CUI INC
a bel group

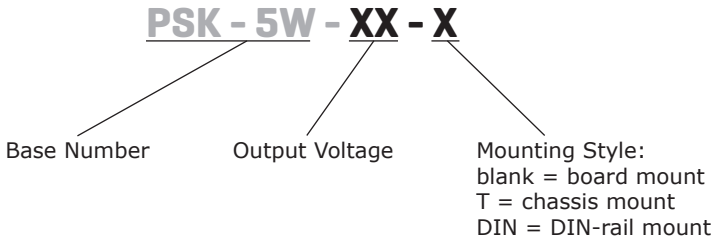
SERIES: PSK-5W | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

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 (Vdc)	output current max (A)	output power max (W)	ripple and noise typ (mVp-p)	efficiency 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



INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input dc input	85 100		305 430	Vac Vdc
frequency		47		63	Hz
current[1]	115 Vac 230 Vac			0.15 0.10	A A
inrush current	115 Vac 230 Vac		10 20		A 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 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 9 Vdc output 12/15 Vdc output 24 Vdc output			7.5 15 20 30	V V V 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 ±6KV/ Air ±8KV, perf. Criteria B				
radiated immunity	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 ±1KV, perf. Criteria B IEC/EN 61000-4-5: line to line ±2kV, line to ground ±4kV, 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

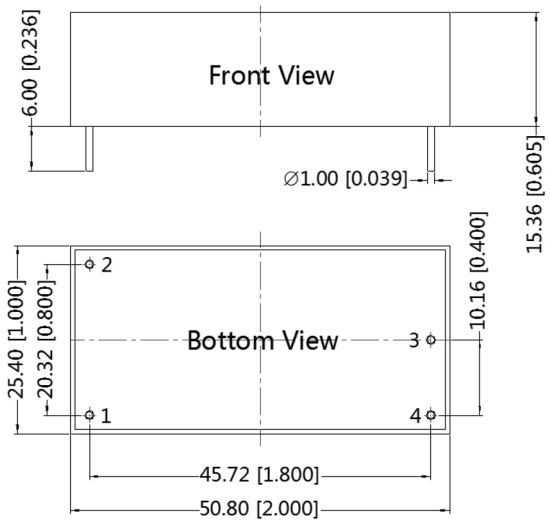
MECHANICAL

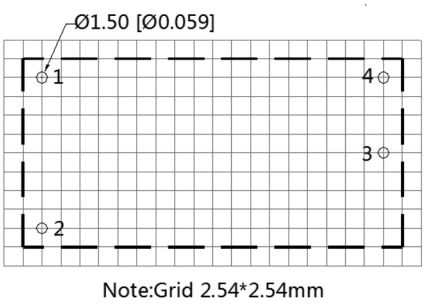
parameter	conditions/description	min	typ	max	units
dimensions	DIP: 50.80 x 25.40 x 15.36 chassis mount: 76.00 x 31.50 x 24.16 DIN rail: 76.00 x 31.50 x 28.76				mm mm mm
weight	DIP chassis mount DIN rail		31 52 70		g g g
case material	Black plastic, flame-retardant and heat-resistant (UL94V-0)				

MECHANICAL DRAWING

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

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



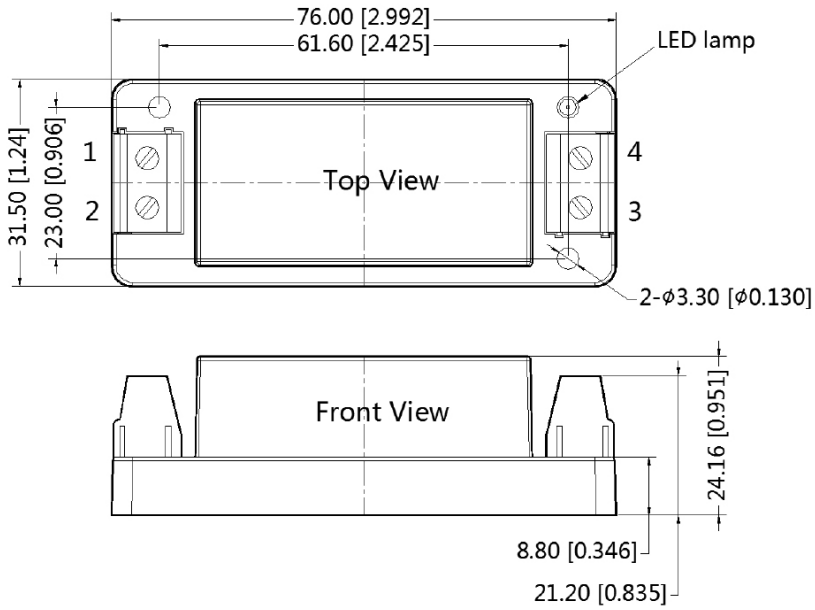


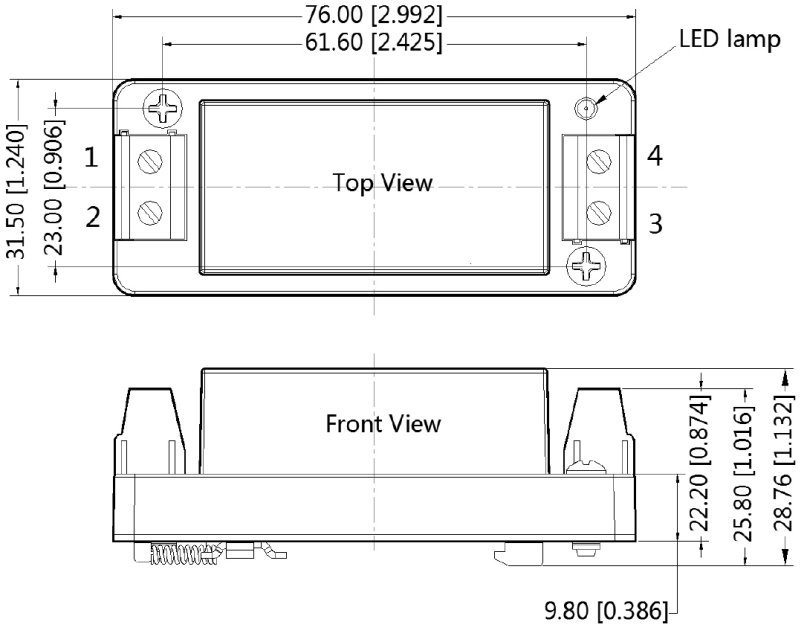
Note:Grid 2.54*2.54mm

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

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.

Figure 1

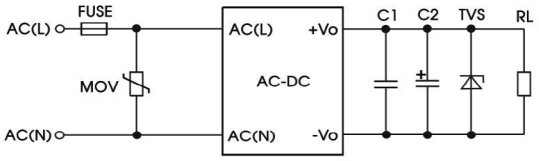


Table 1

Part No.	C1(μF)	C2(μF)	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

Figure 2

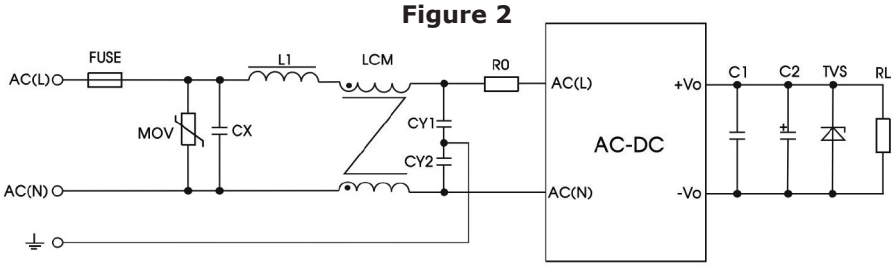
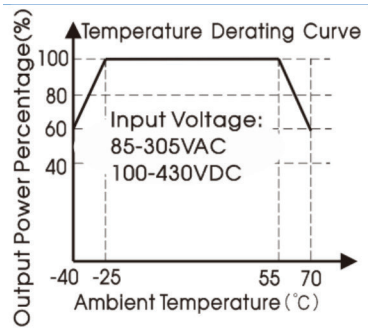
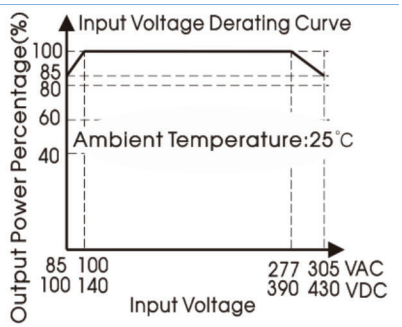


Table 2

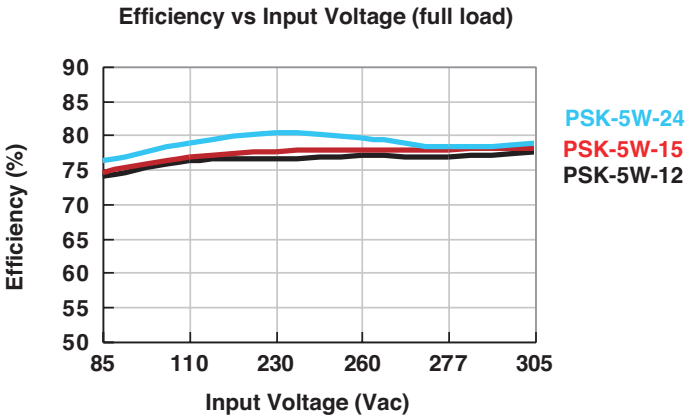
Components	Recommended Value
MOV	S14K350
CX	0.1μF/310VAC
L1	4.7uH/2.0A
CY1	1nF/400VAC
CY2	1nF/400VAC
LCM	2.2mH
FUSE	2A/300V, slow-blow, required
R0	33Ω/3W

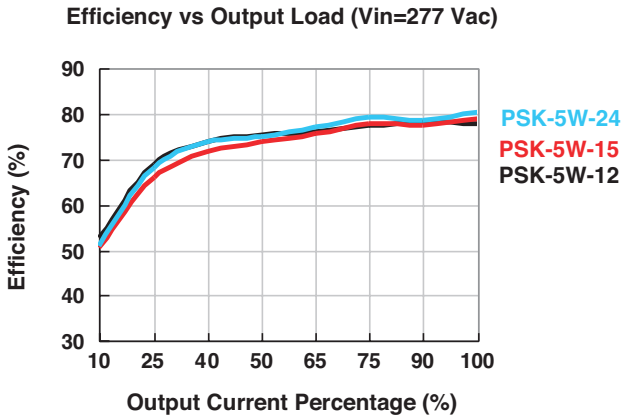
DERATING CURVE





EFFICIENCY CURVES





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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