Additional Resources: Product Page | 3D Model



date 06/29/2020

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SERIES: PSK-5W | DESCRIPTION: INTERNAL AC-DC POWER SUPPLY

FEATURES

- wide input range (85~305 Vac)
- UL/EN/IEC 62368 certified
- meets CISPR32/EN 55032 Class B without external components
- short-circuit, over-current, over-voltage protections





MODEL	output voltage	output current	output power	ripple and noise	efficiency
	(Vdc)	max (A)	max (W)	typ (mVp-p)	typ (%)
PSK-5W-3	3.3	1.25	4.2	100	70
PSK-5W-5	5	1.0	5	100	76
PSK-5W-9	9	0.55	5	100	74
PSK-5W-12	12	0.42	5	100	77
PSK-5W-15	15	0.333	5	100	77
PSK-5W-24	24	0.23	5.5	100	80

PART NUMBER KEY

PSK - 5W - XX - X

Base Number Output Voltage

Mounting Style:
blank = board mount
T = chassis mount
DIN = DIN-rail mount

INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input	85		305	Vac
	dc input	100		430	Vdc
frequency		47		63	Hz
current ¹	115 Vac			0.15	Α
current	230 Vac			0.10	Α
	115 Vac		10		Α
inrush current	230 Vac		20		Α
leakage current				5	mA

Note 1: Recommended input fuse - 1A/300V, slow blow

OUTPUT

parameter	conditions/description	min	typ	max	units	
capacitive load	3.3 Vdc 5 Vdc 9 Vdc 12 Vdc 15 Vdc 24 Vdc		4,000 4,000 1,000 820 820 470		μF	
output voltage accuracy	3.3 V all other models		±3 ±2		% %	
line regulation	rated load		±0.5		%	
load regulation	0~100% load		±1.0		%	
hold-up time	115 Vac input 230 Vac input		8 60		ms ms	
switching frequency			100		kHz	

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	3.3/5 Vdc output			7.5	V
	9 Vdc output			15	V
	12/15 Vdc output			20	V
	24 Vdc output			30	V
over current protection	self recovery 110				%
short circuit protection	output shutdown, auto recovery				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units			
isolation voltage	for 1 minute, 5mA	4,000			Vac			
safety approvals	UL/EN/IEC 62368	_/EN/IEC 62368						
safety class	Class II	Class II						
EMI/EMC	CISPR32/EN55032: Class B (no externa	CISPR32/EN55032: Class B (no external components required)						
ESD	IEC/EN 61000-4-2: Contact ±6KV/ Air :	IEC/EN 61000-4-2: Contact ±6KV/ Air ±8KV, perf. Criteria B						
radiated immunity	IEC/EN 61000-4-3: 10V/m, perf. Criteri	IEC/EN 61000-4-3: 10V/m, perf. Criteria A						
EFT/burst	IEC/EN 61000-4-4: ±2KV, perf. Criteria B IEC/EN 61000-4-4: ±4KV, perf. Criteria B, see recommended EMC circuit							
surge	IEC/EN 61000-4-5: line to line ± 1 KV, perf. Criteria B IEC/EN 61000-4-5: line to line ± 2 kV, line to ground ± 4 kV, perf. Criteria B, see recommended EMC circu							
conducted immunity	IEC/EN 61000-4-6: 10Vr.m.s, perf. Crite	IEC/EN 61000-4-6: 10Vr.m.s, perf. Criteria A						
voltage dips	IEC/EN 61000-4-11: 0%, 70%							
MTBF	MIL-HDBK-217F@25°C	300,000			hours			
RoHS	yes							

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	-40		70	°C	
storage temperature		-40		85	°C
storage humidity	0		95	%	

SOLDERABILITY

parameter	conditions/description	min	typ	max	units
wave soldering				260	°C
hand soldering 3~5 seconds max				360	°C

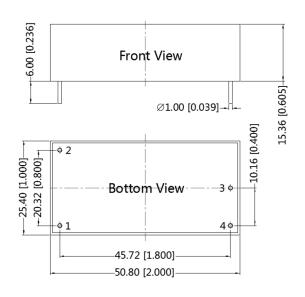
MECHANICAL

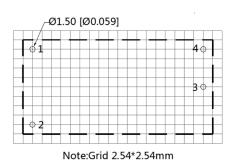
parameter	conditions/description	min	typ	max	units
	DIP: 50.80 x 25.40 x 15.36				mm
dimensions	chassis mount: 76.00 x 31.50 x 24.16				mm
	DIN rail: $76.00 \times 31.50 \times 28.76$				mm
	DIP		31		g
weight	chassis mount		52		g
J	DIN rail		70		g
case material	Black plastic, flame-retardant and heat-resistant (UL94V-0)				

MECHANICAL DRAWING

units: mm [inch] tolerance: ±0.50 [±0.020]

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





MECHANICAL DRAWING

units: mm [inch] tolerance: ±1.00 [±0.039] wire range: 24~12 AWG tightening torque:Max 0.4 N·m mounting rail: TS35, rail needs to connect safety ground

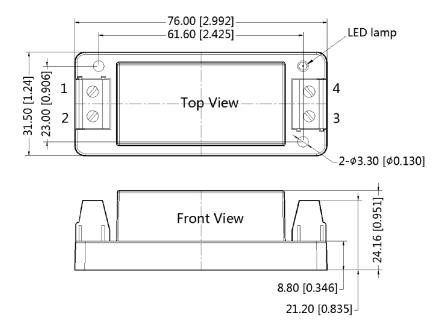
-Vo

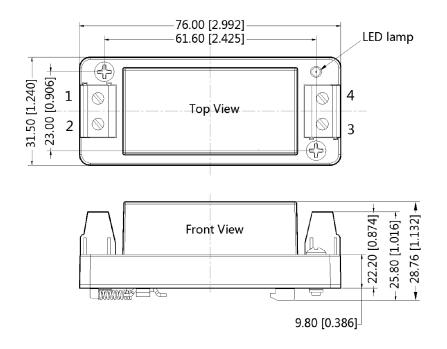
+Vo

PIN CONNECTIONS		
PIN Function		
1	AC(N)	
2	AC(L)	

3

4





TYPICAL APPLICATION CIRCUIT

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 highfrequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

Figure 1

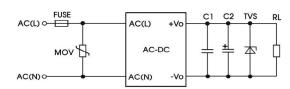


Table 1

Part No.	C1(µF)	C2(µF)	FUSE	MOV	TVS
PSK-5W-3		220			SMBJ7A
PSK-5W-5		220			SMBJ7A
PSK-5W-9		100	1A/300V,	S14K350	SMBJ12A
PSK-5W-12	1	1 100 1	slow-blow, required	314K330	SMBJ20A
PSK-5W-15			•		SMBJ20A
PSK-5W-24		47			SMBJ30A

EMC RECOMMENDED CIRCUIT

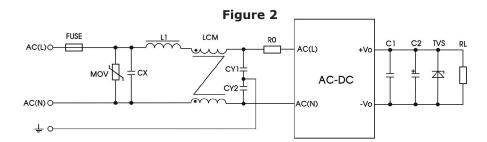
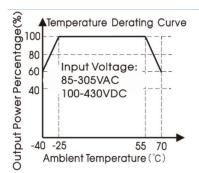
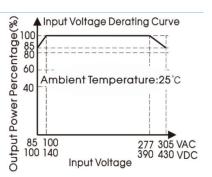


Table 2

Components	Recommended Value
MOV	S14K350
CX	0.1μF/310VAC
L1	4.7uH/2.0A
CY1	1nF/400VAC
CY2	1nF/400VAC
LCM	2.2mH
FUSE	2A/300V, slow-blow, required
R0	33Ω/3W

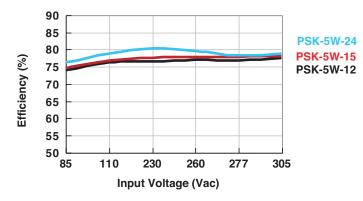
DERATING CURVE



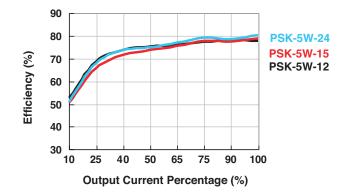


EFFICIENCY CURVES





Efficiency vs Output Load (Vin=277 Vac)



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CUI Inc | SERIES: PSK-5W | DESCRIPTION: AC-DC POWER SUPPLY date 06/29/2020 | page 7 of 7

REVISION HISTORY

rev.	description	date
1.0	initial release	06/29/2020

The revision history provided is for informational purposes only and is believed to be accurate.



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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