



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

VY-L series is a long-life, ultra low noise and isolated type DC-DC converter which is most suitable for analog circuits and analog-digital circuits. It has achieved low conducted emission and low radiated emission with the improved TCT circuit. The output noise is ultra low noise of 8mVp-p and has the ability to become the industry leader.

<Features>

- Ultra Low Noise, 8mVp-p typ.
- 24pin DIP IC Size, 5-Side Metallic Shield Case
- Wide Operating Temp. Range -25°C to +71°C
- Possible to start-up from -30°C (No guarantee)
- No Electrolytic Capacitor, No Tantalum Capacitor
- MTBF 1,000,000Hrs, All aging
- High Reliability with the Latest SMD Structure
- Over-Heat Protection
- Over-Current protection
- Isolation Capacitance 100pF max.
- Isolated Type: DC500V
- Most Suitable for Analog and Digital Circuits
- High Reliability, Long-Life, High Performance
- New TCT Circuits (Patented)



<Model, Rating>

Table 1

Model	Rating Input Voltage Vdc	Input Voltage Range Vdc-Vdc	Output Voltage Vdc	Output I Current mA	Line Reg %(max.)	Load Reg %(max.)	Noise mVpp(typ.)	Efficiency %(typ.)
VY-L(1.5W) Series								
VY05-05S30L	5	4.75-6	5	0-300	0.3	0.3	10	60
VY05-09S16L	5	4.75-6	9	0-160	0.3	0.3	10	60
VY05-12S12L	5	4.75-6	12	0-120	0.3	0.3	10	60
VY05-15S10L	5	4.75-6	15	0-100	0.3	0.3	10	60
VY05-05W08L	5	4.75-6	±5	±0-80	0.5	0.5	8	45
VY05-12W06L	5	4.75-6	±12	±0-65	0.5	0.5	8	60
VY05-15W05L	5	4.75-6	±15	±0-53	0.5	0.5	8	60

* This model is compatible with the old VY series to be used for substitutions.

<Specification>

Table 2

Input Voltage/ Range	5V±0.25V (Refer to the derating curve when input is 5.25-6.0V)
Output Voltage	Refer to Table 1
Line Regulation	Refer to Table 1 (For the input voltage range of 5V±5%, at rating load)
Load Regulation	Refer to Table 1 (For the load regulation of 0-100%, at rating input voltage)
Temperature Coefficient	±0.02%/°C typ. (When operating temperature changes between -20°C to +70°C)
Short Term Drift	50mV/ 8H max. (Except initial drift)
Ripple & Noise	(1)VY-SL: 10mVp-p typ. 15mVp-p max. (2)VY-WL: 8mVp-p typ. 15mVp-p max. (20MHz bandwidth)
Efficiency	60% typ. (Rating input/ output, room temperature, refer to Table 1)
Over-Current Protection	Operates at 105% or more rating load current, auto recovery type.
Over-Voltage Protection	None
Over-Heat Protection	Built-in in the regulator part
EMI Line Filter	Built-in LC type line filter
MTBF	1,000,000Hr (EIAJ RCR-9102)
Isolation Voltage	Between primary and secondary DC500V: for 1min., between case and input/ output DC500V: for 1min.
Isolation Resistance	Between primary and secondary DC500V: 10M ohm or more, between case and input/output DC500V: 10M ohm or more.
Isolation Capacitance	Between primary and secondary capacitance: 100pF max.
Operating Temperature Range	-25°C to +71°C (Temperature derating required from +50°C)
Storage Temperature Range	-30°C to +85°C
Humidity Range	95%R. H. max.
Cooling Condition	Natural convection
Vibration	5-10Hz All amplitude 10mm (1hour in each of 3 directional axes), 10-55Hz acceleration 2G (1 hour in each of 3 directional axes)
Shock	Acceleration 20G (3 times in each of 3 directional axes), Shocking time 11±5ms
Weight	14g typ.
Outline	W=20.42 L=32.6 H=10.3 (mm) (For detail dimensions refer to the outline.)

*The above specification is provided with rating value, unless otherwise specified.

<Outline>

VY-SL Series

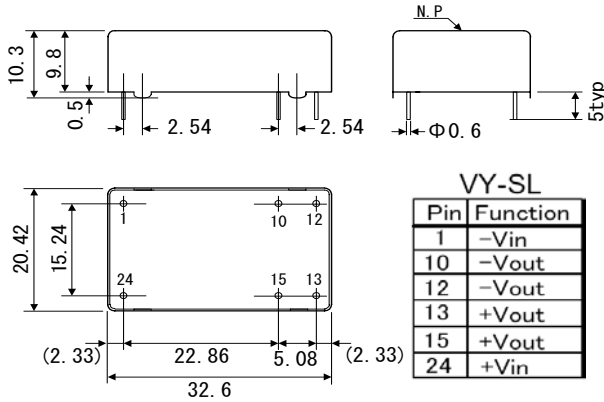


Figure 1

VY-WL Series

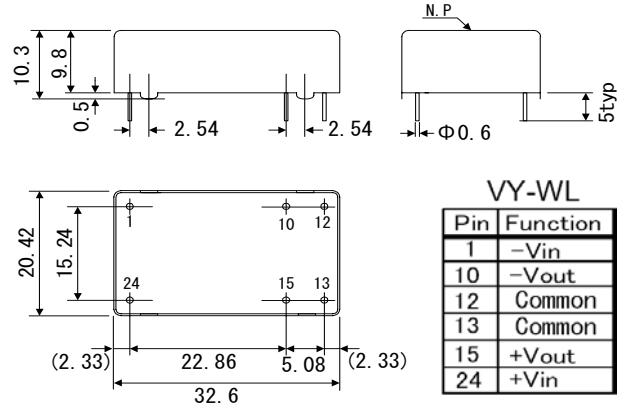


Figure 2

- Dimensions: mm, Weight: 14g typ.
- 5-Side Metallic Shield Case, black plating (with a standoff)
- Pin side is not shielded. It is recommended to set a pattern wider than the converter's bottom area right under the converter.

<Standard Usage>

VY-SL Series (5V, 9V, 12V, 15V)

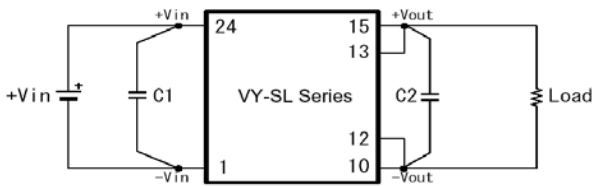


Figure 3

VY-WL Series ($\pm 12V$, $\pm 15V$)

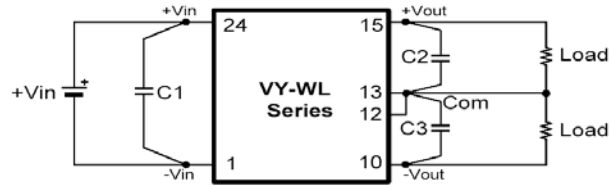


Figure 4

- Recommended capacitor
C1=22 μ F -33 μ F (Electrolytic or multilayer ceramic capacitor)
C2=0.47-10 μ F (Electrolytic or multilayer ceramic capacitor)
- Recommended capacitor
C1=22 μ F -33 μ F (Electrolytic or multilayer ceramic capacitor)
C2, C3=0.47-10 μ F (Electrolytic or multilayer ceramic capacitor)

- Basically, external capacitors are not required, but noise can be lowered by reducing power line impedance and load line impedance.
- High frequency and low impedance capacitors are recommended.
- Noise can also be lowered by designing the pattern with short lead and not to make a loop.

<Block Diagram>

VY-SL Series

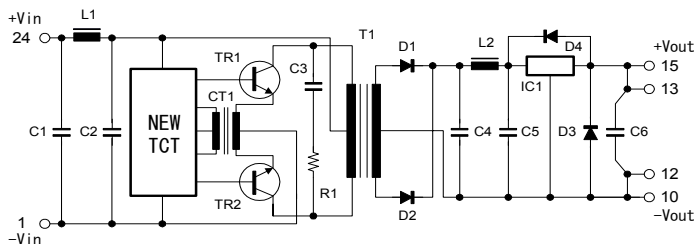


Figure 5

VY-WL Series

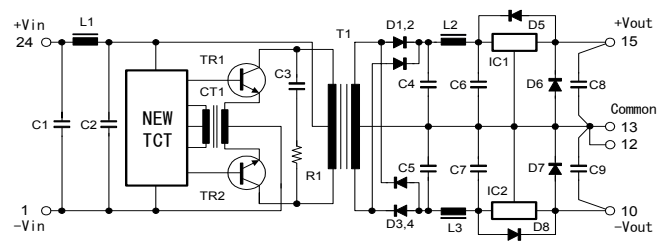


Figure 6