AC/DC Converter

SLO75-20BxxE Series

75W, specific power supply for power grid

FEATURES

- Specific power supply designing for smart grid
- Universal 85-264VAC or 88-370VDC input voltage
- Ultra-wide operating ambient temperature range: -40℃ to +85℃
- High reliability, low output ripple & noise
- Immunity meets electricity standard Level 4
- Meets impulse voltage requirements of 1.2/50us 5KV
- Designed to meet UL/EN/IEC62368 standards
- EN62368 safety approval (pending)

SLO75-20BxxE series is a special power supply design for the smart grid industry that meets the power industry standards. It features AC input and at the same time accepts DC input voltage, wide operating temperature range, high EMS level, high reliability, and high isolation. EMC and safety specifications meet IEC/EN61000-4, CISPR32/EN55032, UL/EN/IEC62368 standards. It is suitable for smart grid occasions with poor power quality and high reliability requirements, such as smart power transmission and substations. It also can be used in microcomputer protection equipment, bus voltage protection equipment or equipment with high reliability requirements that require 110VDC input voltage.

Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range(V)*	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
CE (pending)	SLO75-20B03E	39.6W	3.3V/12A	--	82	8500
	SLO75-20B05E	60W	5V/12A	4.5-5.5	84	8500
	SLO75-20B09E	75.6W	9V/8.4A	8.1-9.9	86	7500
	SLO75-20B12E	76.8W	12V/6.4A	10.8-13.2	88	6800
	SLO75-20B15E	75W	15V/5A	13.5-16.5	88	4700
	SLO75-20B24E	76.8W	24V/3.2A	21.6-26.4	89	2200
	SLO75-20B27E	75.6W	27V/2.8A	24.3-29.7	89	1200
	SLO75-20B48E	76.8W	48V/1.6A	43.2-52.8	90	680

Note: * The actual adjustment range may extend outside the values stated, care should be exercised to ensure that the output voltage and power levels remain within the published maximum values.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	--	264	VAC
	DC input	88	--	370	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	1.6	A
	230VAC	--	--	0.9	
Inrush Current	115VAC	--	25	--	
	230VAC	--	45	--	
Leakage Current	240VAC	0.5mA RMS max.			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% load	3.3V output	--	±3	--	%
		Other output	--	±2	--	
Line Regulation	Rated load	3.3V output	--	±0.8	--	
		Other output	--	±0.5	--	
Load Regulation	0% - 100% load		--	±1	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		--	--	200	mV

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Stand-by Power Consumption		--	0.5	--	W
Short Circuit Protection		Hiccup, continuous, self-recovery			
Over-voltage Protection	3.3VDC output	⩽ 5.25V (Output voltage clamp or hiccup)			
	5VDC output	⩽7.25V (Output voltage clamp or hiccup)			
	9VDC output	⩽13V (Output voltage clamp or hiccup)			
	12VDC output	⩽ 16V (Output voltage clamp or hiccup)			
	15VDC output	⩽ 21 V (Output voltage clamp or hiccup)			
	24VDC output	⩽ 35 V (Output voltage clamp or hiccup)			
	27VDC output	⩽ 39V (Output voltage clamp or hiccup)			
	48VDC output	⩽60 V (Output voltage clamp or hiccup)			
Over-current Protection		⩾110%Io, self-recovery			
Minimum Load		0	--	--	%
Start-up Delay Time	85VAC-264VAC in put, Io=100%	--	--	500	ms
Hold-up Time	115VAC input, Io=100%	--	12	--	ms
	230VAC input, Io=100%	--	90	--	

Note: *The "Tip and barrel method" is used for ripple and noise test, with a 0.1uf ceramic capacitor & 100uf parallel capacitor, please refer to AC-DC Converter Application Notes for specific information.

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input-output	Electric Strength Test for 1min., leakage current <8mA		4000	--	--	VAC
	Input-PE	Electric Strength Test for 1min., leakage current <5mA		2000	--	--	VAC
	Output-PE	Electric Strength Test for 1min., leakage current <10mA		500	--	--	VAC
Insulation Resistance	Input-output	500VDC		⩾50x10⁶			Ω
	Input-PE						
	Output-PE						
Impulse withstand voltage	Input-output	5KV, 1.2/50 us Impulse voltage					
	Input-PE						
Operating Temperature				-40	--	+85	℃
Storage Temperature				-40	--	+105	
Storage Humidity				--	--	90	%RH
Altitude				--	--	5000	m
Switching Frequency				--	65	--	kHz
Power Derating		-40℃ to -25℃		2	--	--	%/℃
		+50℃ to +60℃		1	--	--	
		+60℃ to +70℃	3.3V/5V	1.5	--	--	
			9V/12V/15V/24V /27V/48V	2.5	--	--	
		+70℃ to +85℃	3.3V/5V	2.33	--	--	
			9V/12V/15V/24V /27V/48V	1.67	--	--	
		85VAC - 100VAC		1.33	--	--	%/VAC
		2000m-5000m		5	--	--	%/Km
Safety Standard				UL62368/EN62368/IEC62368			
Safety Certification				EN62368 (pending)			
Safety Class				CLASS I			
MTBF				MIL-HDBK-217F@25℃ >300,000 h			
Designed life	230VAC	+25℃		⩾130 x 10³ h			
		+50℃		⩾70 x 10³ h			
		+70℃		⩾44 x 10³ h			
		+85℃		>29 x 10³ h			

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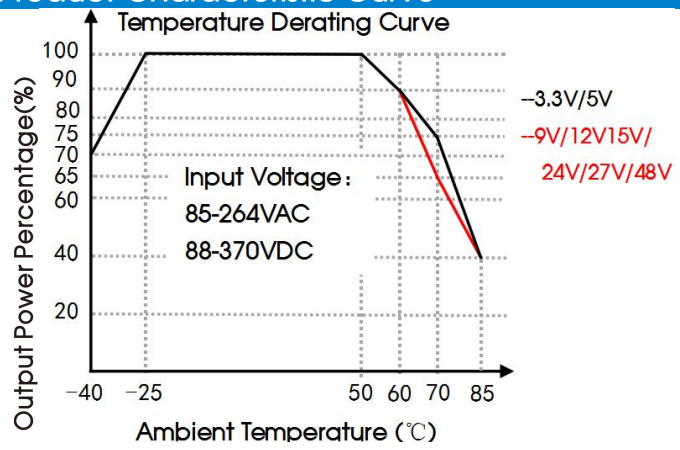
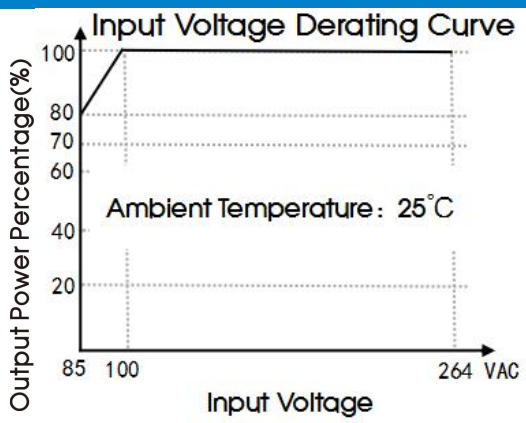
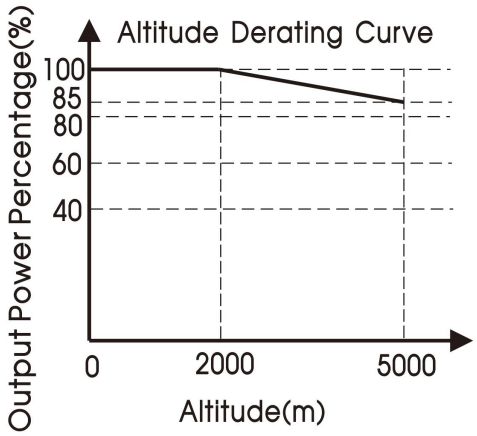
Mechanical Specifications	
Dimension	101.60 x 50.80 x 27.00 mm
Weight	140g (Typ.)
Cooling method	Convection air cooling

Electromagnetic Compatibility (EMC)				
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS A	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV /Air ±15KV	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	perf. Criteria B
	Surge	IEC/EN61000-4-5	Line to line ±2KV/ line to ground ±4KV	perf. Criteria B
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruption and voltage variations	IEC/EN61000-4-11	0%, 70%	perf. Criteria B
	Voltage flicker	IEC/EN61000-3-3		perf. Criteria A
	Walkie-talkie interference test	MS-SOP-DQC-007		perf. Criteria B

Product Characteristic Curve







Note: ① With an AC input between 85-100VAC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using convection air cooling; for applications in closed environment please consult factory or one of our FAE.

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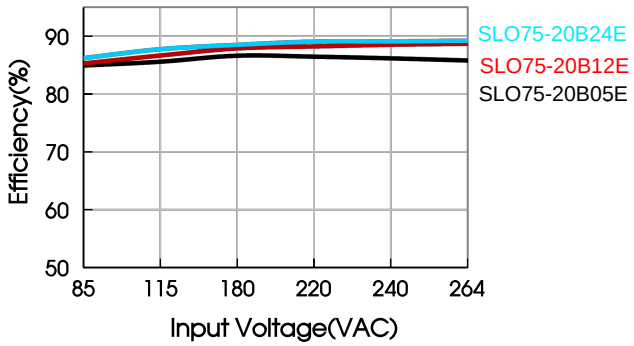
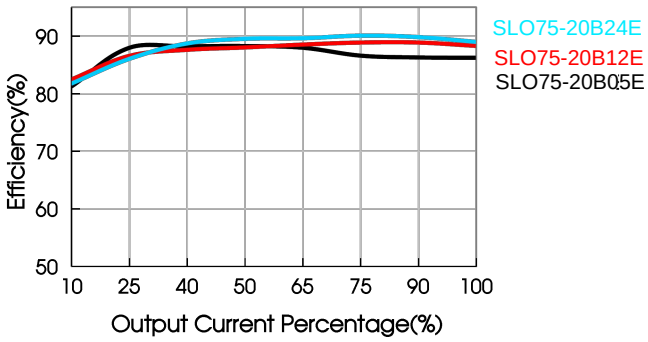
Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load(Vin=230VAC)



Design Reference

1. Typical application

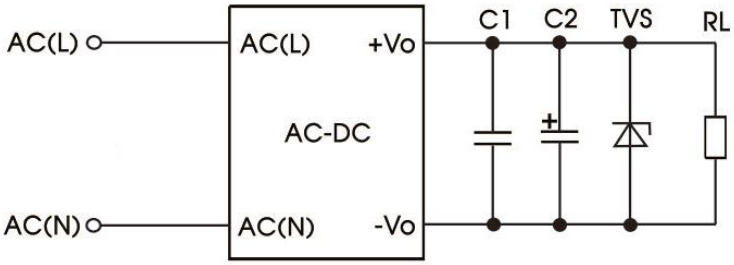


Fig. 1: Typical circuit diagram

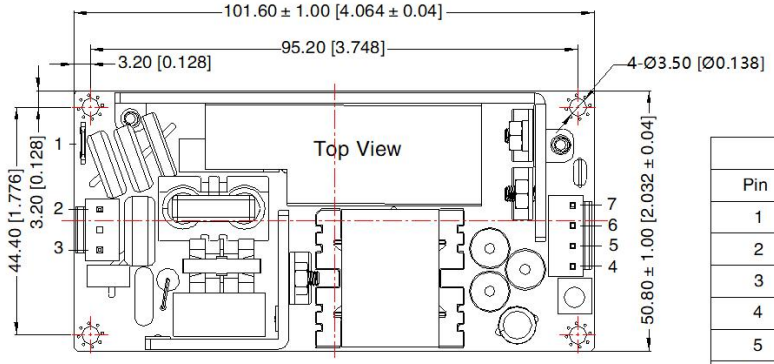
Part no.	C1	C2	TVS
SLO75-20B03E	0.1μF/250V	100μF/63V	SMBJ7.0A
SLO75-20B05E			SMBJ7.0A
SLO75-20B09E			SMBJ12A
SLO75-20B12E			SMBJ20A
SLO75-20B15E			SMBJ20A
SLO75-20B24E			SMBJ30A
SLO75-20B27E			SMBJ30A
SLO75-20B48E			SMBJ64A

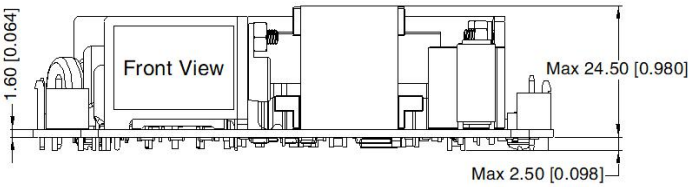
Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Pin–Out			
Pin	Mark	Product Connector	Customer Connector
1	PE	DEGSON K12	KST FDD 5.5–250 or equivalent
2	AC(N)	JST B3P–VH or equivalent	Housing: JST VHR Contact: JST SVH–21T–P1.1 or equivalent
3	AC(L)		
4	–Vo	JST B4P–VH or equivalent	
5			
6	+Vo		
7			

Note:
1. Unit: mm[inch]
2. General tolerances: ±0.50[±0.020]
3. The layout of the device is for reference only , please refer to the actual product

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our company corporate standards;
3. We can provide product customization service, please contact our technicians directly for specific information;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.