

### <EMI Evaluation Test>

VY-L series is most suitable for analog and digital circuit which has achieved ultra low noise.

The test data below is an EMI test data which proves that it passed the FCC Class B (3m) standards

### RADIATED EMISSION FCC Class B <3m>

Model Name	VY05-12W06L
Serial No.	ES1
Power Supply	+5V
Load	±12V 65mA
DET. Mode	Peak
Limits	30MHz - 1000KHz
Band Number	3 Meas Mode : D
Antenna Mode	Horizontal
Test Equip.	TR4172, TR14307

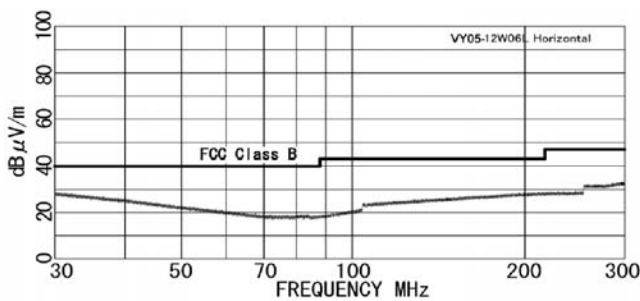
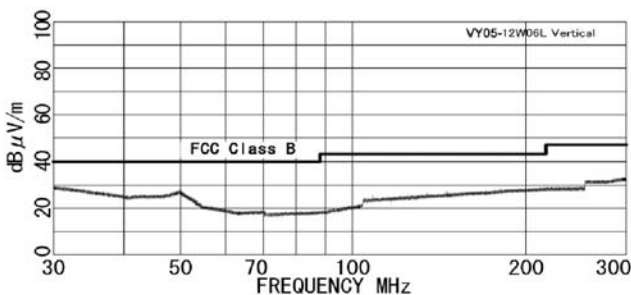


Figure 7

Model Name	VY05-12W06L
Serial No.	ES1
Power Supply	+5V
Load	±12V 65mA
DET. Mode	Peak
Limits	30MHz - 1000KHz
Band Number	3 Meas Mode : D
Antenna Mode	Vertical
Test Equip.	TR4172, TR14307



Figure

\* The above test has been performed at the following site.

Testing institution: Shindengen Electric Manufacturing Co., Ltd. EMI Laboratory

Field intensity measuring set: R-205

Power supply terminal interfering voltage measuring set: C-205

### <Method to decrease the noise level>

Usually for VY-L series, output capacitors are not required. However, in order to obtain lower noise level by taking advantage of the performance of the converter make sure to design the printed board with special attention to the following item. The input/output noise can be lowered.

1. Use low impedance capacitor with good high frequency characteristic.
2. Shorten the lead of each capacitor as much as possible, and make it low lead inductance.
3. Make the wiring loop space between the (+) and (-) of both input and output as small as possible. The possibilities of leakage inductance can be decreased.
4. Design the print pattern of the main circuit as thick and short as possible.
5. The pin side of VY-L series do not have a metallic shield, so if the pin side of printed circuit board is ground plane, the radiation noise will be shut off and noise can be lowered.

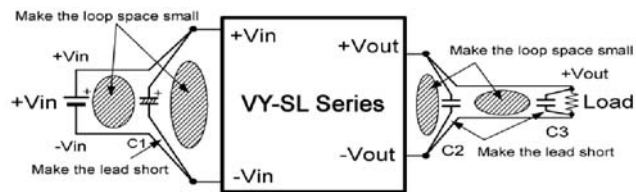


Figure 9

### Lowering the noise level of VY-SL series

C1=33μF C2=4.7μF C3=0.47μF (Electrolytic or multilayer ceramic)

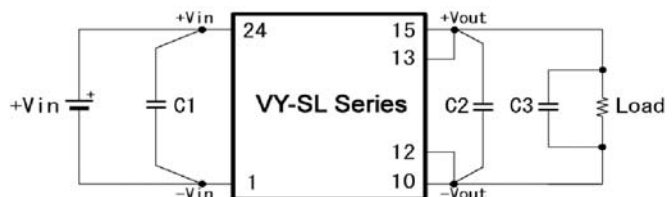


Figure 10

### Lowering the noise level of VY-WL series

C1=33μF C2, C3=4.7μF C4, C5=0.47μF (Electrolytic or multilayer ceramic)

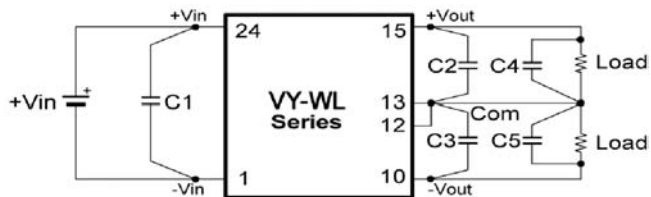
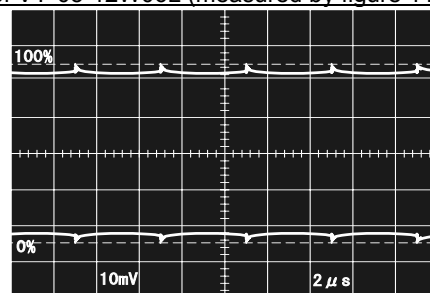


Figure 11

### Output noise of VY-05-12W06L (measured by figure 11 circuit)

+12V65mA  
3.8mVp-p  
10mV/div  
2μs/div



-12V65mA  
4.2mVp-p  
10mV/div  
2μs/div

Figure 12

### <Soldering Conditions>

Soldering is to be executed under the following conditions.

1. Soldering iron            340°C to 360° C, 2sec.
2. Soldering dip            230°C±5°C, 5 sec.

### <Cleaning Conditions>

This product can not be washed whole. When and if cleaning should be necessary, use IPA and hand-wash only the soldered surface by brush cleaning.

For further information, contact us.

### <To prevent reverse input voltage protection (ex.)>

VY-L series will be damaged if the input voltage is connected reversed.

If there is a possibility of reverse connection, add a protection circuit as shown in the figure below.

The figure below is an example using the fuse and diode.



Figure 13

### <Over-Voltage Protection>

VY-L series do not have a built-in over-voltage protection.

As shown in the block diagram, VY-L series drives the transformer by the switching operation of the primary TR. So this method is of very little possibility of over-voltage to be occurred by TR damage.

However, to avoid damage at over-voltage mode, in advance, adding a circuit to intercept the supplying power circuit can be recommended.

### <Temperature Derating>

Use VY-L series within the ambient temperature in the figure below.

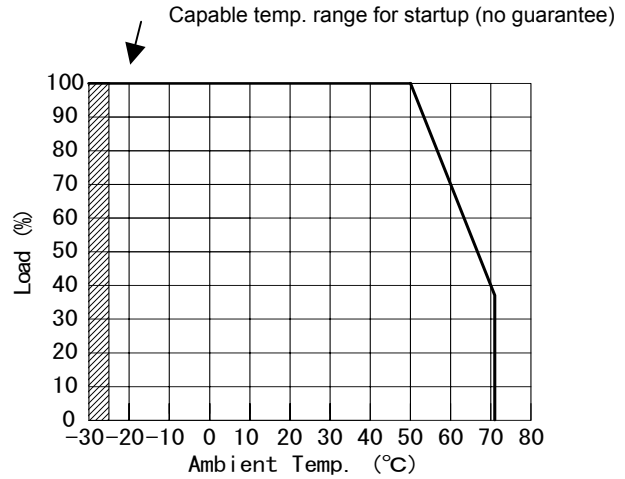


Figure 14

### <Input Voltage Derating>

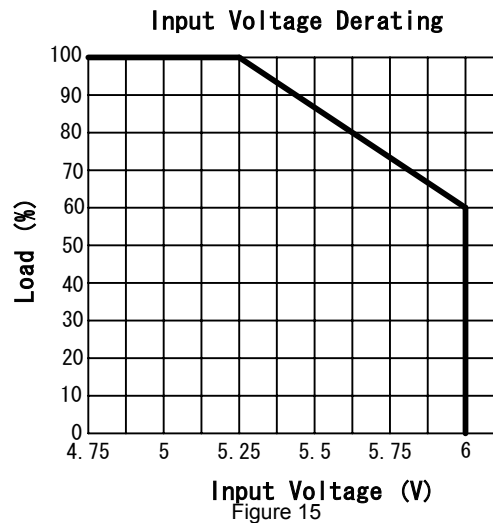


Figure 15

# ***Volgen*** Correspond to Analog Circuits, Ultra Low Noise 8mVp-p Small Size, Long-Life, Isolated Type DC-DC Converter **1.5 Watt VY-L Series**

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## **<Precautions>**

- For this product, parallel operation is not possible.
- Series connection is possible. When connecting in series, add diode to prevent reverse bias to the output of each converter.
- This product has a built-in over-current, short protection circuit, but long time short circuit will cause failure, so avoid it.
- Be sure to execute soldering to the printed circuit board within the noted regulation temperature.
- It can not be used in case that it would affect lives or properties directly by failure of this product. Make sure to confirm us before adopting it.
- Product can not be used under oscillation, strike or temp. conditions that are out of the specification. Contact for any questions.
- No test certificate is attached to this product.

## **<Guarantee>**

This product shall be guaranteed for one year. During this period, if there should be any failure definitely due to our designing or manufacturing workmanship, we will replace it with new one at our own expense.

But in case that it should be modified and/ or made internal remodeling by buyer itself whatsoever, we cannot guarantee it.

This guarantee shall cover only 1.5Watt VY-L series.

# ***Volgen***

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\*All specification are subjected to change without notice.