

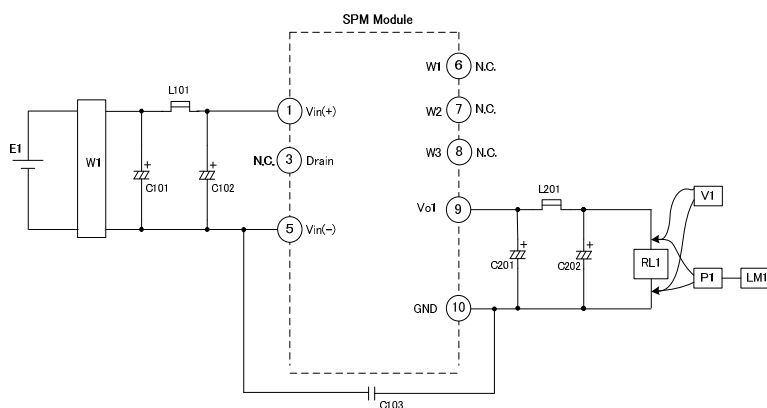
# Input-output condition

| Item                 | Specification  |
|----------------------|----------------|
| Input voltage range  | DC110~390V     |
| Rated input voltage  | DC140V, DC340V |
| Rated output voltage | 3.3V           |
| Rated load current   | 0.7A           |

# Electrical specification Ta=25°C

| Item  | Specification           | Conditions・Note   |
|---|-------------------------|---|
| Efficiency  | 64% or more (70% TYP)   | Rated input voltage<br>Rated output current                       |
| Output voltage tolerance                          | +15% / -10%             | Rated input voltage<br>Output current 0~0.07A                     |
|   | ±10%                    | Rated input voltage<br>Output current 0.07~0.7A                   |
| No-load power                                     | 50mW or less (15mW TYP) | Rated input voltage   |
| Ripple  | 150mVp-p or less        | Rated input voltage   |
| Ripple noise                                      | 200mVp-p or less        | Rated output current  |
| Lower limit of output undershoot during load step | 2.4V or more            | Rated input voltage<br>Output current 0⇔0.7A<br>Slew rate 10uS    |
|   | 2.8V or more            | Rated input voltage<br>Output current 0.07⇔0.7A<br>Slew rate 10uS |
| Upper limit of output overshoot during load step  | 3.8V or less            | Rated input voltage<br>Slew rate 10uS                             |

Measurement circuit



E1 : DC power supply  
W1 : Wattmeter WT210 (YOKOGAWA)  
RL1 : Electronic load  
V1 : Voltmeter Class 0.5  
P1 : Differential probe DP-100(KG)  
LM1 : Ripple noise meter RM-103(KG)

C101 : 450BXC6.8M (RUBYCON)  
C102 : 450BXC6.8M (RUBYCON)  
C103 : CD65ZU2GA681M (TDK)  
C201 : 10ZLG1200M (RUBYCON)  
C202 : 10ZLG1200M (RUBYCON)  
L101 : PJ5H-152M (KORIN)  
L201 : PJ5H-2R2M (KORIN)

### ■Protection

| Item                   | Specification | Conditions・Note |
|------------------------|---------------|-----------------|
| Overcurrent protection | 0.74A or more | Auto recovery   |
| Overheat protection    |               |                 |

### ■Insulation

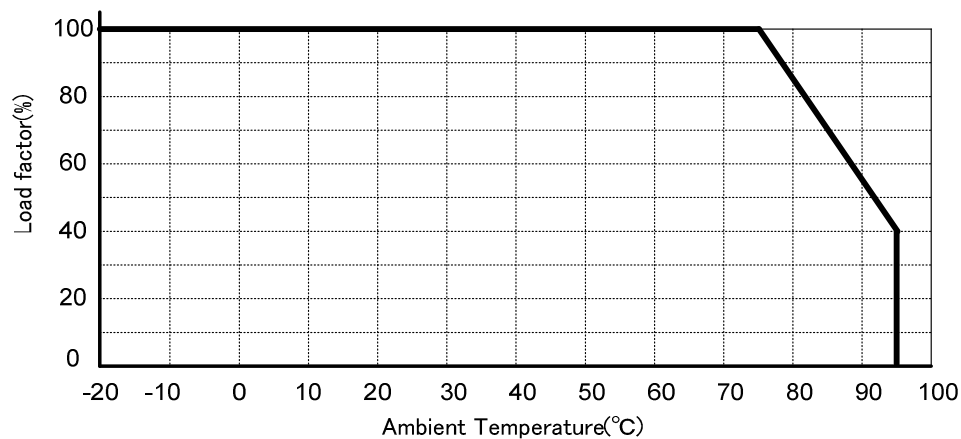
| Item                                       | Specification         | Conditions・Note                    |
|--|-----------------------|------------------------------------|
| Insulation voltage<br>(Between Pri-Sec)    | 3.0kV (or 3.6kV)      | AC 1min (or AC 2sec)<br>Cutoff 2mA |
| Insulation resistance<br>(Between Pri-Sec) | 100M $\Omega$ or more | DC500V                             |

### ■Environmental conditions

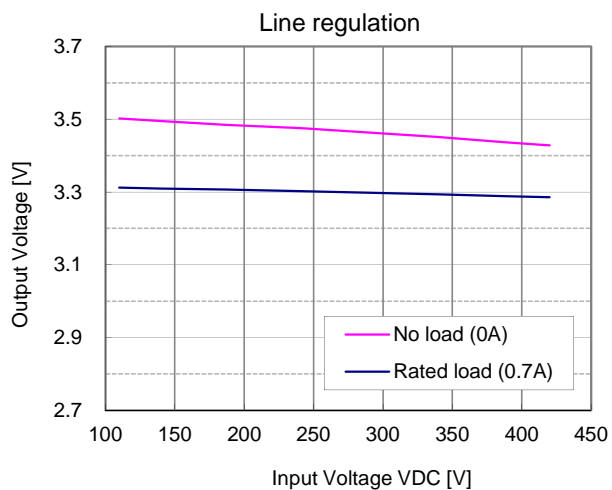
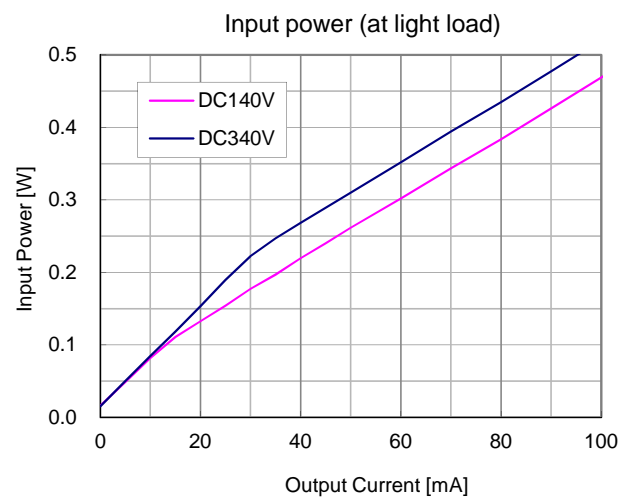
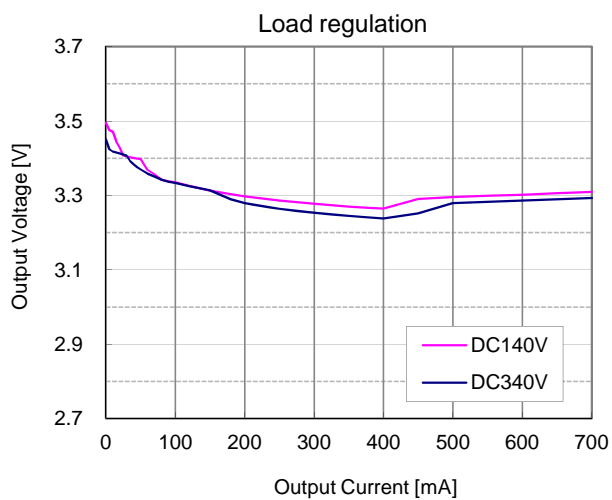
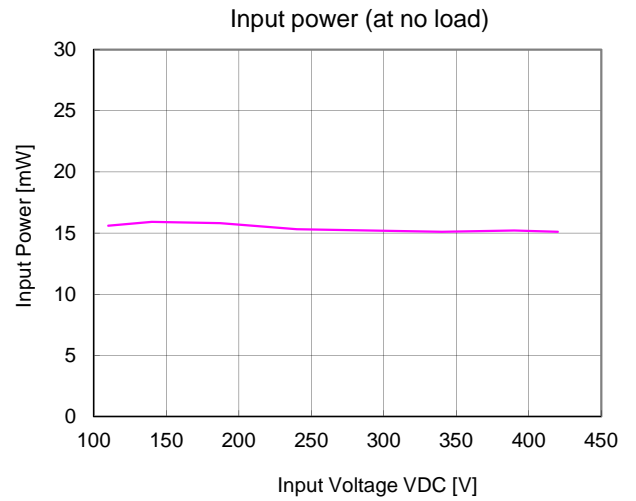
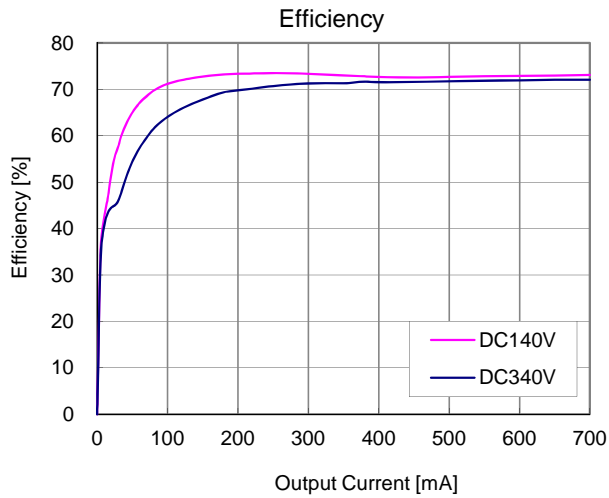
| Item                  | Specification                 | Conditions・Note                           |
|-----------------------|-------------------------------|---|
| Operating temperature | -20°C~95°C                    | Refer to the ambient temperature derating |
| Operating humidity    | 20~95%RH<br>(No condensation) |   |
| Storage temperature   | -25°C~100°C                   |   |
| Storage humidity      | 5~95%RH<br>(No condensation)  |   |

### ■Ambient temperature derating curve

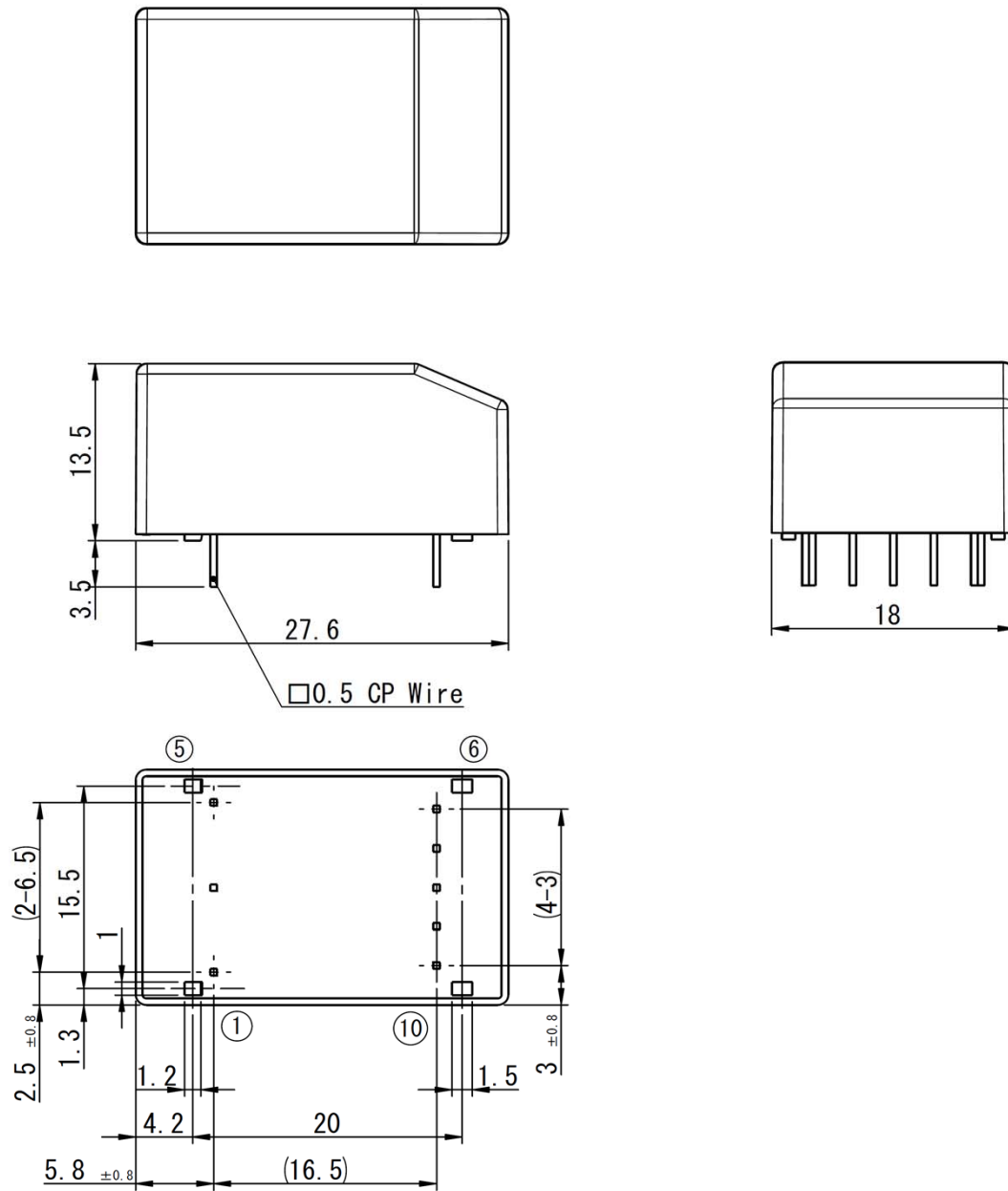
Reduce the load current according to the following temperature derating table.



■ Typical characteristics Ta=25°C



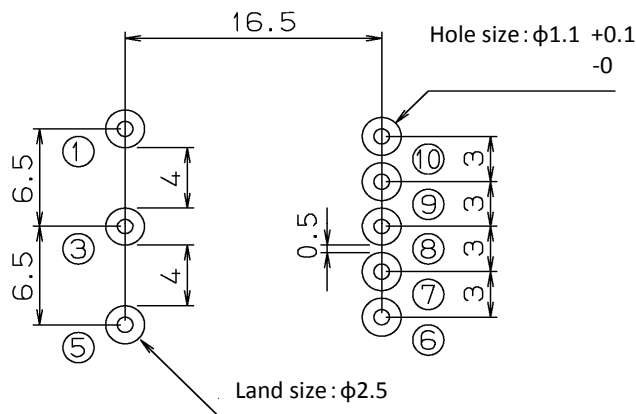
■Outline dimensional drawing



Note : 1.The dimensional tolerance without directions is  $\pm 0.5\text{mm}$ .

Unit : mm

# Recommended hole diameter and land size



※ The round pulling out figure is a pin numbering.

Unit : mm

Component side

# Terminal function and connection

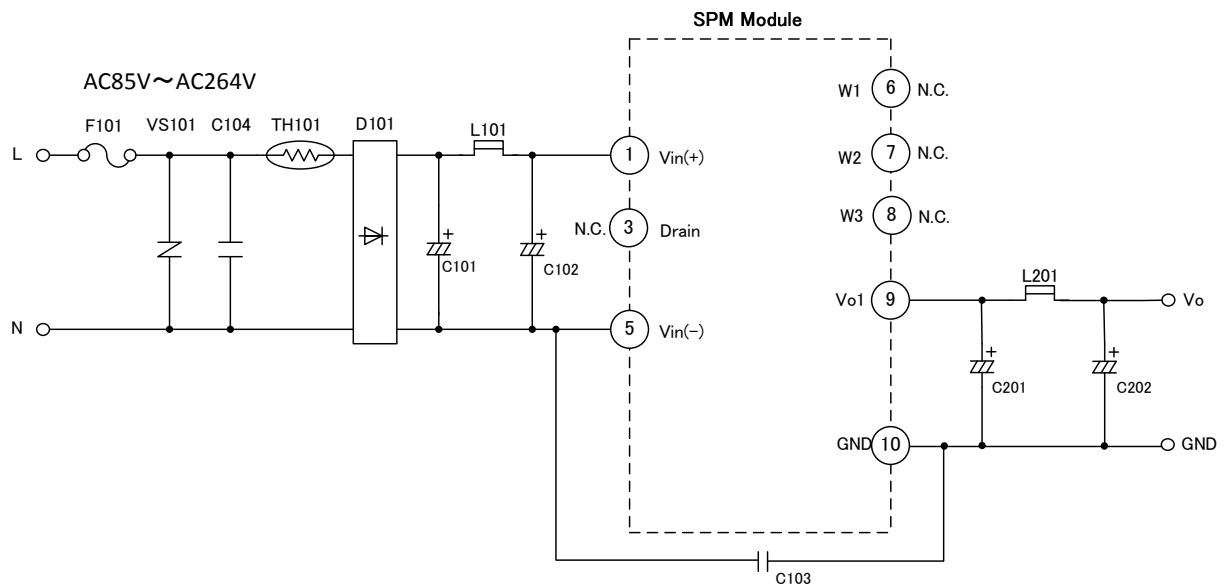
## Primaries

| Pin No. | Name   | Explanation of terminals      |
|---------|--------|-------------------------------|
| 1       | Vin(+) | DC voltage input terminal (+) |
| 2       |        | No terminal                   |
| 3       | Drain  | Terminal for noise adjustment |
| 4       |        | No terminal                   |
| 5       | Vin(-) | DC voltage input terminal (-) |

## Secondaries

| Pin No. | Name | Explanation of terminals                                       |
|---------|------|--|
| 6       | W1   | N.C.   |
| 7       | W2   | N.C.   |
| 8       | W3   | Secondary wired bundle pin ※Don't connect with other circuits. |
| 9       | Vo1  | Output terminal (+)  |
| 10      | GND  | Output terminal (-)  |

## Application circuit example



| Symbol | Description | Part No.      | Manufacturer  |
|--------|-------------|---------------|---------------|
| D101   | Diode       | S1NBC80       | SHINDENGEN    |
| TH101  | Thermistor  | NTPA7220L     | MURATA        |
| VS101  | Varistor    | TVR10471      | THINKING      |
|        |             |               |               |
| L101   | Inductor    | PJ5H-152M     | KORIN         |
| L201   | Inductor    | PJ5H-2R2M     | KORIN         |
|        |             |               |               |
| C101   | Capacitor   | 400AX10M      | RUBYCON       |
| C102   | Capacitor   | 400AX10M      | RUBYCON       |
| C103   | Capacitor   | CD65ZU2GA681M | TDK           |
| C104   | Capacitor   | LE104-MX      | OKAYA         |
| C201   | Capacitor   | 10ZLG1200M    | RUBYCON       |
| C202   | Capacitor   | 10ZLG1200M    | RUBYCON       |
|        |             |               |               |
| F101   | Fuse        | FIH 250V 2.5A | NIPPON-SEISEN |

※Mount the fuse on the input Live side to ensure safety without fail.

Recommended parts: FIH 250V 1.6A~2.5A/NIPPON-SEISEN

※Depend on the applying safety standard, please add the discharge resistance in parallel with C104.

**■ Usage cautions**

- Always mount fuse on the Live side of input for ensuring safety because the fuse is not built-in the product.  
Please select the fuse considering conditions such as steady current, inrush current, and ambient temperature.  
※Recommended parts: FIH 250V 1.6A~2.5A / NIPPON-SEISEN  
When using a fuse having large rated current or high capacity input electrolytic condenser, by combining another converter and input line and input electrolytic condenser, fuse may not blow off in the case of abnormality.  
Do not combine high voltage line and fuse.
  
- Examples of circuit and part constants listed in this specifications document are provided as reference for checking the characteristics.  
Please design, verify and arrive at a decision at your responsibility after taking various conditions into account.
  
- Tamura Corporation constantly strives to improve quality and reliability, but functional faults and failures are bound to occur with some probability in power products. To ensure that failures do not cause accidents resulting in injury or death, fire accidents, social damage, and so on, users are to thoroughly verify the safety of their designs in devices and/or systems.
  
- This product is intended for use in consumer electronics (electric home appliances, business equipment, information equipment, communication terminal equipment, measuring devices, and so on.)  
If considering use of this product in equipment or devices that require high reliability (medical devices, transportation equipment, traffic signal control equipment, fire and crime prevention equipment, aeronautics and space devices, nuclear power control, fuel control, in-vehicle equipment, safety devices, and so on), please consult a Tamura sales representative in advance. Do not use this product for such applications without written permission from Tamura Corporation.
  
- This product is intended for use in environments where consumer electronics are commonly used. It is not designed for use in special environments such as listed below, and if such use is considered, the user is to perform thorough safety and reliability checks under his/her responsibility.
  - Use in liquids such as water, oil, chemical solutions, or organic solvents, and use in locations where the product will be exposed to such liquids.
  - Use that involves exposure to direct sunlight, outdoor exposure, or dusty conditions.
  - Use in locations where corrosive gases such as salt air, Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, or NO<sub>2</sub>, are present.
  - Use in environments with strong static electricity or electromagnetic radiation.
  - Use that involves placing inflammable material next to the product.
  - Use of this product either sealed with a resin filling or coated with resin.
  - Use of water or a water soluble detergent for flux cleaning.
  - Use in locations where condensation is liable to occur.
  
- This product is not designed to resist radiation.
  
- This product is not designed to be connected in series or parallel.  
Do not operate this product in a series, parallel, or N+1 redundant configuration.