

# MORNSUN®

## LI72-20BXX SERIES DIN-RAIL POWER SUPPLIES

LI72-20BXX is a series of DIN-Rail green power supplies with high efficiency and excellent price/performance ratio provided by MORNSUN. This series provide stability and high immunity against electrical disturbance for loads in industrial process controls, machine tools and other equipment exposed to a difficult industrial environment. Compact size, light weight, standard Din Rail installation (35mm) and other features of these supplies, which saves a lot of space for your design.

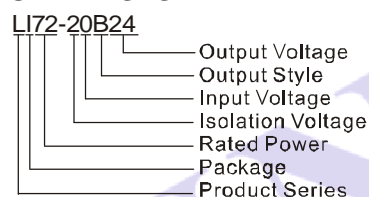


RoHS

### PRODUCT FEATURES

1. Input range:165~264VAC/180~370VDC
2. AC and DC all in one (input from the same terminal)
3. Low standby power, high efficiency,4000VAC safe isolation
4. low ripple and noise
5. Protection of output short circuit, over-current, over- voltage
6. Perfect EMC performance, and surge meet  $\pm 2KV/\pm 4KV$

### PART NUMBER SYSTEM



### SELECTION GUIDE

Model	Package	Power	Output (Vo/Io)	Max. Capacitive Load	Ripple and Noise (Max.)	efficiency (230VAC,Typ)	Standby Power Consumption (Max)
LI72-20B24	113*116*45mm	72W	24VDC/3A	2000 $\mu$ F	150mV	86%	0.5W

### INPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	165	--	264	V
	DC Input	180	--	370	
Input Frequency		47	--	63	Hz
Input Current	230VAC	--	--	1.0	A
Inrush Current	230VAC	--	50	--	

### OUTPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		--	$\pm 3$	--	%
Line Regulation	Full load	--	$\pm 0.5$	--	
Load Regulation	10%~100% Load	--	$\pm 2$	--	
Ripple & Noise	20MHz Bandwidth(p-p)	--	100	150	mV
Min Load		1	--	--	%
Output Voltage Range Regulation ( Adj)		--	--	$\pm 5$	
Hold-up Time	230VAC	--	60	--	ms
Short Circuit Protection		Continuous, and auto recovery			
Over Current Protection		110~150% I <sub>o</sub> , and auto recovery			
Over Voltage Protection		Zener diode clamp			

### COMMON SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Operating Temperature		-40	--	+70	$^{\circ}$ C
Storage Temperature		-40	--	+85	
Storage Humidity		--	--	95	%RH
Temperature coefficient		--	$\pm 0.02$	--	%/ $^{\circ}$ C
Power derating	-40 $^{\circ}$ C~-30 $^{\circ}$ C	4.0	--	--	% / $^{\circ}$ C
	+55 $^{\circ}$ C~+70 $^{\circ}$ C	2.5	--	--	

Isolation Resistance		100	--	--	MΩ	
Isolation Voltage	Input-Output	Tested for 1 minute	4000	--	--	VAC
	Input-FG		1500	--	--	
	Output-FG		500	--	--	
Switching Frequency		--	100	--	kHz	
Weight		--	340	--	g	
Safety Class		CLASS I				
Hot swap		Support				
Case Material Grade		Metal + Plastic (UL 94V-0)				
Install		TS-35/7.5 or TS-35/15 rails				
Cooling		Free air convection				
MTBF		>250000 h @ 25°C				

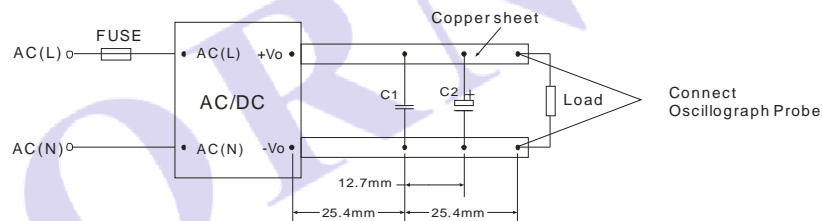
Note: 1. Ripple and Noise are measured by the method of parallel lines;

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

## EMC SPECIFICATIONS

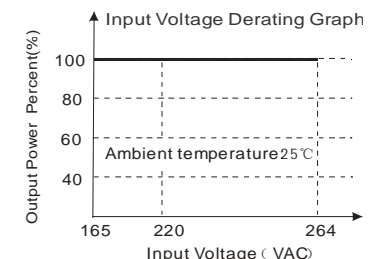
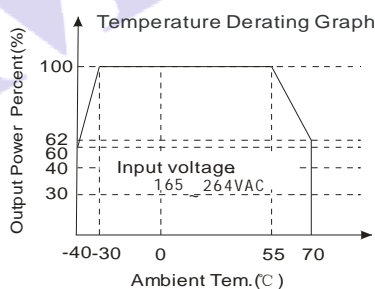
EMI	CE	CISPR22/EN55022, CLASS B(Without External Circuit )			
	RE	CISPR22/EN55022, CLASS B(Without External Circuit )			
EMS	ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV	perf. Criteria B	
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A	
	EFT	IEC/EN61000-4-4	±4KV(Without External Circuit )	perf. Criteria B	
	Surge	IEC/EN61000-4-5	±2KV/±4KV(Without External Circuit )	perf. Criteria B	
	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

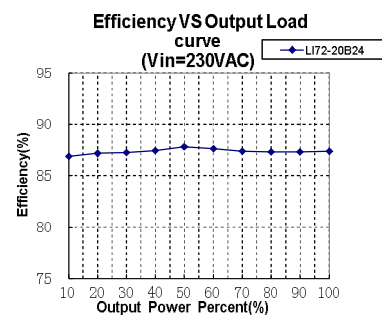
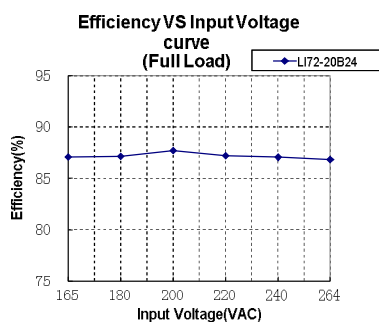


Note: C1: 1μF (Ceramic capacitor) C2: 10μF (Electrolytic capacitor)

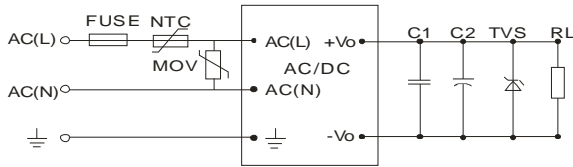
## PRODUCT TYPICAL CURVE



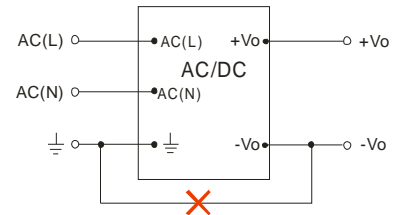
Note: When input DC, VDC=1.414\*VAC-20.



## TYPICAL APPLICATIONS



(Figure 1): Typical application circuit



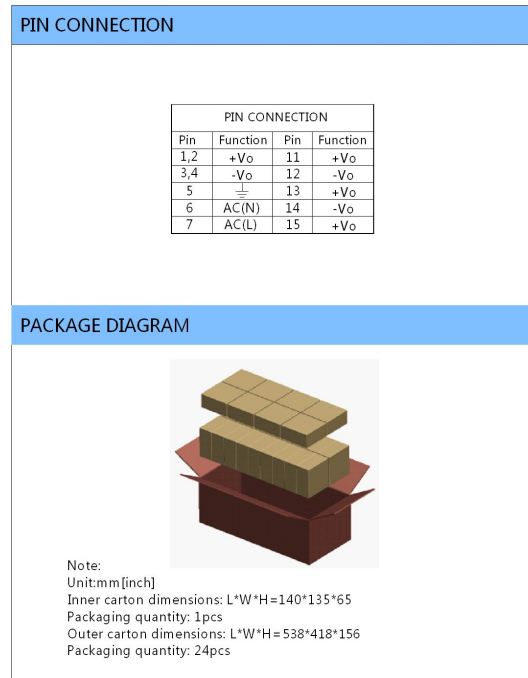
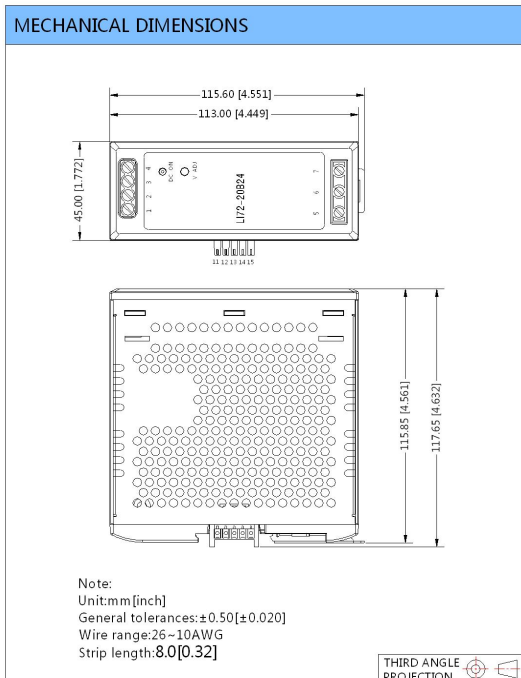
(Figure 2): This application is not available for this series.  
Note: If you have such application, please consult to our FAE department

### EXTERNAL CIRCUIT PARAMETERS

Model	C1 ( $\mu\text{F}$ )	C2 ( $\mu\text{F}$ )	TVS	MOV	FUSE	NTC
LI72-20B24	1	33	SMBJ30A	S20K350	3.15A/250V, slow blow	5D-14

Note: Output filtering capacitors 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. TVS is a recommended component to protect post-circuits (if converter fails).

## DIMENSIONS, RECOMMENDED FOOTPRINT&PACKAGING



Note:

- When power through the bottom connector, 12 and 14 pin, 11, 13 and 15 pin should be used in parallel to reduce the contact voltage drop.
- Such as parallel use of the module, adjust the output voltage in a single module full in advance so that the output voltage difference between the modules are less than 0.1v.
- Our products do not provide the bottom rail connector, users who need to be installed.

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