | 2.97 - 3.63 | 4.5 - 5.5 | 10.8 - 13.2 | 13.5 - 16.5 | 21.6 - 26.4 | 43.2 - 52.8 |
| Function | Over Current Protection | (*6) | A | 10.5 - | | 4.51 - | 3.67 - | 2.62 - | 1.36 - |
| | Over Voltage Protection | (*7) | VDC | 3.80 - 4.46 | 5.75 - 6.75 | 13.8 - 16.2 | 17.3 - 20.3 | 27.6 - 32.4 | 55.2 - 64.8 |
| | Parallel Operation | | | - | | | | | |
| | Series Operation | | | Possible | | | | | |
| Environment | Operating Temperature | (*9) | °C | Convection : -10 - +70 (-10 - +50:100%, +60:70%, +70:20%) | | | | | |
| | Storage Temperature | | °C | -30 - +85 | | | | | |
| | Operating Humidity | | %RH | 30 - 90 (No dewdrop) | | | | | |
| | Storage Humidity | | %RH | 10 - 95 (No dewdrop) | | | | | |
| | Vibration | | | At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each. | | | | | |
| | Shock | | | Less than 196.1m/s ² | | | | | |
| | Cooling | | | Convection Cooling | | | | | |
| Isolation | Withstand Voltage | | | Input - FG : 2kVAC (10mA), Input - Output : 2kVAC (10mA) Output - FG : 500VAC (20mA) for 1min | | | | | |
| | Isolation Resistance | | | More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC | | | | | |
| Standards | Safety Standards | | | Designed to meet UL60950-1, CSA60950-1, EN60950-1, EN50178(OV II), DENAN (Section 2). | | | | | |
| | EMI | | | Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B | | | | | |
| | Immunity | | | Designed to meet IEC61000-4-2(Level 2,3), -3(Level 3), -4(Level 3), -5(Level 2,3), -6(Level 3), -8(Level 4), -11 | | | | | |
| Mechanical | Weight (Typ) | | g | 150 | | | | | |
| | Size (W×H×D) | (*10) | mm | 50 x 23 x 132 (Refer to Outline Drawing) | | | | | |

*Read instruction manual carefully, before using the power supply unit.

(*1) At 100VAC, Ta=25°C, nominal output voltage and maximum output power.

(*2) For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 120VAC(50/60Hz).

(*3) Please refer to Fig. A for measurement of line & load regulation and ripple voltage.

(*4) 85 - 132VAC, constant load.

(*5) No load-Full load, constant input voltage.

(*6) Fold back current limit with automatic recovery. Avoid to operate at over load or short circuit condition for more than 30seconds.

(*7) OVP circuit will shut the output down, manual reset (Re power on).

(*8) Measured by the each measuring method of UL, CSA, EN and DENAN(at 60Hz), Ta=25°C.

(*9) Ratings - Derating at standard mounting. Refer to output derating curve(A239-01-02_).

- Load (%) is percent of maximum output power or maximum output current, whichever is greater.

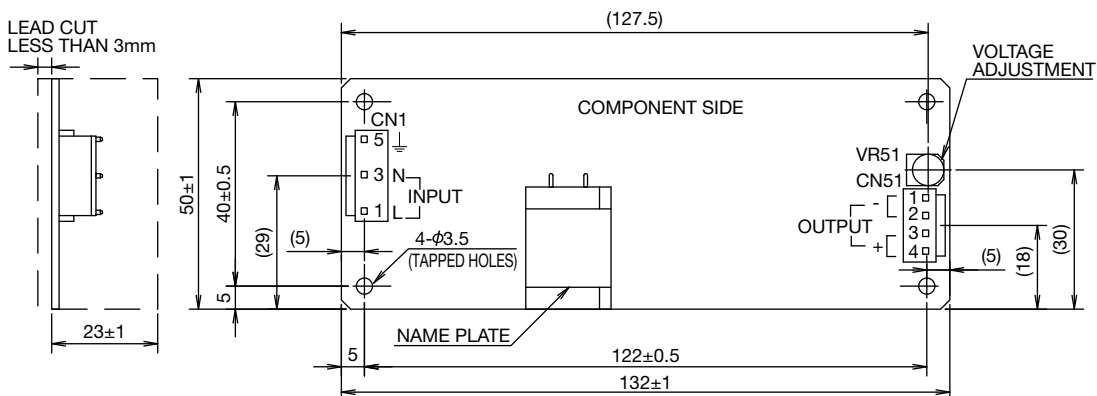
(*10) Not include lead length on solder side.

(*11) Inrush Current suppressors type. Limits vary according to ambient temperature and in case of re-entry.

(*12) /FV option is for fixed output voltage.

Outline Drawing

VS50E Standard Specification, /CO2, /FV



CONNECTOR USED

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-------------------------------|-----------------|----------|-----|
| PIN HEADER (INPUT SIDE CN1) | B3P5-VH(LF)(SN) | J.S.T. | 1 |
| PIN HEADER (OUTPUT SIDE CN51) | B4P-VH(LF)(SN) | J.S.T. | 1 |

* OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

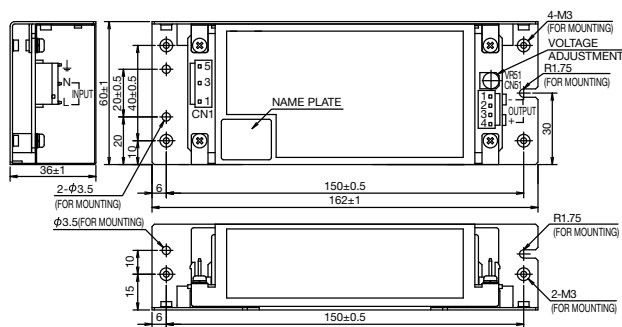
MATCHING HOUSINGS & PIN (NOT INCLUDED WITH THE PRODUCT.)

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-----------------------|--------------|----------|-----|
| SOCKET HOUSING (CN1) | VHR-5N | J.S.T. | 1 |
| SOCKET HOUSING (CN51) | VHR-4N | J.S.T. | 1 |
| Terminal pin | SVH-21T-P1.1 | J.S.T. | 7 |
| | BVH-21T-P1.1 | | |
| HAND CRIMPING TOOL | YC-160R | J.S.T. | - |

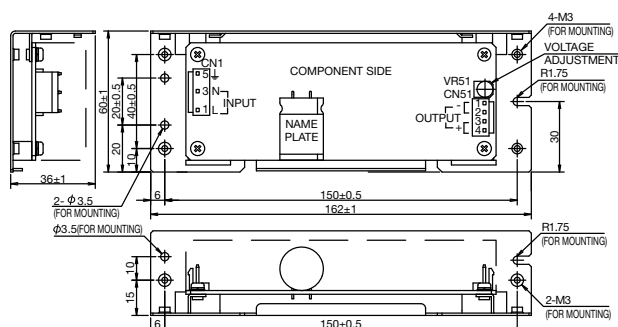
OPEN HARNESS

| | PART NAME |
|--------|-----------|
| INPUT | HA-2-IN |
| OUTPUT | HA-3-OU |

VS50E/A

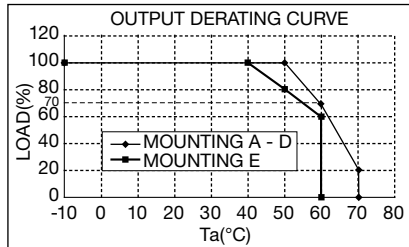


VS50E/L

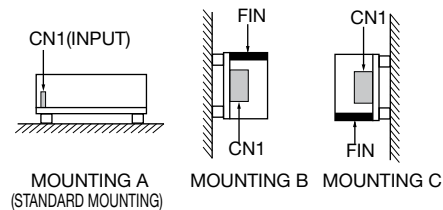
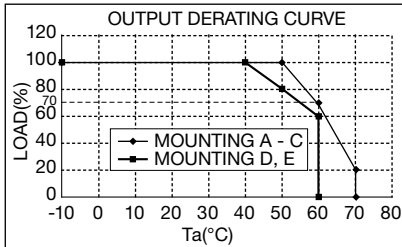


Output Derating

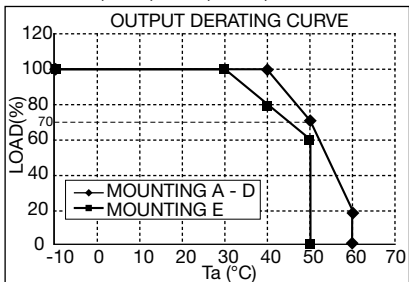
VS50E Standard Specification, /CO2, /FV, /L
VS50E-3, -5, -12, -15, -24



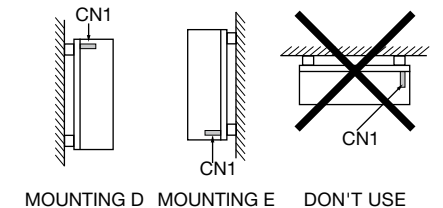
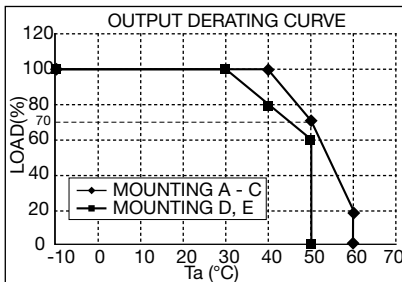
VS50E-48



VS50E/A
VS50E-3/A, -5/A, -12/A, -15/A, -24/A



VS50E-48/A



VS75E Specifications

| ITEMS/UNITS | | MODEL | VS75E-3 | VS75E-5 | VS75E-12 | VS75E-15 | VS75E-24 | VS75E-48 | |
|----------------------|------------------------------------|-------------------|---|--|-------------|-------------|-------------|-------------|--|
| Input | Voltage Range | (*2) V | AC 85 - 132 | | | | | | |
| | Frequency | (*2) Hz | 47 - 63 | | | | | | |
| | Efficiency (Typ) | (*1) % | 80 | 85 | | | 86 | 87 | |
| | Current (Typ) | (*1) A | 1.1 | 1.6 | | | | | |
| | Inrush Current (Typ) | (*1)(*12) A | 30A at Cold Start | | | | | | |
| | Leakage Current | (*9) mA | Less than 0.5 | | | | | | |
| Output | Nominal Voltage | VDC | 3.3 | 5 | 12 | 15 | 24 | 48 | |
| | Maximum Current | A | 15 | | 6.3 | 5.0 | 3.2 | 1.6 | |
| | Maximum Power | W | 49.5 | 75.0 | 75.6 | 75.0 | 76.8 | | |
| | Maximum Line Regulation | (*3)(*5) mV | 20 | | 48 | 60 | 96 | 192 | |
| | Maximum Load Regulation | (*3)(*6) mV | 40 | | 96 | 120 | 150 | 240 | |
| | Temperature Coefficient | (*3) | Less than 0.02% / °C | | | | | | |
| | Maximum Ripple & Noise(0≤Ta≤70°C) | (*3)(*4) mVp-p | 120 | | | 150 | | 200 | |
| | Maximum Ripple & Noise(-10≤Ta<0°C) | (*3)(*4) mVp-p | 160 | | | 180 | | 240 | |
| | Hold-up Time (Typ) | (*1) ms | 20 | | | | | | |
| | Voltage Adjustable Range | (*13) VDC | 2.97 - 3.63 | 4.5 - 5.5 | 10.8 - 13.2 | 13.5 - 16.5 | 21.6 - 26.4 | 43.2 - 52.8 | |
| Function | Over Current Protection | (*7) A | 15.7 - | | 6.61 - | 5.25 - | 3.36 - | 1.68 - | |
| | Over Voltage Protection | (*8) VDC | 3.80 - 4.46 | 5.75 - 6.75 | 13.8 - 16.2 | 17.3 - 20.3 | 27.6 - 32.4 | 55.2 - 64.8 | |
| | Parallel Operation | | - | | | | | | |
| | Series Operation | | Possible | | | | | | |
| Environment | Operating Temperature | (*10) °C | Convection : -10 - +70 (-10 - +50:100%, +60:70%, +70:20%) | | | | | | |
| | Storage Temperature | °C | -30 - +85 | | | | | | |
| | Operating Humidity | %RH | 30 - 90 (No dewdrop) | | | | | | |
| | Storage Humidity | %RH | 10 - 95 (No dewdrop) | | | | | | |
| | Vibration | | At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each. | | | | | | |
| | Shock | | Less than 196.1m/s ² | | | | | | |
| | Cooling | | Convection Cooling | | | | | | |
| | Isolation | Withstand Voltage | | Input - FG : 2kVAC (10mA), Input - Output : 2kVAC (10mA) Output - FG : 500VAC (20mA) for 1min | | | | | |
| Isolation Resistance | | | More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC | | | | | | |
| Standards | Safety Standards | | Designed to meet UL60950-1, CSA60950-1, EN60950-1, EN50178(OV II), DENAN (Section 2). | | | | | | |
| | EMI | | Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B | | | | | | |
| | Immunity | | Designed to meet IEC61000-4-2(Level 2,3), -3(Level 3), -4(Level 3), -5(Level 2,3), -6(Level 3), -8(Level 4), -11 | | | | | | |
| Mechanical | Weight (Typ) | g | 200 | | | | | | |
| | Size (W×H×D) | (*11) mm | 50 x 29 x 150 (Refer to Outline Drawing) | | | | | | |

*Read instruction manual carefully, before using the power supply unit.

(*1) At 100VAC, Ta=25°C, nominal output voltage and maximum output power.

(*2) For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 120VAC(50/60Hz).

(*3) Please refer to Fig. A for measurement of line & load regulation and ripple voltage.

(*4) For start up at low ambient temperature and low input voltage, output ripple noise might not meet specification.

However, there is no overshoot at start up and output ripple noise specification can be met after one second.

(*5) 85 - 132VAC, constant load.

(*6) No load-Full load, constant input voltage.

(*7) 3.3, 5V model : Constant current limit and hiccup with automatic recovery.

12 - 48V model : Constant current limit with automatic recovery.

Avoid to operate at over load or short circuit condition for more than 30seconds.

(*8) OVP circuit will shut the output down, manual reset (Re power on).

(*9) Measured by the each measuring method of UL, CSA, EN and DENAN (at 60Hz), Ta=25°C.

(*10) Ratings

- Derating at standard mounting. Refer to output derating curve(A240-01-02_).

- Load (%) is percent of maximum output power or maximum output current, whichever is greater.

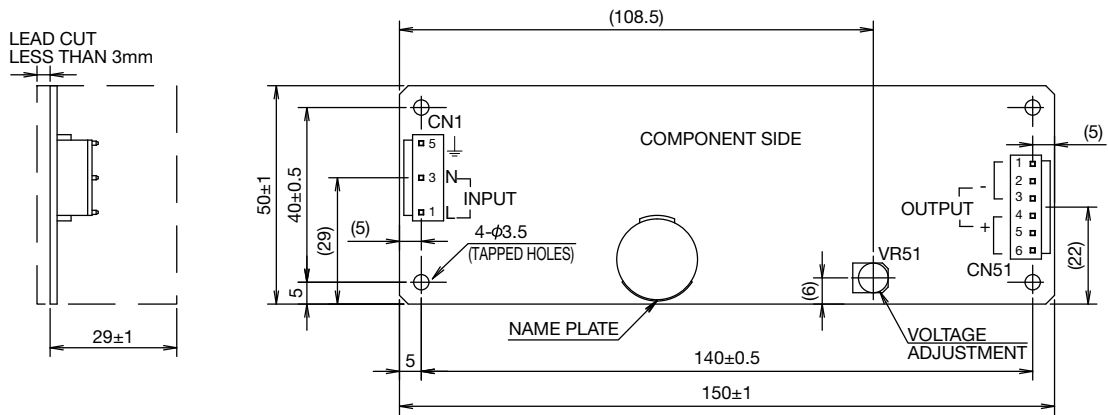
(*11) Not include lead length on solder side.

(*12) Inrush Current suppressors type. Limits vary according to ambient temperature and in case of re-entry.

(*13) /FV option is for fixed output voltage.

Outline Drawing

VS75E Standard Specification, /CO2, /FV



CONNECTOR USED

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-------------------------------|-----------------|----------|-----|
| PIN HEADER (INPUT SIDE CN1) | B3P5-VH(LF)(SN) | J.S.T. | 1 |
| PIN HEADER (OUTPUT SIDE CN51) | B6P-VH(LF)(SN) | J.S.T. | 1 |

* OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

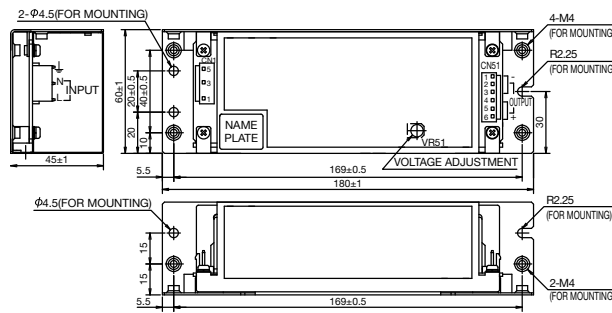
MATCHING HOUSINGS & PIN. (NOT INCLUDED WITH THE PRODUCT.)

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-----------------------|--------------|----------|-----|
| SOCKET HOUSING (CN1) | VHR-5N | J.S.T. | 1 |
| SOCKET HOUSING (CN51) | VHR-6N | J.S.T. | 1 |
| Terminal pin | SVH-21T-P1.1 | J.S.T. | 9 |
| | BVH-21T-P1.1 | | |
| HAND CRIMPING TOOL | YC-160R | J.S.T. | - |

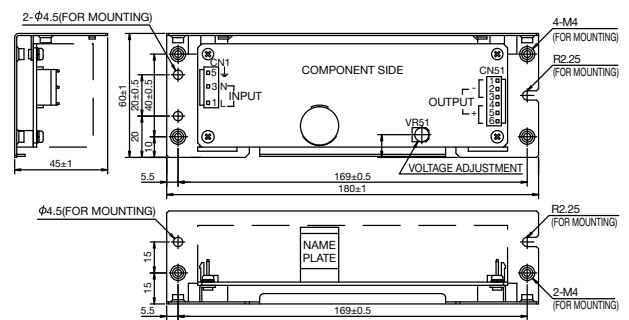
OPEN HARNESS

| | PART NAME |
|--------|-----------|
| INPUT | HA-2-IN |
| OUTPUT | HA-4-OU |

VS75E/A

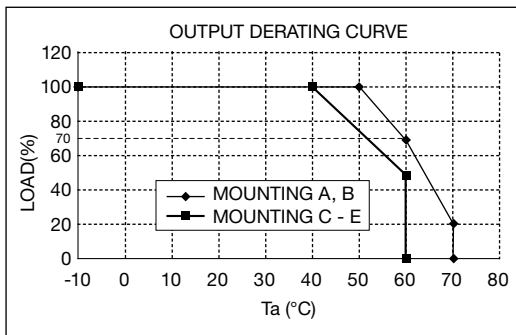


VS75E/L

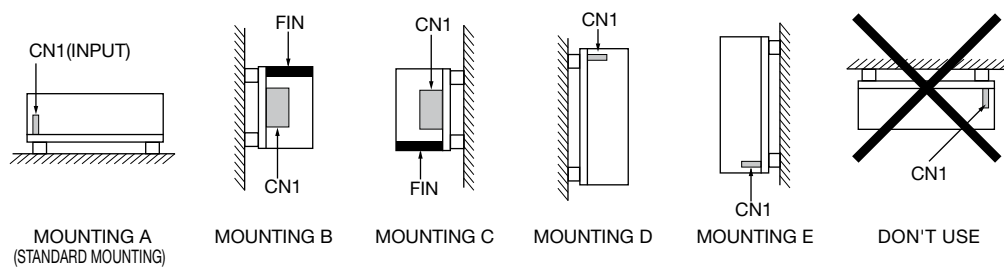
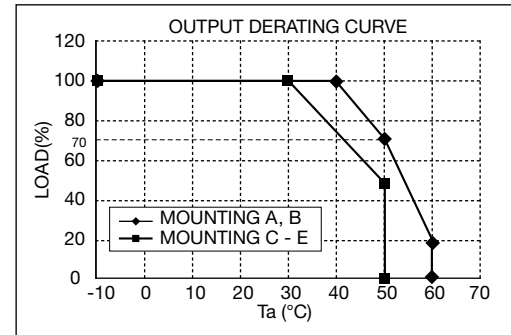


Output Derating

VS75E Standard Specification, /CO2, /FV, /L



VS75E/A



VS100E Specifications

| ITEMS/UNITS | | MODEL | VS100E-3 | VS100E-5 | VS100E-12 | VS100E-15 | VS100E-24 | VS100E-48 | |
|-------------|------------------------------------|----------------|---|-------------|-------------|-------------|-------------|-------------|--|
| Input | Voltage Range | (*2) V | AC 85 - 132 or DC 110 - 175 | | | | | | |
| | Frequency | (*2) Hz | 47 - 63 | | | | | | |
| | Efficiency (Typ) | (*1) % | 80 | 85 | | | 86 | 87 | |
| | Current (Typ) | (*1) A | 1.6 | 2.1 | | | | | |
| | Inrush Current (Typ) | (*1)(*12) A | 30A at Cold Start | | | | | | |
| | Leakage Current | (*9) mA | Less than 0.5 | | | | | | |
| Output | Nominal Voltage | VDC | 3.3 | 5 | 12 | 15 | 24 | 48 | |
| | Maximum Current | A | 20 | | 8.5 | 7.0 | 4.3 | 2.2 | |
| | Maximum Power | W | 66.0 | 100.0 | 102.0 | 105.0 | 103.2 | 105.6 | |
| | Maximum Line Regulation | (*3)(*5) mV | 20 | | 48 | 60 | 96 | 192 | |
| | Maximum Load Regulation | (*3)(*6) mV | 40 | | 96 | 120 | 150 | 240 | |
| | Temperature Coefficient | (*3) | Less than 0.02% / °C | | | | | | |
| | Maximum Ripple & Noise(0≤Ta≤70°C) | (*3)(*4) mVp-p | 120 | | 150 | | | 200 | |
| | Maximum Ripple & Noise(-10≤Ta<0°C) | (*3)(*4) mVp-p | 160 | | 180 | | | 240 | |
| | Hold-up Time (Typ) | (*1) ms | 20 | | | | | | |
| Function | Voltage Adjustable Range | (*13) VDC | 2.97 - 3.63 | 4.5 - 5.5 | 10.8 - 13.2 | 13.5 - 16.5 | 21.6 - 26.4 | 43.2 - 52.8 | |
| | Over Current Protection | (*7) A | 21.0 - | | 8.92 - | 7.35 - | 4.51 - | 2.31 - | |
| | Over Voltage Protection | (*8) VDC | 3.80 - 4.46 | 5.75 - 6.75 | 13.8 - 16.2 | 17.3 - 20.3 | 27.6 - 32.4 | 55.2 - 64.8 | |
| | Parallel Operation | | - | | | | | | |
| | Series Operation | | Possible | | | | | | |
| Environment | Operating Temperature | (*10) °C | Convection : -10 - +70 (-10 - +50:100%, +60:70%, +70:20%) | | | | | | |
| | Storage Temperature | °C | -30 - +85 | | | | | | |
| | Operating Humidity | %RH | 30 - 90 (No dewdrop) | | | | | | |
| | Storage Humidity | %RH | 10 - 95 (No dewdrop) | | | | | | |
| | Vibration | | At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each. | | | | | | |
| | Shock | | Less than 196.1m/s ² | | | | | | |
| | Cooling | | Convection Cooling | | | | | | |
| Isolation | Withstand Voltage | | Input - FG : 2kVAC (10mA), Input - Output : 2kVAC (10mA) Output - FG : 500VAC (20mA) for 1min | | | | | | |
| | Isolation Resistance | | More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC | | | | | | |
| Standards | Safety Standards | | Designed to meet UL60950-1, CSA60950-1, EN60950-1, EN50178(OV II), DENAN (Section 2). | | | | | | |
| | EMI | | Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B | | | | | | |
| | Immunity | | Designed to meet IEC61000-4-2(Level 2,3), -3(Level 3), -4(Level 3), -5(Level 2,3), -6(Level 3), -8(Level 4), -11 | | | | | | |
| Mechanical | Weight (Typ) | g | 290 | | | | | | |
| | Size (W×H×D) | (*11) mm | 62 x 29 x 155 (Refer to Outline Drawing) | | | | | | |

*Read instruction manual carefully, before using the power supply unit.

(*1) At 100VAC, Ta=25°C, nominal output voltage and maximum output power.

(*2) For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 120VAC(50/60Hz).

(*3) Please refer to Fig. A for measurement of line & load regulation and ripple voltage.

(*4) For start up at low ambient temperature and low input voltage, output ripple noise might not meet specification.

However, there is no overshoot at start up and output ripple noise specification can be met after one second.

(*5) 85 - 132VAC, constant load.

(*6) No load-Full load, constant input voltage.

(*7) 3.3, 5V model: Constant current limit and hiccup with automatic recovery.

12 - 48V model: Constant current limit with automatic recovery.

Avoid to operate at over load or short circuit condition for more than 30seconds.

(*8) OVP circuit will shut the output down, manual reset (Re power on).

(*9) Measured by the each measuring method of UL, CSA, EN and DENAN(at 60Hz), Ta=25°C.

(*10) Ratings

- Derating at standard mounting. Refer to output derating curve(A241-01-02_).

- Load (%) is percent of maximum output power or maximum output current, whichever is greater.

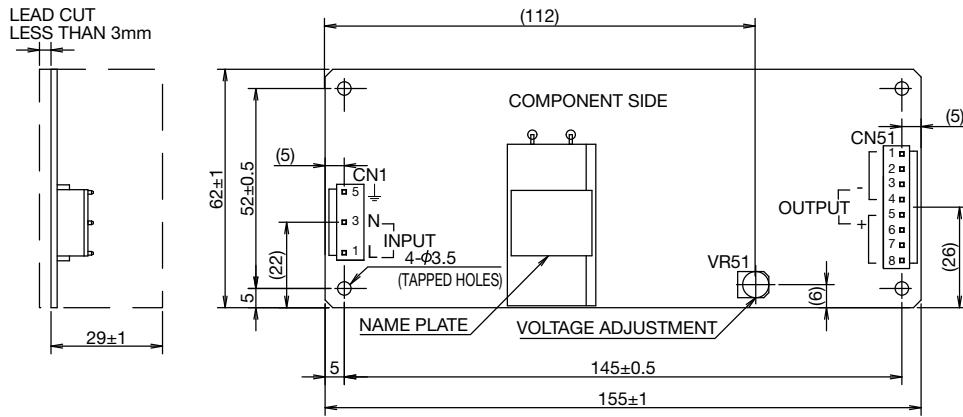
(*11) Not include lead length on solder side.

(*12) Inrush Current suppressors type. Limits vary according to ambient temperature and in case of re-entry.

(*13) /FV option is for fixed output voltage.

Outline Drawing

VS100E Standard Specification, /CO2, /FV



CONNECTOR USED

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-------------------------------|-----------------|----------|-----|
| PIN HEADER (INPUT SIDE CN1) | B3P5-VH(LF)(SN) | J.S.T. | 1 |
| PIN HEADER (OUTPUT SIDE CN51) | B8P-VH(LF)(SN) | J.S.T. | 1 |

* OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

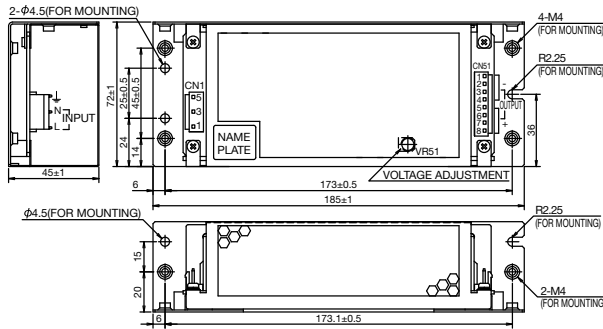
MATCHING HOUSINGS & PIN (NOT INCLUDED WITH THE PRODUCT.)

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-----------------------|--------------|----------|-----|
| SOCKET HOUSING (CN1) | VHR-5N | J.S.T. | 1 |
| SOCKET HOUSING (CN51) | VHR-8N | J.S.T. | 1 |
| Terminal pin | SVH-21T-P1.1 | J.S.T. | 11 |
| | BVH-21T-P1.1 | | |
| HAND CRIMPING TOOL | YC-160R | J.S.T. | - |

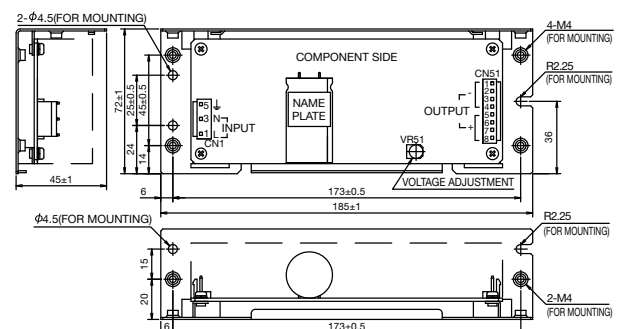
OPEN HARNESS

| | PART NAME |
|--------|-----------|
| INPUT | HA-2-IN |
| OUTPUT | HA-5-OU |

VS100E/A

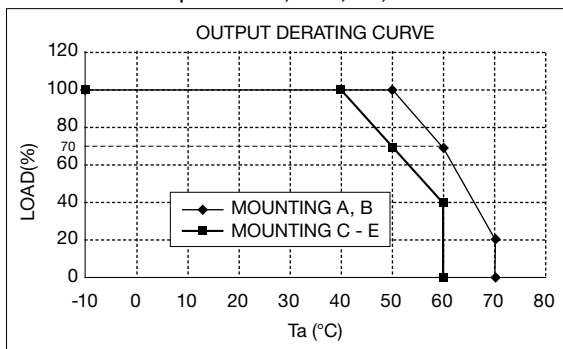


VS100E/L

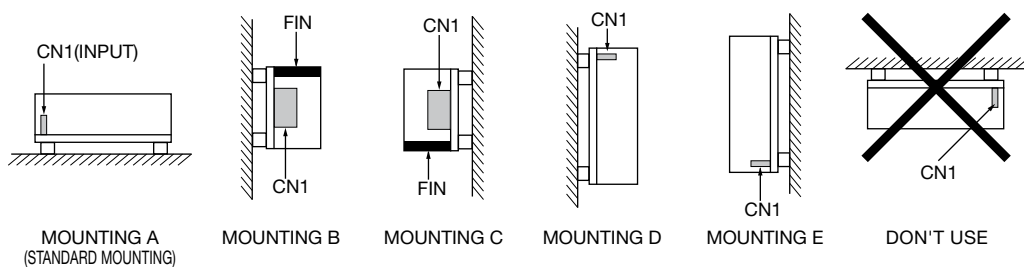
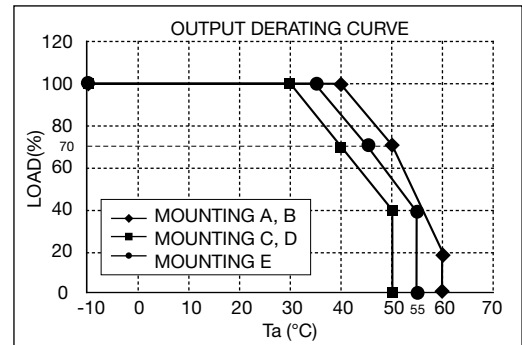


Output Derating

VS100E Standard Specification, /CO2, /FV, /L



VS100E/A



VS150E Specifications

| ITEMS/UNITS | | MODEL | VS150E-3 | VS150E-5 | VS150E-12 | VS150E-15 | VS150E-24 | VS150E-48 |
|-------------|------------------------------------|----------------|---|-------------|-------------|-------------|-------------|-------------|
| Input | Voltage Range | (*2) V | AC 85 - 132 or DC 110 - 175 | | | | | |
| | Frequency | (*2) Hz | 47 - 63 | | | | | |
| | Efficiency (Typ) | (*1) % | 80 | 86 | 87 | | 88 | |
| | Current (Typ) | (*1) A | 2.4 | 3.2 | | | | |
| | Inrush Current (Typ) | (*1)(*12) A | 30A at Cold Start | | | | | |
| | Leakage Current | (*9) mA | Less than 0.5 | | | | | |
| Output | Nominal Voltage | VDC | 3.3 | 5 | 12 | 15 | 24 | 48 |
| | Maximum Current | A | 30 | | 12.5 | 10.0 | 6.3 | 3.2 |
| | Maximum Power | W | 99.0 | 150.0 | | | 151.2 | 153.6 |
| | Maximum Line Regulation | (*3)(*5) mV | 20 | | 48 | 60 | 96 | 192 |
| | Maximum Load Regulation | (*3)(*6) mV | 40 | | 96 | 120 | 150 | 240 |
| | Temperature Coefficient | (*3) | Less than 0.02% / °C | | | | | |
| | Maximum Ripple & Noise(0≤Ta≤70°C) | (*3)(*4) mVp-p | 120 | | 150 | | | 200 |
| | Maximum Ripple & Noise(-10≤Ta<0°C) | (*3)(*4) mVp-p | 160 | | 180 | | | 240 |
| | Hold-up Time (Typ) | (*1) ms | 20 | | | | | |
| | Voltage Adjustable Range | (*13) VDC | 2.97 - 3.63 | 4.5 - 5.5 | 10.8 - 13.2 | 13.5 - 16.5 | 21.6 - 26.4 | 43.2 - 52.8 |
| Function | Over Current Protection | (*7) A | 31.5 - | | 13.12 - | 10.5 - | 6.61 - | 3.36 - |
| | Over Voltage Protection | (*8) VDC | 3.80 - 4.46 | 5.75 - 6.75 | 13.8 - 16.2 | 17.3 - 20.3 | 27.6 - 32.4 | 55.2 - 64.8 |
| | Parallel Operation | | - | | | | | |
| | Series Operation | | Possible | | | | | |
| Environment | Operating Temperature | (*10) °C | Convection : -10 - +70 (-10 - +50:100%, +60:70%, +70:20%) | | | | | |
| | Storage Temperature | °C | -30 - +85 | | | | | |
| | Operating Humidity | %RH | 30 - 90 (No dewdrop) | | | | | |
| | Storage Humidity | %RH | 10 - 95 (No dewdrop) | | | | | |
| | Vibration | | At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each. | | | | | |
| | Shock | | Less than 196.1m/s ² | | | | | |
| | Cooling | | Convection Cooling | | | | | |
| Isolation | Withstand Voltage | | Input - FG : 2kVAC (10mA), Input - Output : 2kVAC (10mA) Output - FG : 500VAC (20mA) for 1min | | | | | |
| | Isolation Resistance | | More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC | | | | | |
| Standards | Safety Standards | | Designed to meet UL60950-1, CSA60950-1, EN60950-1, EN50178(OV II), DENAN (Section 2). | | | | | |
| | EMI | | Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B | | | | | |
| | Immunity | | Designed to meet IEC61000-4-2(Level 2,3), -3(Level 3), -4(Level 3), -5(Level 2,3), -6(Level 3), -8(Level 4), -11 | | | | | |
| Mechanical | Weight (Typ) | g | 390 | | | | | |
| | Size (WxHxD) | (*11) mm | 75 x 34 x 160 (Refer to Outline Drawing) | | | | | |

*Read instruction manual carefully, before using the power supply unit.

(*1) At 100VAC, Ta=25°C, nominal output voltage and maximum output power.

(*2) For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 120VAC(50/60Hz).

(*3) Please refer to Fig. A for measurement of line & load regulation and ripple voltage.

(*4) For start up at low ambient temperature and low input voltage, output ripple noise might not meet specification.

However, there is no overshoot at start up and output ripple noise specification can be met after one second.

(*5) 85 - 132VAC, constant load.

(*6) No load-Full load, constant input voltage.

(*7) 3.3, 5V model: Constant current limit and hiccup with automatic recovery.

12 - 48V model: Constant current limit with automatic recovery.

Avoid to operate at over load or short circuit condition for more than 30seconds.

(*8) OVP circuit will shut the output down, manual reset (Re power on).

(*9) Measured by the each measuring method of UL, CSA, EN and DENAN(at 60Hz), Ta=25°C.

(*10) Ratings

- Derating at standard mounting. Refer to output derating curve(A242-01-02_).

- Load (%) is percent of maximum output power or maximum output current, whichever is greater.

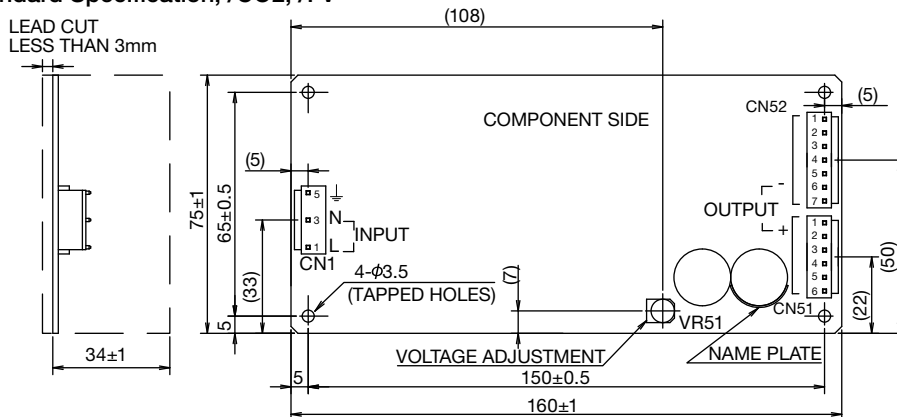
(*11) Not include lead length on solder side.

(*12) Inrush Current suppressors type. Limits vary according to ambient temperature and in case of re-entry.

(*13) /FV option is for fixed output voltage.

Outline Drawing

VS1150E Standard Specification, /CO2, /FV



CONNECTOR USED

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-------------------------------|-----------------|----------|-----|
| PIN HEADER (INPUT SIDE CN1) | B3P5-VH(LF)(SN) | J.S.T. | 1 |
| PIN HEADER (OUTPUT SIDE CN51) | B6P-VH(LF)(SN) | J.S.T. | 1 |
| PIN HEADER (OUTPUT SIDE CN52) | B7P-VH(LF)(SN) | J.S.T. | 1 |

* OUTPUT CURRENT OF EACH CONNECTOR PIN MUST BE LESS THAN 5A.

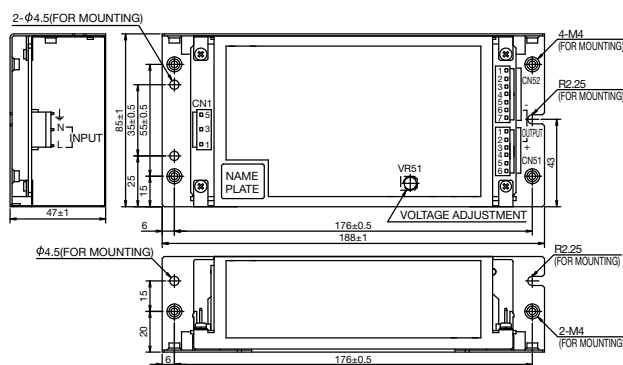
MATCHING HOUSINGS & PIN.(NOT INCLUDED WITH THE PRODUCT.)

| PART DESCRIPTION | PART NAME | MANUFACT | QTY |
|-----------------------|--------------|----------|-----|
| SOCKET HOUSING (CN1) | VHR-5N | J.S.T. | 1 |
| SOCKET HOUSING (CN51) | VHR-6N | J.S.T. | 1 |
| SOCKET HOUSING (CN52) | VHR-7N | J.S.T. | 1 |
| Terminal pin | SVH-21T-P1.1 | J.S.T. | 11 |
| | BVH-21T-P1.1 | | |
| HAND CRIMPING TOOL | YC-160R | J.S.T. | - |

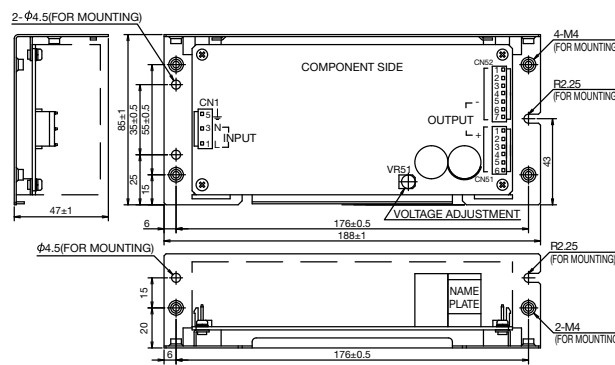
OPEN HARNESS

| | PART NAME |
|--------|-------------|
| INPUT | HA-2-IN |
| OUTPUT | + : HA-6-OU |
| | - : HA-7-OU |

VS150E/A

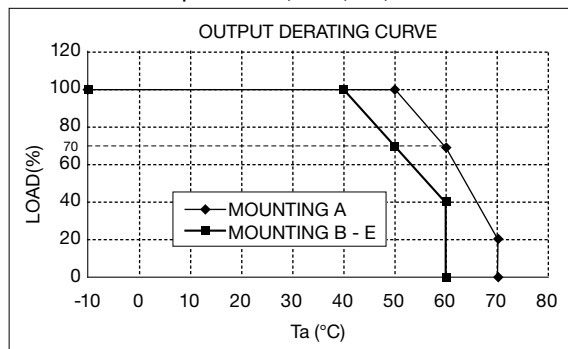


VS150E/L

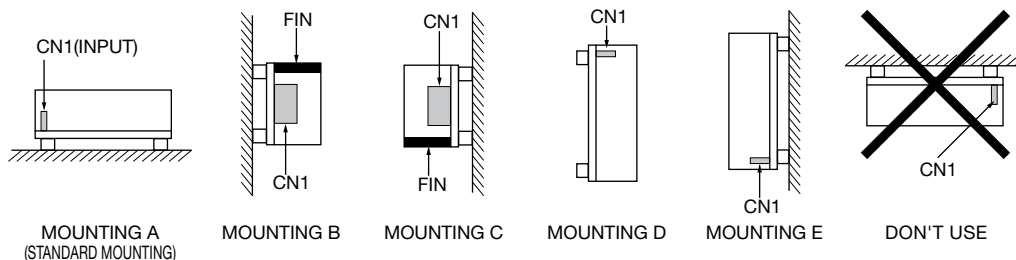
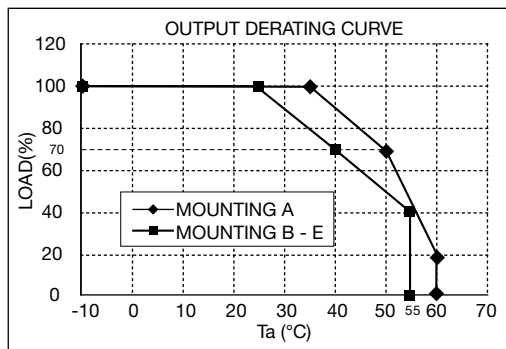


Output Derating

VS150E Standard Specification, /CO2, /FV, /L



VS150E/A



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