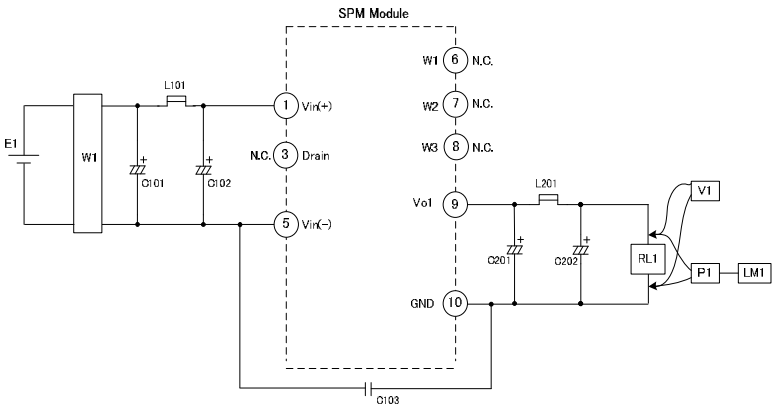
■Input-output condition

Item	Specification
Input voltage range	DC110～420V
Rated input voltage	DC140V, DC340V
Rated output voltage	15V
Rated load current	0.22A

■Electrical specification Ta=25℃

Item	Specification	Conditions・Note
Efficiency	74% or more (82% TYP)	Rated input voltage Rated output current
Output voltage tolerance	±10%	Rated input voltage Output current 0～0.022A
	+5%/-6%	Rated input voltage Output current 0.022～0.22A
No-load power	50mW or less (20mW TYP)	Rated input voltage
Ripple	400mVp-p or less	Rated input voltage Rated output current
Ripple noise	500mVp-p or less	
Lower limit of output undershoot during load step	13.0V or more	Rated input voltage Output current 0⇔0.22A Slew rate 10uS
Upper limit of output overshoot during load step	16.5V or less	Rated input voltage 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 noize meter RM-103(KG)

C101 : 450BXC6.8M (RUBYCON)
C102 : 450BXC6.8M (RUBYCON)
C103 : CD65ZU2GA681M (TDK)
C201 : 35ZLH220M (RUBYCON)
C202 : 35ZLH47M (RUBYCON)
L101 : PJ5H-152M (KORIN)
L201 : PJ5H-2R2M (KORIN)

■Protection

Item	Specification	Conditions・Note
Overcurrent protection	0.23A or more	Auto recovery
Overheat protection		

■Insulation

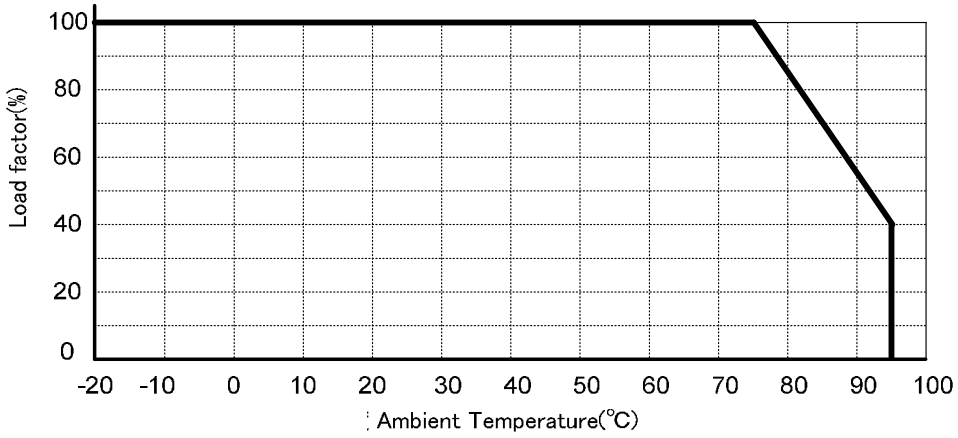
Item	Specification	Conditions・Note
Insulation voltage (Between Pri－Sec)	3.0kV (or 3.6kV)	AC 1min (or AC 2sec) Cutoff 2mA
Insulation resistance (Between Pri－Sec)	100MΩ or more	DC500V

■Environmental conditions

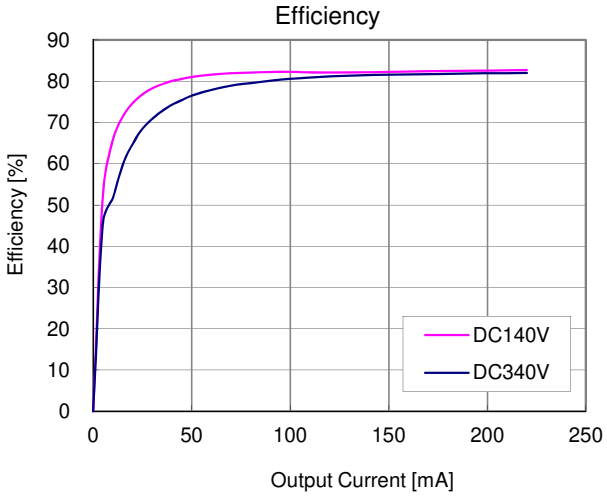
Item	Specification	Conditions・Note
Operating temperature	-20℃～95℃	Refer to the ambient temperature derating
Operating humidity	20～95%RH (No condensation)	
Storage temperature	-25℃～100℃	
Storage humidity	5～95%RH (No condensation)	

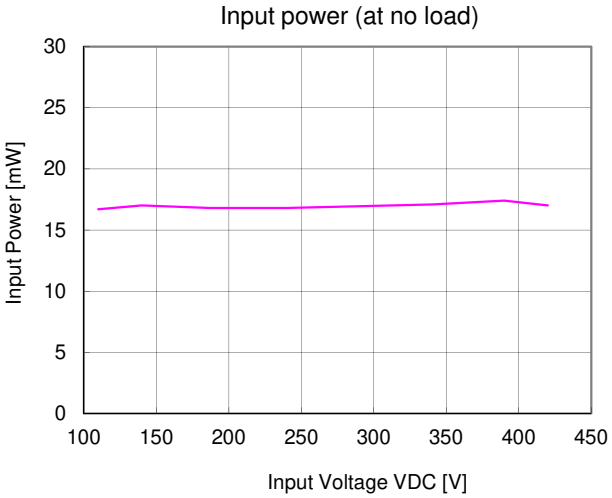
■Ambient temperature derating curve

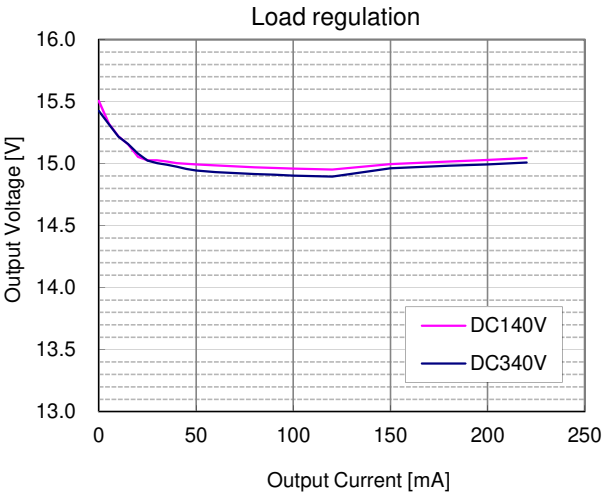
Reduce the load current according to the following temperature derating table.

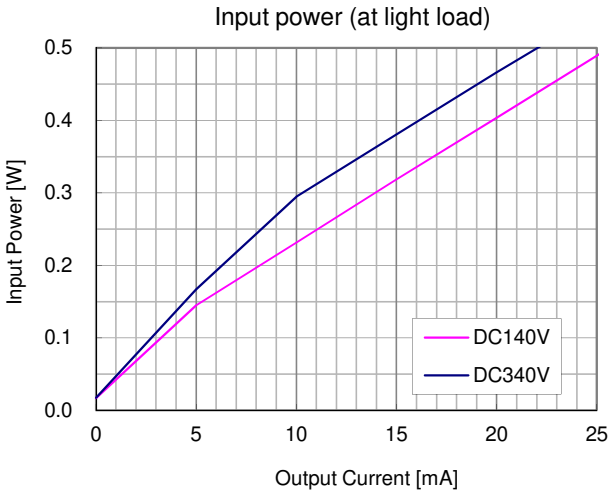


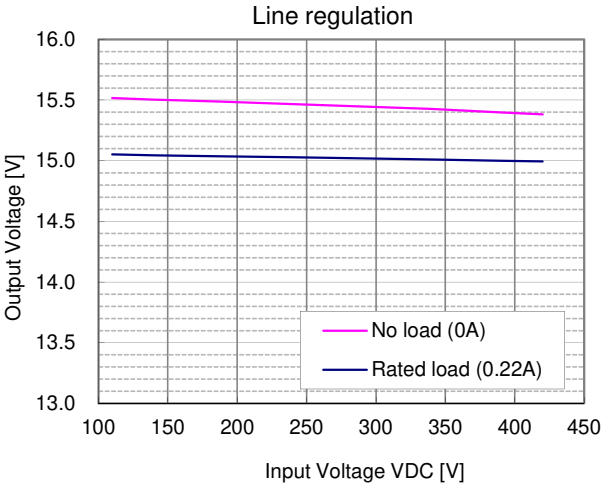
■Typical characteristics Ta=25℃



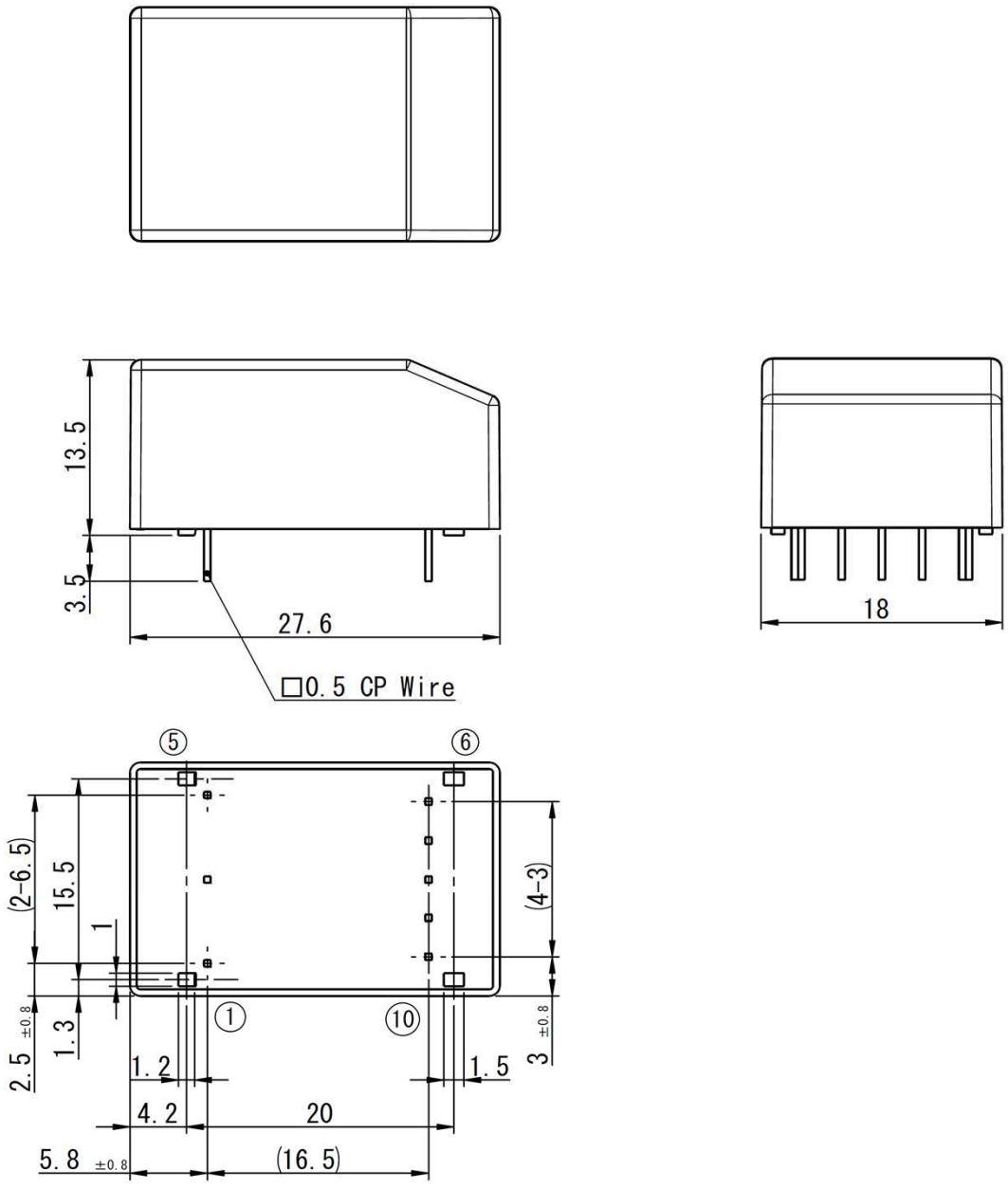








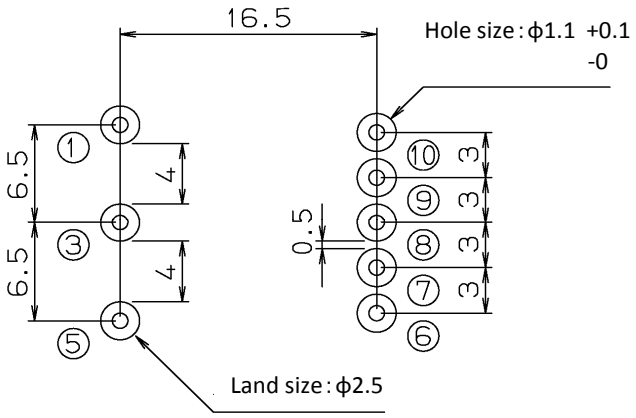
■Outline dimensional drawing



Note : 1.The dimensional tolerance without directions is ± 0.5mm.

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

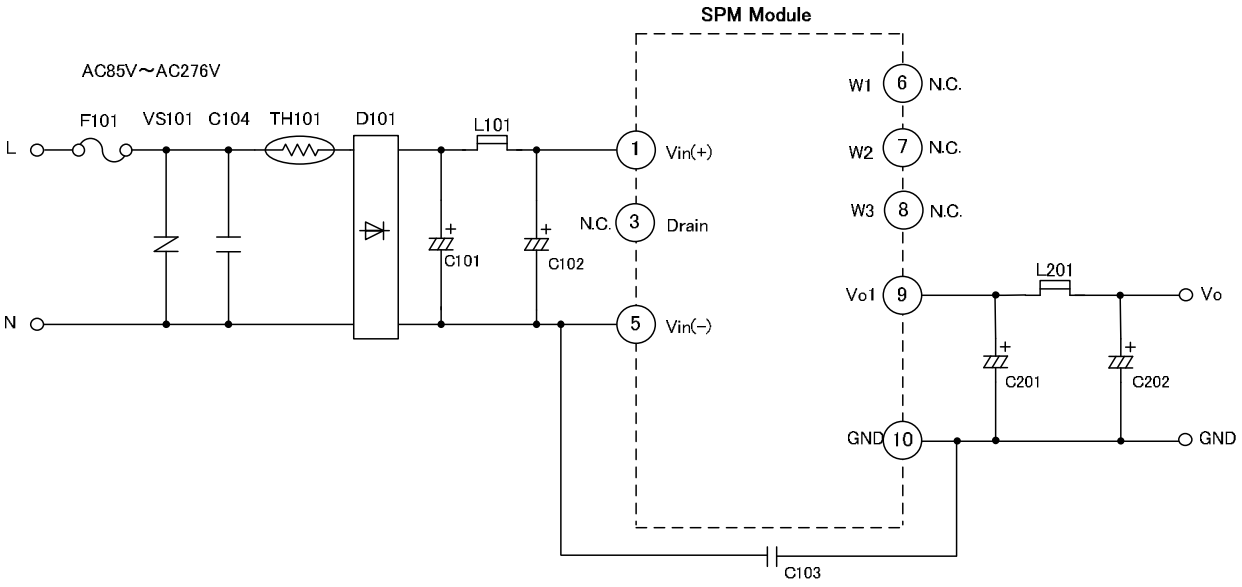
Primaries

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	35ZLH220M	RUBYCON
C202	Capacitor	35ZLH47M	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 paralell 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, C12, H2S, NH3, SO2, or NO2, 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.