S20AC SERIES

SCHMID-M

Description: **20W 4KVAC Isolation Wide Input AC/DC Converters**

S20AC series is 20W with wide input voltage range, for both AC input and DC input application, come with low no-load consumption <0.1W , low Leakage current @0.1mA, miniature size: 50.8*25.5*15.5mm ,and good EMC performance, can meet the EMC and safety specifications : IEC/EN61000-4、CISPR22/EN55032、UL62368/EN62368/IEC62368 and other related standards.This series of products are widely used in smart home, high-end lighting, medical, industrialcontrol, office and civil industries ,etc. please refer to the application circuit when the parts is applied in the environment with severe electromagnetic compatibility.

FEATURES

Universal input voltage range	High efficiency up to 89%	Wide input (85-264 Vac,50/60Hz)
Low Ripple&noise 150mV（Max.）	Operating temperature: -40℃to 85℃	low no-load consumption (＜0.1W)
RoHS compliant	EMC surge over level4	/

SELECTION GUIDE

Part Number	Input voltage		output		Efficiency (%)(Typ)	Ripple&noise (mv)
	VAC	VDC	voltage （VDC)	Current （A）		
S20AC220S03W	85-264	100-370	3.3	3.5	84	100
S20AC220S05W	85-264	100-370	5	3.5	86	100
S20AC220S09W	85-264	100-370	9	2.2	86	100
S20AC220S12W	85-264	100-370	12	1.66	88	100
S20AC220S15W	85-264	100-370	15	1.33	88	100
S20AC220S24W	85-264	100-370	24	0.83	88	100

suffix with “A”for wire package, for example: S20AC220S05WA

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

INPUT CHARACTERISTICS

Input voltage range	85~ 264VAC 100~ 370VDC (nominal voltage:100-240VAC)
Input Frequency	47 ~ 440Hz
Input Current (Typ.)	360mA /115VAC 220mA /230VAC
Inrush Current (Typ.)	30A/230 VAC
External Fuse Recommended VALUE	T2A/300V
Leakage Current (Typ.)	＜0.1mA at 265VAC/50Hz

PROTECTION CHARACTERISTICS

short circuit protection : Hiccup, self-recovery after troubleshooting,	Over-load protection :≥110% load, Hiccup, self-recovery after troubleshooting
Over-voltage protection:Output voltage shutdown or clamping (protects the downstream circuit in case of module abnormalities through TVS tubes added to the periphery)	
Protection range:≤7.5vdc （3.3/5Vout）；≤15vdc （9Vout）；≤16vdc （12Vout）；≤20vdc （15Vout）；≤30vdc （24Vout）	

OUTPUT CHARACTERISTICS

Voltage accuracy	±2.0% (3.3V/5V:±3.0%)
Line regulation	±1.0%(3.3V/5V:±3.0%)
Load regulation	±1.0%(3.3V/5V:±3.0%)
Start rising time (Typ.)	1000ms,50ms/230VAC 2000ms,, 50ms/115VAC at full load
Output hold time (Typ.)	40ms/230VAC 15ms/115VAC at full load

TEMPERATURE CHARACTERISTICS

Operating temperature	-40~+85 ℃ (≥45℃derating)
Operating humidity	85% .RH max
Storage temperature	-40~+85, 10~95% RH
Temperature coefficient	0.03%/(0~ 50℃)
Vibration coefficient	10~500Hz,2G10min./1cycle, 60min.each along X,Y,Z axes

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SAFETY & ELECTROMAGNETIC COMPATIBILITY

Safety standard	EN62368，IEC62368，UL62368 compliant
Isolated voltage	I/P-O/P:4000VAC
Isolation resistance	I/P-O/P>100M Ohms/500VDC 25℃ 70% RH
Conduction and radiation	EN55011, EN55022 (CISPR22) CLASS B （ refer to APPLICATION CIRCUIT ）
Electrostatic discharge(ESD)	IEC/EN 61000-4-2 level 4 ±8kV/Air ±15kV （ refer to APPLICATION CIRCUIT ）
Rf radiation immunity (RF)	IEC/EN 61000-4-3 （ refer to APPLICATION CIRCUIT ）
EFT	IEC/EN 61000-4-4 level 4 4kV （ refer to APPLICATION CIRCUIT ）
Surge	IEC/EN 61000-4-5 level 4 2kV

OTHERS

MTBF	300K hrs min. MIL-HDBK-217F(25℃)
size	50.80*25.50*15.50mm

NOTES

1. The data in this manual are measured at TA = 25 ° C, humidity <75%, input nominal voltage (230Vac) and outputrated load,except for special instructions.
2. Ripple and noise measurement method: parallel line testing method is used, and a 0.1uF high-frequency ceramic capacitor and a 47uF electrolytic capacitor are connected in parallel at the terminal. The measurement is carried out at a bandwidth of 20MHz and connected according to the "typical application ". The component parameters are the same as those measured in the table.
3. The parts in the system is considered as a component, need to combine the terminal equipment for electromagnetic compatibility related confirmation.

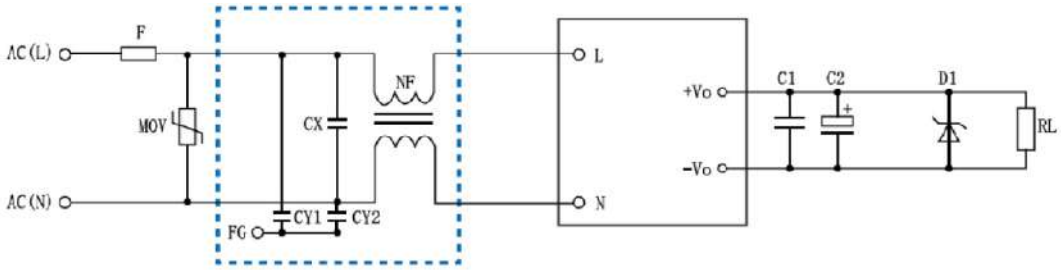
TYPICAL APPLICATION CIRCUIT

Notes ：

Output filtering capacitor C2 is a electrolytic capacitor, it is recommended to use high frequency and low impedance electrolytic capacitor. For capacitance and current of capacitor please refer to manufacture’s datasheet. Output capacitor withstand voltage derating should be 80% or above. C1 is used to filter high-frequency noise。

The dashed box contains EMC filters connected to meet higher EMC requirements, which can be omitted for general applications.

COMPONENT / PN	F	MOV	CY1	CY2	CX	NF	C2	C1	D1
S20AC220S03W	T2A/300V	piezoresistance 14D471K	1000pF	1000pF	0.1uF	common mode inductance 10mH	220~1000uF/16V	104K/50V （ceramic capacitor）	P6KE7.5A
S20AC220S05W							220~1000uF/16V		P6KE7.5A
S20AC220S09W							150~680uF/16V		P6KE15A
S20AC220S12W							100~470uF/16V		P6KE16A
S20AC220S15W							100~330uF/25V		P6KE20A
S20AC220S24W							100~220uF/35V		P6KE30A



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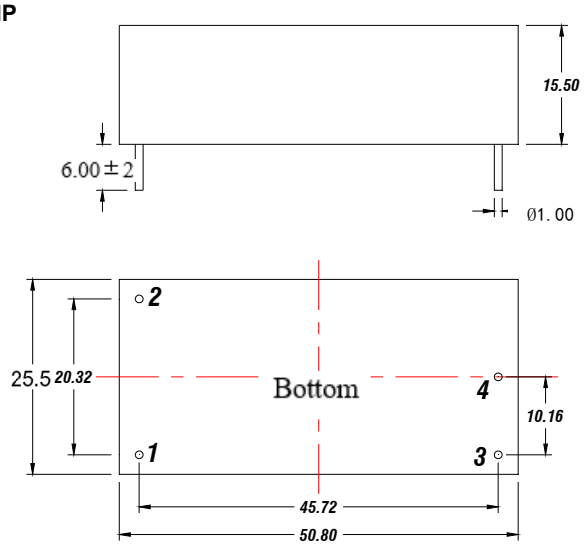
MECHANICAL DIMENSIONS

DIP



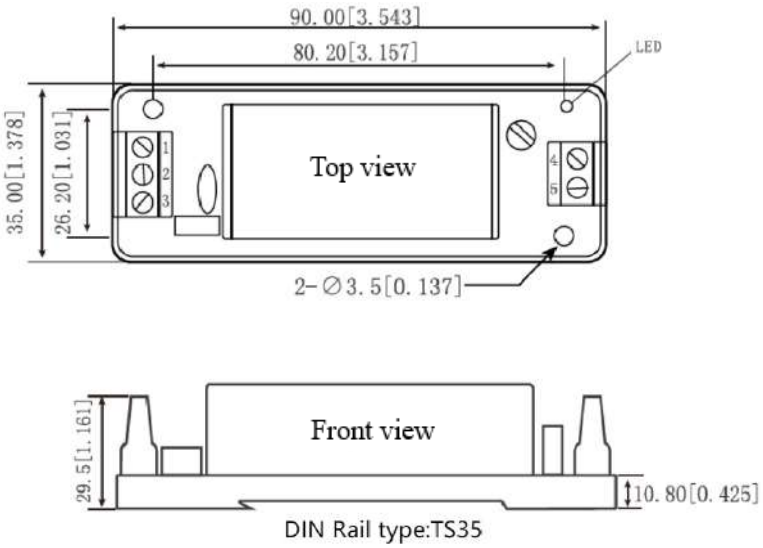
UNITS: mm Tolerance :±0.5mm weight:35g

PIN DESIGN

L and N do not need to be distinguished

PIN	SINGLE
1	AC(N)
2	AC(L)
3	+V0
4	-V0

Wire package（PN suffix with "A"）



PIN	SINGLE
1	AC(N)
2	NO PIN
3	AC(L)
4	+V0
5	-V0

UNITS: mm[inch]

Wire diameter:24-12AWG

Tolerance : ±0.5mm(±0.02mm)

SELECTION GUIGE

S 20 A C 220 S 05 W A

- A for wire package
- W:4:1 Wide voltage input range
- Main (auxiliary) output voltage
- S:single output
- Rated input voltage
- Package type
- AC-DC
- Rated output power
- Brand name

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DERATING CURVE