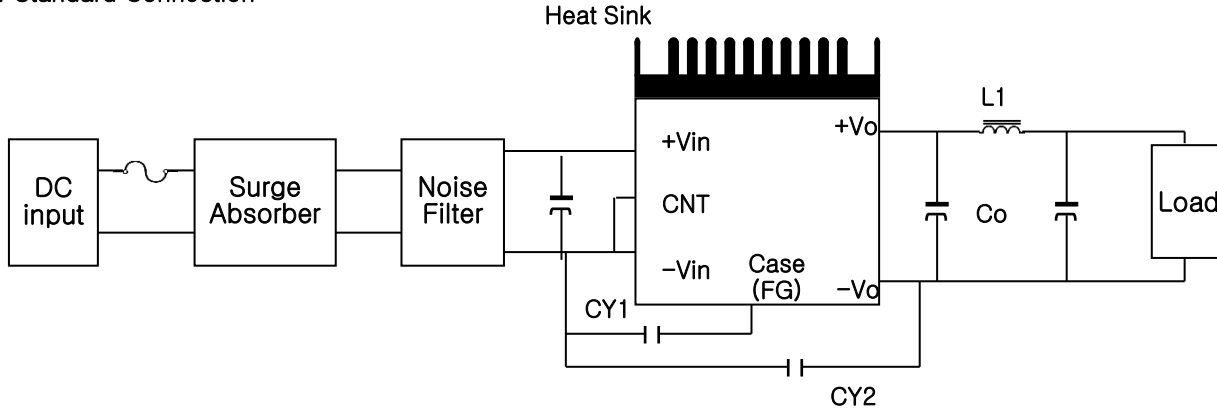


Wiring to input/output pins & EMI Schematic for DC-DC CONVERTER

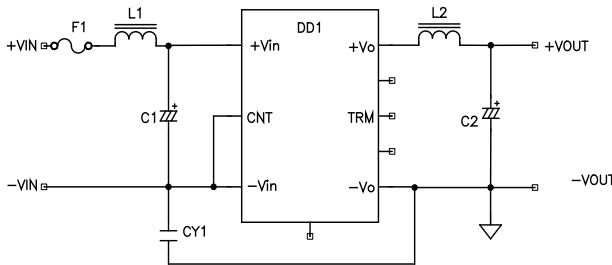
1. Standard Connection



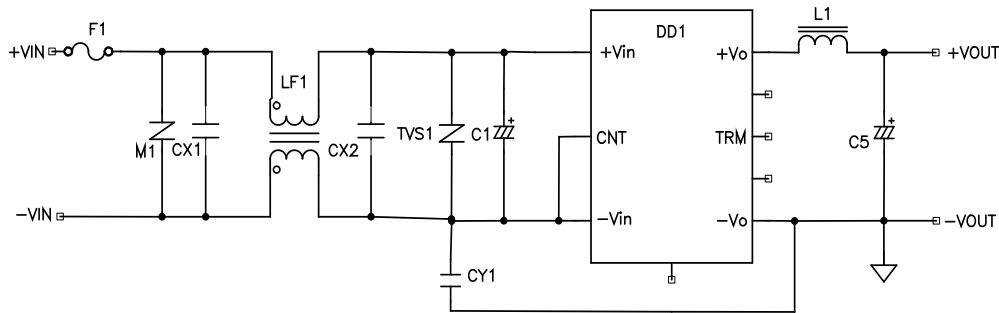
- Cy : A ceramic capacitor is required to reduce common mode noise. (250VAC/102(0.001uF)~472(0.0047uF)
Use tin-wire at Cy1 or Cy2 instead of a ceramic capacitor when you need.
- L1, L2, L3 : Recommendable Inductance : 2~5uH Coil thickness : 1.0 φ ~
- External capacitors are required at both input and output to reduce ripple.
(Refer below 'Minimum capacitance chart')

IN / OUT	5V	12V	24V	48V	72V	110V
Input	330μF-16V	220μF-25V	100μF-50V	33μF,100V	33μF,160V	33μF,200V
Output	1000μF-16V	470μF-25V	330μF-50V	100μF,100V		

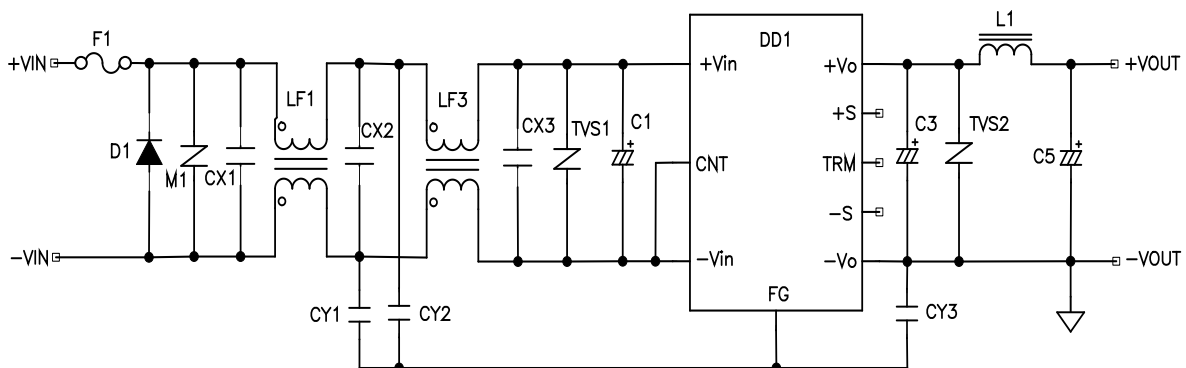
2. Simple Schematic



3. EMI FILTER-A



4. EMI FILTER-B



Pin connection

No	Pin connection	Function
1	Input	+Vin
2		-Vin
3		CNT
4	Output	+Vo
5		COM
6		-Vo
7		TRM
8		Vs
9		NC

External Fuse

Fuse is not built in DC-DC converters. In order to protect the unit, use the slow-blow type fuse at input.

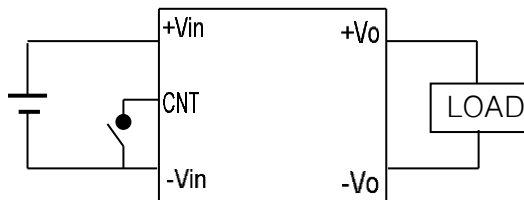
$$\text{Fuse ratings(A)} = \frac{\text{Input power(W)}}{\text{Minimum input voltage(V)}} \times 2.5 \qquad \text{Input power (W)} = \frac{\text{Output power(W)}}{\text{Efficiency(\%)}}$$

Function

1. Input Voltage

If the Wrong input is applied, the power supply will not operate properly or may be damaged.
The wrong inputs are applied over/under voltage and reverse voltage or something.

2. CNT(Remote ON/OFF Control)



●Case.1

Applied Series	CNT pin	Function
LS, GMS50~500, GMD, GHS, PMS, WON, COP series	Open or High(+2~5V)	OFF
	Short or Low(0~0.8V) to -Vin	ON

●Case.2

Applied Series	CNT pin	Function
IS, ID, GMS15 series	High(+2~5V)	OFF
	Low	ON

●Case.3

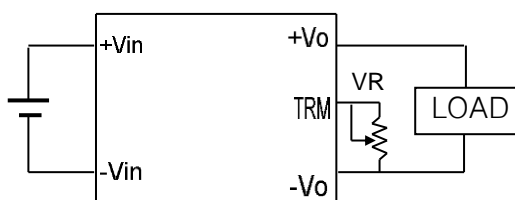
Applied Series	CNT pin	Function
GMT series	Open or High(+2~5V)	ON
	Short or Low(0~0.8V) to -Vin	OFF

●Case.4

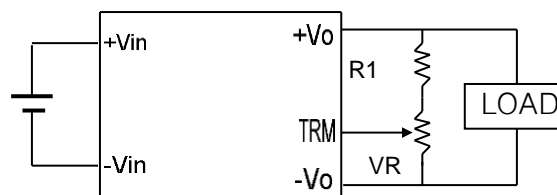
Applied Series	CNT pin	Function
GPS seires	Low(0V)	ON
	High(1.2~2.5V)	OFF

3. TRM(Adjustble Output Voltage)

<To be adjustable Vout +3~5%>



<To be adjustable Vout ±3~5%>



The output voltage is adjustable by external resistor.

When the output voltage adjustment is not used, open the TRM pin.

When the output voltage is set too high, the over voltage protection circuit comes into effect.

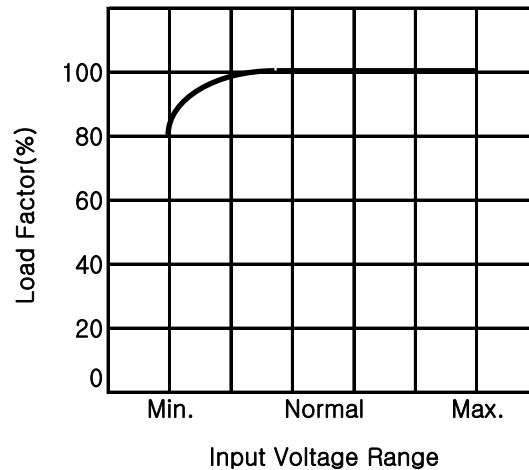
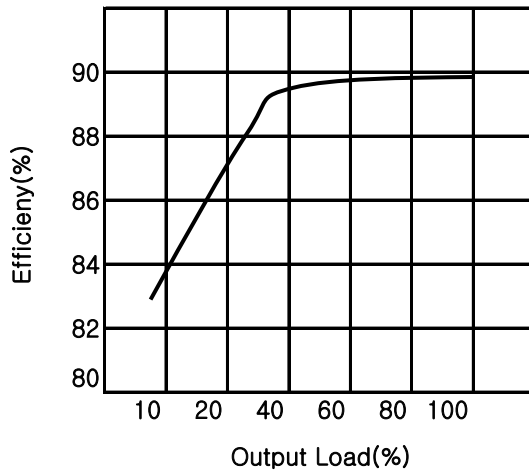
4. Over Current Protection

Over current protection circuit is built in and comes into effect at over 105% of the rated current. This function works to protect against short circuit and over current condition of less than 20seconds. The power supply automatically recovers when the fault condition is cleared.

5. Remote Sensing

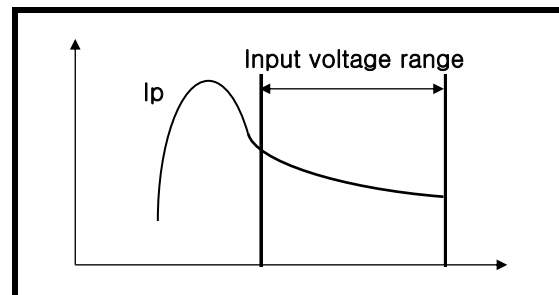
When the remote sensing function is not in use, it is necessary to confirm that pins are shorted between +Vs & +Vout and between -Vs & -Vout. When the remote sensing function is in use, twisted-pair wire or shield wire should be used for sensing wire. If the sensing patterns are shorted, heavy current is drawn and patterns are may be damaged.

6. Derating



7. Input Current Characteristics

Use an input power supply unit with enough power, considering the start-up current (I_p) for DC-DC converter.



8. Stress onto the pins

When excess stress or bending force is applied to the pins of the power supply, the internal connection may be weakened.

Avoid applying stress of more than 19.6N(2kgf) to the pins.

The pins are soldered on PCB internally, therefore do not pull or bend them with abnormal forces.

Fix the unit on PCB to reduce the stress onto the pins.

9. Cleaning

Clean it with a brush, prevent fluid from getting inside the unit.

Do not apply pressure to the lead and name plate with a brush or scratch it during the cleaning.

10. Soldering

- Flow soldering : 260°C less than 10seconds.
- Iron soldering : 450°C less than 5seconds.

11. Cooling

- Conduction cooling system available for adjusting radiating method conforming to the shape of the devices. (GMS, GMD, GHS, PMS series)
- The aluminum top-plate temperature must be kept below 50°C for high reliability.
- Attach a heatsink to the aluminum top-plate to cool the power module.
- We can provide heatsink wearing black by optional parts with your module order. However, make sure to be air flow by the fan when used under the provided heatsink.
- Apply the silicon grease at the junction to reduce thermal resistance.
- Make sure that the aluminum top-plate temperature must be kept below 85°C.