

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 max	output power max	ripple and noise typ	efficiency typ
	(Vdc)	(A)	(W)	(mVp-p)	(%)
PSK-5W-3 ^{1,2,3}	3.3	1.25	4.2	100	70
PSK-5W-5 ^{1,2}	5	1.0	5	100	76
PSK-5W-9 ^{1,2,3}	9	0.55	5	100	74
PSK-5W-12 ^{1,2,3}	12	0.42	5	100	77
PSK-5W-15 ^{1,2,3}	15	0.333	5	100	77
PSK-5W-24 ^{1,2,3}	24	0.23	5.5	100	80

Note: 1. Discontinued model - board mount option.
2. Discontinued model - chassis mount option.
3. Discontinued model - DIN-rail mount option.

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	A
	230 Vac			0.10	A
inrush current	115 Vac		10		A
	230 Vac		20		A
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			4,000	μ F
	5 Vdc			4,000	
	9 Vdc			1,000	
	12 Vdc			820	
	15 Vdc			820	
	24 Vdc			470	
output voltage accuracy	3.3 V		± 3		%
	all other models		± 2		%
line regulation	rated load		± 0.5		%
load regulation	0~100% load		± 1.0		%
hold-up time	115 Vac input		8		ms
	230 Vac input		60		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				
safety class	Class II				
EMI/EMC	CISPR32/EN55032: Class B (no external components required)				
ESD	IEC/EN 61000-4-2: Contact ± 6 KV/ Air ± 8 KV, perf. Criteria B				
radiated immunity	IEC/EN 61000-4-3: 10V/m, perf. Criteria A				
EFT/burst	IEC/EN 61000-4-4: ± 2 KV, perf. Criteria B				
	IEC/EN 61000-4-4: ± 4 KV, 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 circuit				
conducted immunity	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

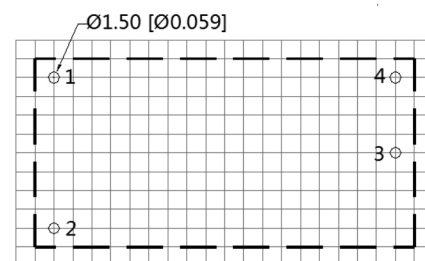
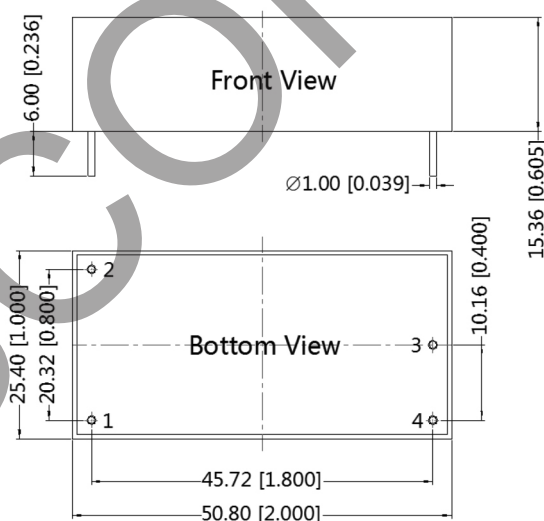
MECHANICAL

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

MECHANICAL DRAWING (BOARD MOUNT)

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

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

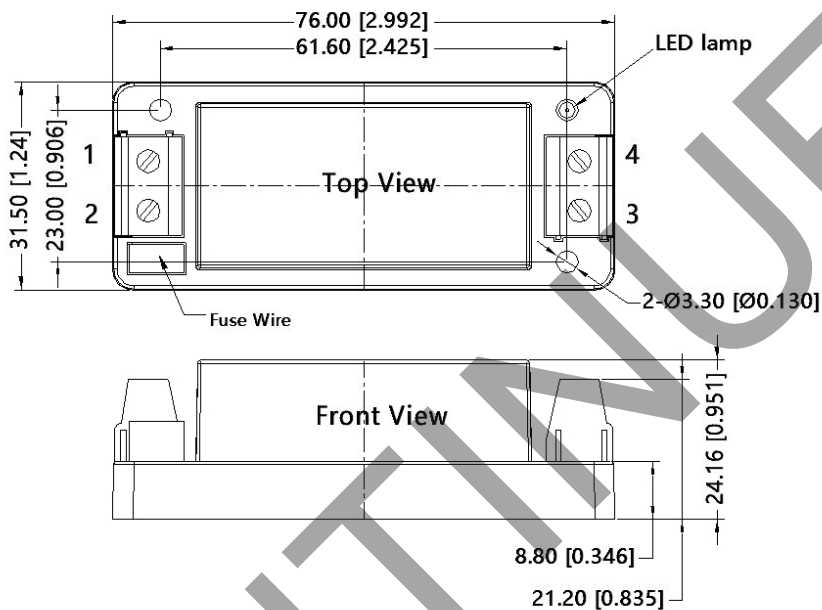


Note: Grid 2.54*2.54mm

MECHANICAL DRAWING (CHASSIS MOUNT)

units: mm [inch]
 tolerance: ± 0.50 [± 0.020]
 wire range: 24~12 AWG
 tightening torque: Max 0.4 N·m

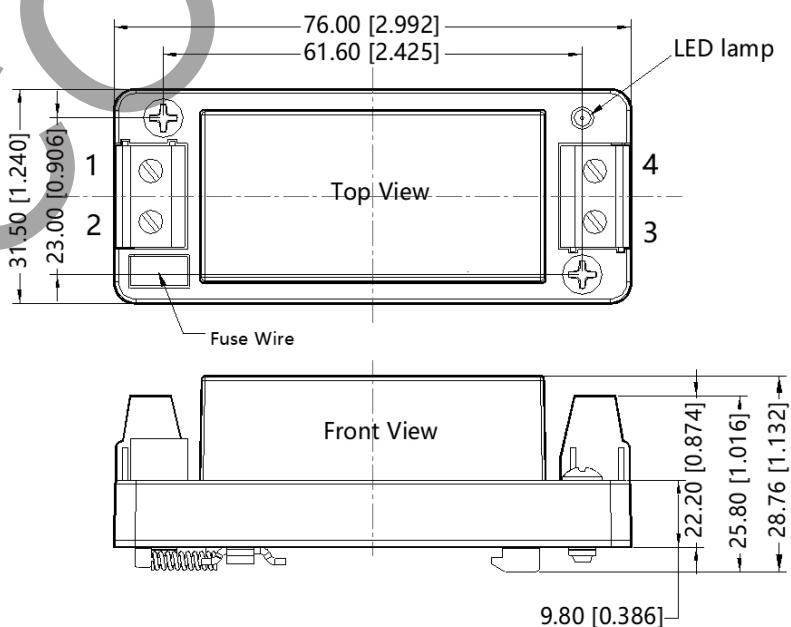
PIN CONNECTIONS	
PIN	Function
1	AC(N)
2	AC(L)
3	-Vo
4	+Vo



MECHANICAL DRAWING (DIN-RAIL MOUNT)

units: mm [inch]
 tolerance: ± 0.50 [± 0.020]
 wire range: 24~12 AWG
 tightening torque: Max 0.4 N·m
 mounting rail: TS35, rail needs to connect safety ground

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



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

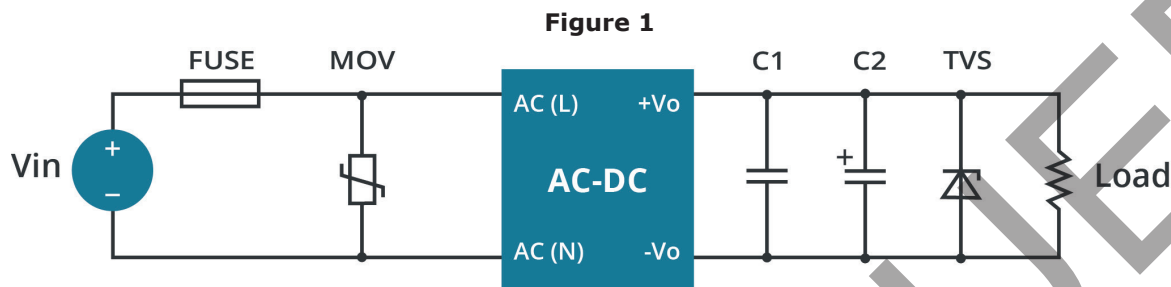


Table 1

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

EMC RECOMMENDED CIRCUIT

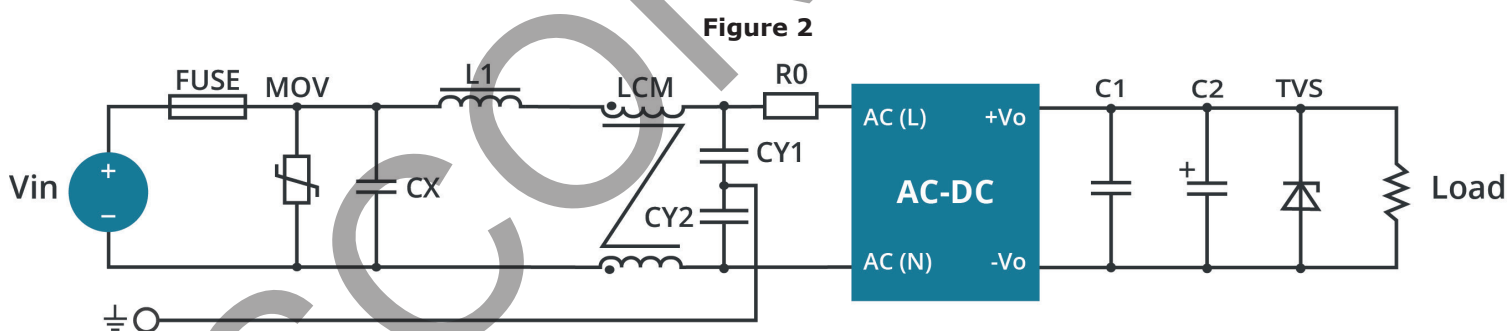
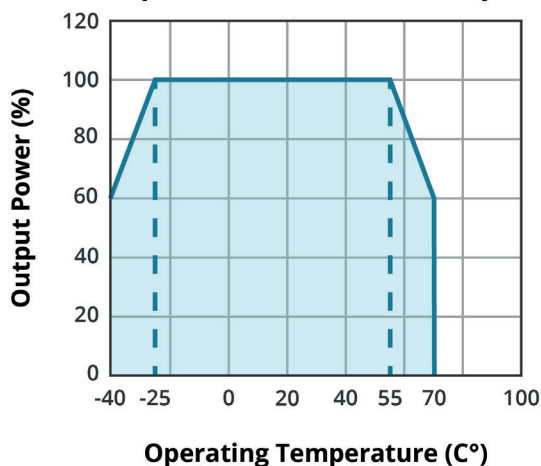


Table 2

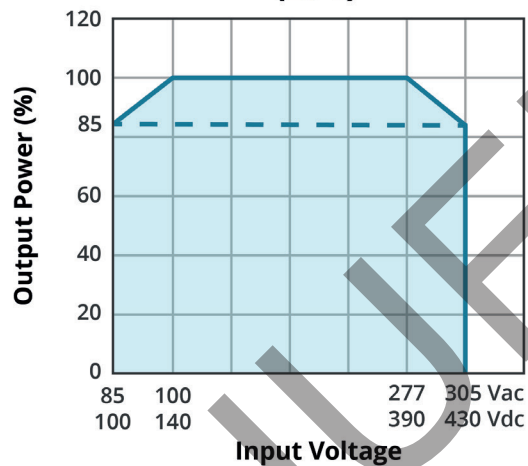
Components	Recommended Value
MOV	S14K350
CX	0.1 μ F/310VAC
L1	4.7 μ H/2.0A
CY1	1nF/400VAC
CY2	1nF/400VAC
LCM	2.2mH
FUSE	2A/300V, slow-blow, required
R0	33 Ω /3W

DERATING CURVE

TEMPERATURE DERATING CURVE
(85~305 Vac/100~430 Vdc)

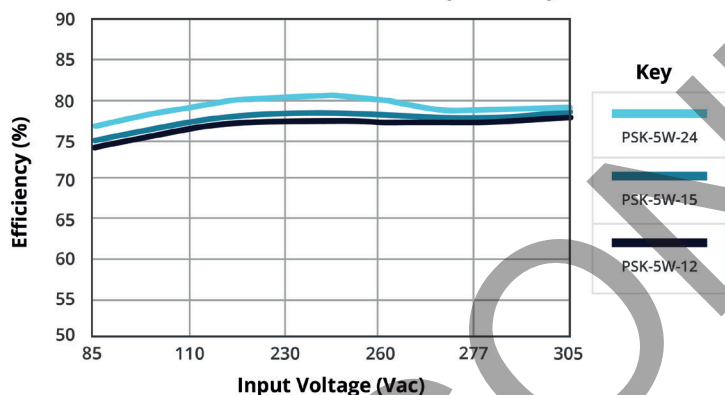


TEMPERATURE DERATING CURVE
(25°C)

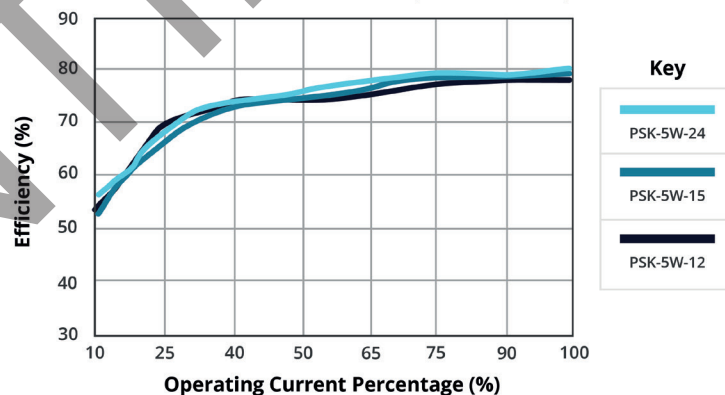


EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (Full load)



EFFICIENCY VS OUTPUT LOAD (Vin = 277 Vac)



REVISION HISTORY

rev.	description	date
1.0	initial release	06/29/2020
1.01	mechanical drawings updated	12/03/2020
1.02	figure and circuit drawings updated	02/24/2021
1.03	discontinued models PSK-5W-3, PSK-5W-9, PSK-5W-12, PSK-5W-15, PSK-5W-3-T, PSK-5W-12-T, PSK-5W-15-T, PSK-5W-3-DIN, PSK-5W-5-DIN, PSK-5W-12-DIN, PSK-5W-15-DIN, PSK-5W-24-DIN	07/01/2022
1.04	discontinued models PSK-5W-3-DIN, PSK-5W-5, PSK-5W-5-T, PSK-5W-9-T, PSK-5W-9-DIN, PSK-5W-24, PSK-5W-24-T	09/13/2022

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



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