

# DATA-SHEET

**SCHMID-M**  
AC/DC Converters



## SHXX-10XX SERIES

The features of this series are: wide input voltage, DC and AC all in one, high efficiency, high reliability, low loss, safety isolation etc. They are widely used in industrial, office and civil equipments. EMC and safety standards meet international standards IEC61000 and IEC60950.

## PRODUCT FEATURES

1. Universal Input :85 to 264VAC,50/60Hz
2. AC and DC all in one (input from the same terminal)
3. Low Ripple and Noise
4. Overload protection and short circuit protection
5. High Efficiency, High power density
6. Low power with no load, green power
7. Multiple models available
8. Meet industrial level specifications and requirements
9. 3 years warranty

## MODEL SHEET

Model	Package	Power	Output (Vo1/Io1)	Output (Vo2/Io2)	Ripple and Noise	Efficiency (%) (TYP)				
SH05-10B05 SH05-10B12 SH05-10B15 SH05-10B24	48.5X36X20.5mm	5W	5V/1000mA 12V/420mA 15V/330mA 24V/230mA		50mV	76				
SH05-10A05 SH05-10A12 SH05-10A15			+5V/500mA +12V/210mA +15V/160mA	-5V/500mA -12V/210mA -15V/160mA						
SH05-10C0505-01 SH05-10C0512-01 SH05-10C0515-01 SH05-10C0524-01			5V/900mA 5V/700mA 5V/700mA 5V/700mA	±5V/100mA ±12V/100mA ±15V/80mA ±24V/50mA						
SH05-10D0505-01 SH05-10D0512-01 SH05-10D0515-01 SH05-10D0524-01			5V/900mA 5V/750mA 5V/700mA 5V/600mA	5V/100mA 12V/100mA 15V/100mA 24V/100mA						
SH10-10B05 SH10-10B12 SH10-10B15 SH10-10B24			55X45X20.5mm	10W			5V/2000mA 12V/900mA 15V/700mA 24V/450mA		50mV	78
SH10-10A05 SH10-10A12 SH101-0A15							+5V/1000mA +12V/450mA +15V/350Ma	-5V/1000mA -12V/450mA -15V/350mA		
SH10-10C0505-01 SH10-10C0512-01 SH10-10C0515-01 SH10-10C0524-01							5V/1800mA 5V/1600mA 5V/1400mA 5V/1000mA	±5V/100mA ±12V/100mA ±15V/100mA ±24V/100mA		
SH10-10D0505-02 SH10-10D0512-02 SH10-10D0515-02 SH10-10D0524-02							5V/1800mA 5V/1500mA 5V/1400mA 5V/1000mA	5V/200mA 12V/200mA 15V/200mA 24V/200mA		

## MODEL SHEET

Model	Package	Power	Output (Vo1/Io1)	Output (Vo2/Io2)	Ripple and Noise	Efficiency (%) (TYP)				
SH15-10B05 SH15-10B12 SH15-10B15 SH15-10B24	62X45X22.5mm	15W	5V/2800mA 12V/1250mA 15V/1000mA 24V/625mA		50mV	80				
SH15-10A05 SH15-10A12 SH15-10A15			+5V/1500mA +12V/650mA +15V/500mA	-5V/1500mA -12V/650mA -15V/500mA						
SH15-10C0505-02 SH15-10C0512-02 SH15-10C0515-02 SH15-10C0524-01			5V/2600mA 5V/2000mA 5V/1800mA 5V/2000mA	±5V/200mA ±12V/200mA ±15V/200mA ±24V/100mA						
SH15-10D0505-02 SH15-10D0512-02 SH15-10D0515-02 SH15-10D0524-02			5V/2800mA 5V/2500mA 5V/2400mA 5V/2000mA	5V/200mA 12V/200mA 15V/200mA 24V/200mA						
SH20-10B48S			62X45X22.5mm	20W			48V/420mA		50mV	85
SH20-10B05 SH20-10B12 SH20-10B15 SH20-10B24			70X48X23.5mm	20W			5V/3500mA 12V/1600mA 15V/1300mA 24V/850mA		50mV	82
SH20-10A05 SH20-10A12 SH20-10A15							+5V/2000mA +12V/830mA +15V/650mA	-5V/2000mA -12V/830mA -15V/650mA		
SH20-10C0505-04 SH20-10C0512-03 SH20-10C0515-02 SH20-10C0524-02							5V/3200mA 5V/2500mA 5V/2800mA 5V/2000mA	±5V/400mA ±12V/300mA ±15V/200mA ±24V/200mA		
SH20-10D0505-06 SH20-10D0512-05 SH20-10D0515-05 SH20-10D0524-03							5V/3400mA 5V/2800mA 5V/2500mA 5V/2500mA	5V/600mA 12V/500mA 15V/500mA 24V/300mA		

Remarks: 1, Ripple and Noise were measured by the method of parallel lines

2, Unless otherwise specified, all specifications above are measured at rated input voltage and rated output load,  
TA=25°C, humidity < 75%

3, All specifications stated in this datasheet are subject to the above listed models only. For specifications of non-standard models, please contact our technical support team.

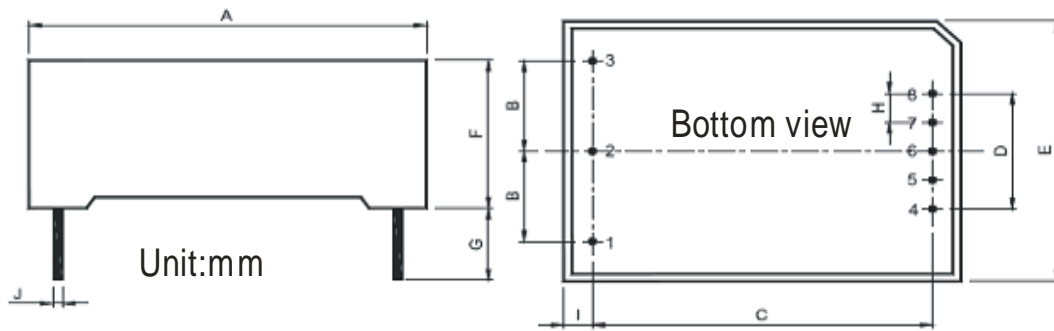
INPUT SPECIFICATIONS	
Input voltage range	100VAC to 240VAC (85 to 264VAC) 140VDC to 340VDC (120 to 370VDC)
Input frequency	47Hz to 63Hz
External input fuse (recommended)	2A slow blow

OUTPUT SPECIFICATIONS	
Voltage set accuracy	±2%
Input variation	±0.5%
Load variation (10-90%)	Single output models ±1% Dual output models ±2% Isolated triple output Vo1 ±3% (Main output) ±Vo2 ±5% (Supplement output) Isolated and separated twin output Vo1 ±3% (Main output) Vo2 ±5% (Supplement output)
Ripple & noise (p-p) (20MHz Bandwidth)	≤100mV
Short circuit protection	Continuous, and auto resume
Over current protection	>115%Io

GENERAL SPECIFICATIONS	
Temperature ranges	Operating : -20 °C to +70 °C Storage: -25 °C to +105 °C Case temperature +90 °C
Reducing rating temperature:	55 °C
Hold-up time	80ms typ / at Vin: 230VAC
Humidity (non condensing)	85%(max)
Temperature coefficient	0.02% / °C
Switching frequency	150kHz max
Efficiency	78% typ
I/O-isolation voltage	3000VAC 1Min
Leakage current	0.3mA RMS typ./230VAC/50Hz
EMI/RFI conducted	EN55022, level B
EMC compliance	Electrostatic discharge ESD IEC/EN 61000-4-2 level 3 RF field susceptibility IEC/EN 61000-4-3 Electrical fast transients/bursts on main sline IEC/EN 61000-4-4 level 3 2kV Surge IEC/EN 61000-4-5 level 3 1kV/2kV
Safety standards	IEC60950, IEN60950,
Safety approvals	IEN60950, IEC60950
Safety Class	CLASS 1
Case material	UL94V-0
Install	PCB
MTBF	200,000h @25 °C

# OUTLINE AND DIMENSIONS

## PACKAGE DIMENSIONS: (mm)



Unit:mm

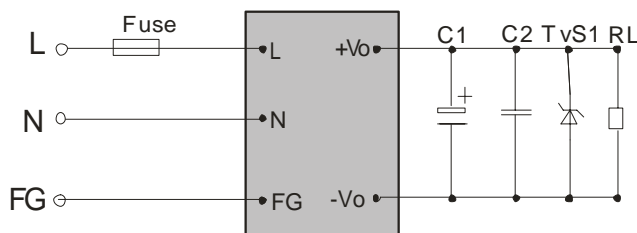
	SH05-XXXX	SH10-XXXX	SH15-XXXX	SH20-XXXX
A	48.5±0.5	55±0.5	62±0.5	70±0.5
B	12.5±0.5	17.5±0.3	17.5±0.3	20.0±0.3
C	40.5±0.5	47±0.5	54±0.5	62±0.5
D	16±0.3	20±0.3	20±0.5	23±0.3
E	36±0.5	45±0.5	45±0.5	48±0.5
F	20.5±0.5	20.5±0.5	22.5±0.5	23.5±0.5
G	4min	4min	4min	4min
H	4.0±0.3	5.0±0.3	5.0±0.3	5.75±0.3
I	4.0	4.0	4.0	4.0
J	1.0±0.1	1.0±0.1	1.0±0.1	1.0±0.1

## PIN DEFINITION

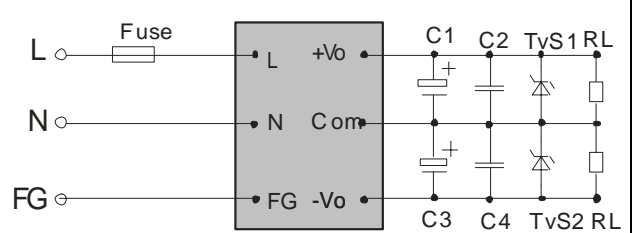
	1	2	3	4	5	6	7	8
SHXX-10BXX	FG	AC (N)	AC (L)	-Vo1	NP	NP	NP	+Vo1
SHXX-10AXX	FG	AC (N)	AC (L)	-Vo2	NP	COM	NP	+Vo1
SHXX-10CXXXX-XX	FG	AC (N)	AC (L)	-Vo1	+Vo1	-Vo2	COM	+Vo2
SHXX-10DXXXX-XX	FG	AC (N)	AC (L)	-Vo1	+Vo1	NP	-Vo2	+Vo2

## TYPICAL APPLICATIONS

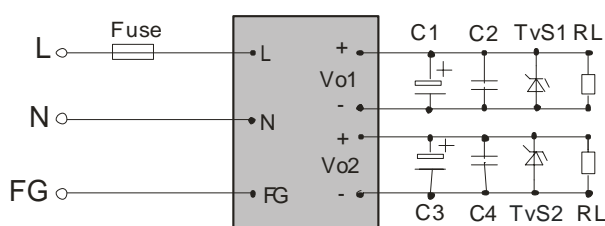
Single output:



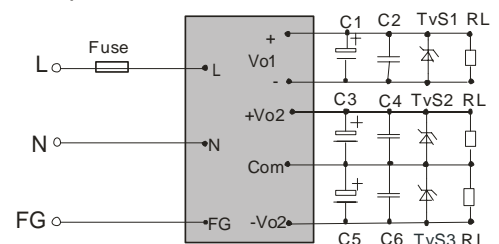
Dual output:



Isolate Twin Output:



Triple output:



## EXTERNAL TYPICAL VALUE

Vout	C1/C3/C5	C2/C4/C6	FUSE	TVS	REMARKS
5V	680uF/16V	0.1uF/50V Ceramic Capacitor	1A/250V	P6KE6.8A	Output filtering capacitor C5, C3 and C1 are electrolytic capacitor. It is recommended to use high frequency and low resistance electrolytic capacitor. For capacitance and current of the capacitor please refer to suppliers' specifications. Voltage derating of capacitor should be 80% or above. C2, C4 and C6 eliminate high frequency noise. TVS is a recommended component to protect post-circuits (when converter fails).
12V	220uF/25V			P6KE16A	
15V	220uF/25V			P6KE20A	
24V	120uF/35V			P6KE33A	

### PARALLEL LINES MEASURE

