SLD05-23BXX SERIES

5W, AC-DC CONVERTER

SLD05 series----- a compact size power converter offered by Schmid-M. It features universal input voltage, taking both DC and AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, and widely used in LED, street lamp control, instruments, telecommunication and civil applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

PRODUCT FEATURES

1. Universal input range:85~305VAC/110~430VDC
2. AC and DC all in one (input from the same terminal)
3. High efficiency, high power density
4. Protection of output over -voltage, output short circuit, over-temperature

PART NUMBER SYSTEM

SLD05-23B03

- Output Voltage
- Output Style
- Input Voltage
- Isolation Voltage
- Rated Power
- Package Style
- Product Series

SELECTION GUIDE

Approval	Model	Package	Power	Output (vo/Io)	Max. Capacitive Load①	Ripple and Noise (Typ.)	Efficiency (Typ.)	Standby Power Consumption (max)
Pending	SLD05-23B03	50.8X25.4X15.16mm	4.2W	3.3V/1250mA	4000 uF	100mV	74%	0.3W
	SLD05-23B05		5W	5V/1000mA	4000 uF		78%	0.3W
	SLD05-23B09			9V/550mA	1000 uF		78%	0.3W
	SLD05-23B12			12V/420mA	820 uF		80%	0.3W
	SLD05-23B15			15V/333mA	820 uF		82%	0.3W
	SLD05-23B24		5.5W	24V/230mA	680 uF		83%	0.3W

Note: ①Test without external circuit.

INPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	--	305	V
	DC Input	110	--	430	
Input Frequency		47	--	440	Hz
Input Current	110VAC Input	--	--	0.12	A
	230VAC Input	--	--	0.07	
Inrush Current	110VAC Input	--	10	--	
	230VAC Input	--	20	--	
Recommended External Input Fuse		1A/300V,Slow-Blow			

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	3.3V output	--	±3	--	%
	Others	--	±2	--	
Line Regulation	Full load	--	±0.5	--	
Input Variation		--	±0.5	--	
Load Regulation	10%~100%Load	--	±1	--	
Ripple& Noise	20MHz Bandwidth(p-p)	--	50	100	mV
Min Load		1	--	--	%
Hold-up Time	110VAC Input	--	12	--	ms
	230VAC Input	--	80	--	
Over temperature protection		--	--	150	℃
Short Circuit Protection		Continuous, and auto recovery			

Over Current Protection		≥110% Io ,and auto recovery
Over Voltage Protection		TVS clamp

COMMON SPECIFICATIONS

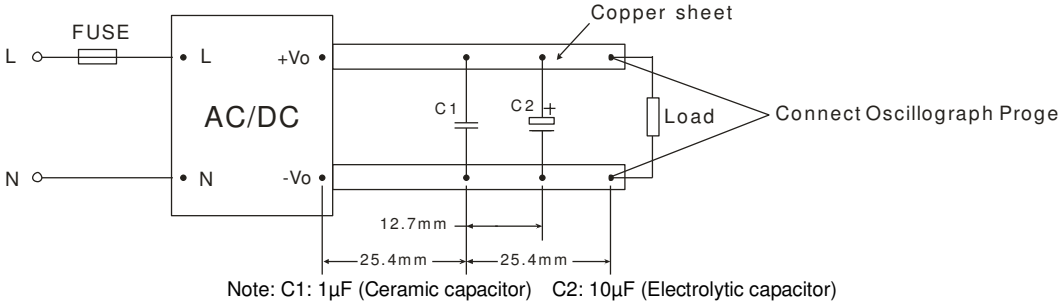
Item	Test Conditions	Min.	Typ.	Max.	Unit
Operating Temperature		-40	--	+70	℃
Storage Temperature		-40	--	+105	
Case Temperature		--	--	+95	
Storage Humidity		--	--	95	%RH
Temperature coefficient		--	±0.02	--	%/℃
Power derating	+55℃~+70℃	2.0	--	--	
	-40℃~0℃	1.25	--	--	
Isolation Resistance		100	--	--	MΩ
Isolation Voltage	Input-Output(Tested for 1 minute)	4000	--	--	VAC
Switching Frequency		--	100	--	kHz
Weight		--	32	--	g
Safety approvals		EN60950/UL60950(pending)			
Safety Class		CLASS Ⅱ			
Safety standards		IEC60950,EN60950,UL60950			
Case Material Grade		UL94V-0			
Install		PCB mounting			
Cooling		Free air convection			
MTBF		>300,000H @25℃			

Note: 1. Ripple and Noise are 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%.

EMC SPECIFICATIONS

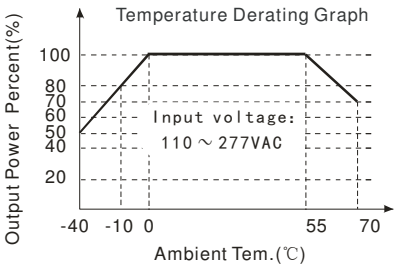
EMI	CE	CISPR22/EN55022, CLASS B	
	RE	CISPR22/EN55022, CLASS B	
EMS	ESD	IEC/EN 61000-4-2 Contact ±6 kV / Air ±8 kV	perf. Criteria B
	RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4 ± 2kV (Without External Circuit)	perf. Criteria B
		IEC/EN 61000-4-4 ± 4kV (Recommended Circuit Refer to Figure 3)	perf. Criteria B
	Surge	IEC/EN 61000-4-5 ±1 kV (Without External Circuit)	perf. Criteria B
		IEC/EN 61000-4-5 ±2 kV /±4 kV(Recommended Circuit Refer to Figure 3)	perf. Criteria B
EMS	CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A
	PFM	IEC/EN61000-4-8 10A/m	perf. Criteria A
	Voltage dips, short and interruptions immunity	IEC/EN61000-4-11 0%-70%	perf. Criteria B

PARALLEL LINES MEASURE

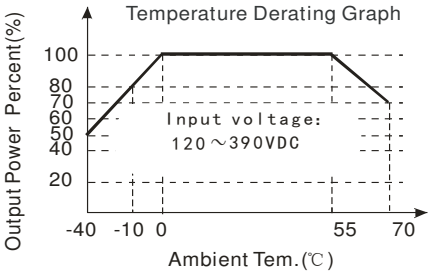


Note: C1: 1μF (Ceramic capacitor) C2: 10μF (Electrolytic capacitor)

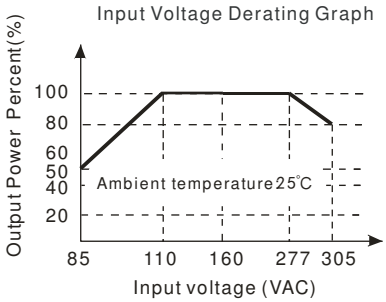
PRODUCT TYPICAL CURVE

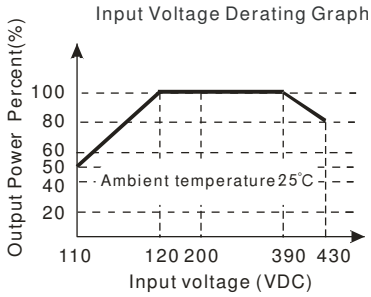


Note: When input 85~110VAC/ 277~305VAC, it need to be voltage derated on basis of temperature derating.

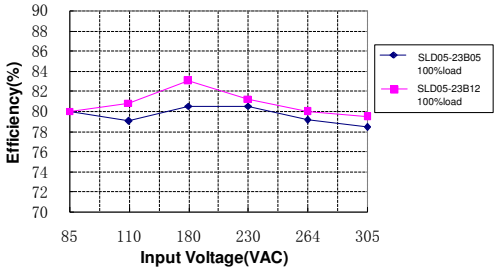


Note: When input 110~120VDC/ 390~430VDC, it need to be voltage derated on basis of temperature derating.

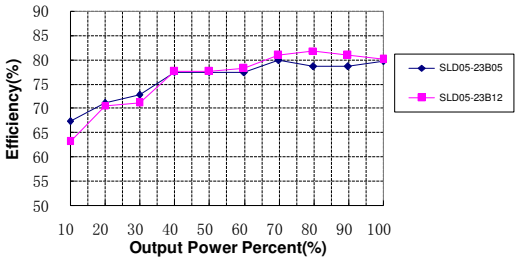




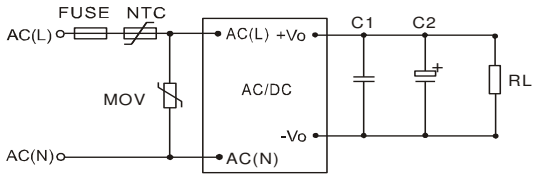
Efficiency VS Input Voltage curve (Full Load)



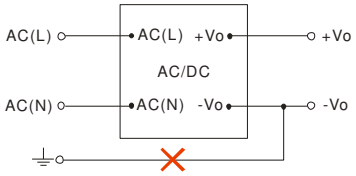
Efficiency VS Output Load curve (Vin=230VAC)



TYPICAL APPLICATIONS

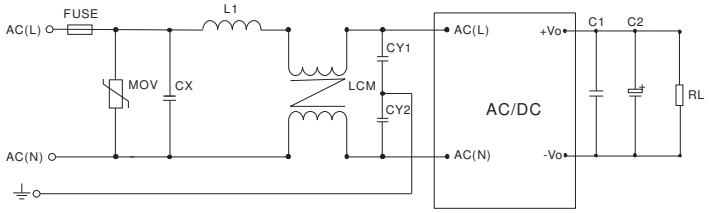


(Figure 1): Typical application circuit



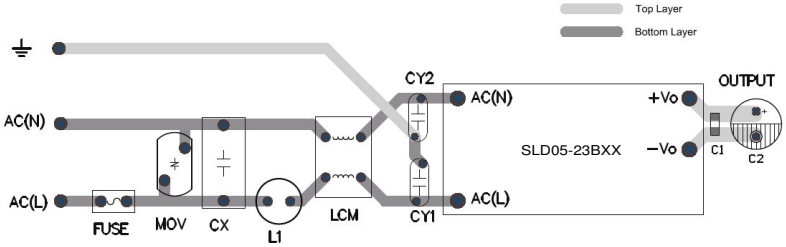
(Figure2): This application is not available for this series.
Note: If you have such application, please consult to our FAE department

EMC RECOMMENDED CIRCUIT



(Figure 3): recommended circuit for applications which require higher EMC standard

EMC RECOMMENDED CIRCUIT PCB LAYOUT



(Figure 4) EMC application circuit PCB layout
Safety and recommend wiring: linewidth A≥3mm, line- ground distance≥9mm

EXTERNAL CIRCUIT PARAMETERS		
Model	C1(μF)	C2(μF)
SLD05-23B03	1	220
SLD05-23B05	1	220
SLD05-23B09	1	100
SLD05-23B12	1	100
SLD05-23B15	1	100
SLD05-23B24	1	47

Note：

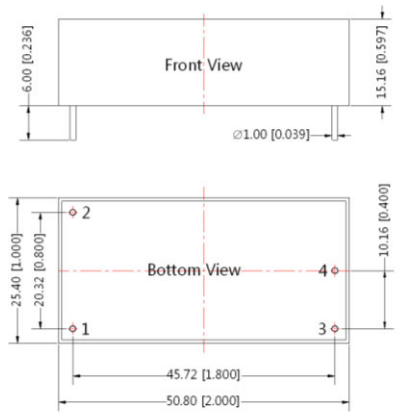
1.Output filtering capacitor C2 is electrolytic capacitors, It is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80% or above. C1 is ceramic capacitor, it is used to filter high frequency noise. External input NTC is recommended to use 5D-9.

2.For standard EMC requirement, please refer to figure 1 or figure 2.If higher EMC requirement ,please refer to figure 3 , recommended parameters are shown in the table below.

Recommend Parameter For Higher EMC Standard Circuit	
Components	Recommend Parameter
MOV	S14K350
CX	0.1μF/310VAC
L1	4.7uH/2.0A
CY1	1nF/400VAC
CY2	1nF /400VAC
LCM	2.2mH, recommended to use Schmid-M's FL2D-10-222
FUSE	1A/300V, slow blow, it must be connected to FUSE

SLD05 PCB MOUNTING OUTLINE DIMENSIONS,RECOMMENDED FOOTPRINT

MECHANICAL DIMENSIONS

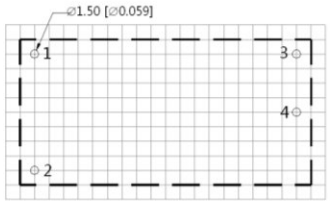


PIN CONNECTION	
Pin	Function
1	AC(N)
2	AC(L)
3	+Vo
4	-Vo

Note:
Unit :mm[inch]
Pin diameter tolerances :±0.1[±0.004]
General tolerances:±0.50[±0.020]

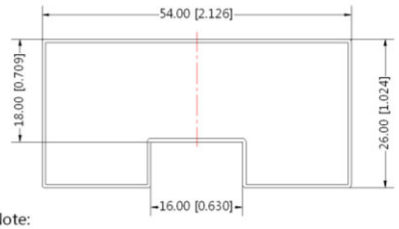
THIRD ANGLE PROJECTION

RECOMMENDED FOOTPRINT DETAILS



Note:Grid 2.54*2.54mm

TUBE PACKAGING DIMENSIONS



Note:
Unit :mm[inch]
General tolerances: ± 0.50[± 0.020]
L=220[8.661] Tube Quantity: 7 pcs
L=530[20.866] Tube Quantity: 19 pcs
Inner carton(S): L*W*H=255*170*80
Outer carton(S): L*W*H=375*280*270, 6 inner cartons(S)
Inner carton(L): L*W*H=580*200*100
Outer carton(L): L*W*H=600*215*220, 2 inner cartons(L)
Outer carton(L): L*W*H=600*215*325, 3 inner cartons(L)