CUI INC
a bel group

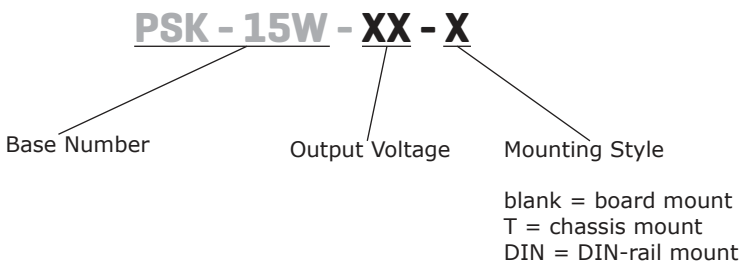
SERIES: PSK-15W | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

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-15W-3	3.3	3.0	9.9	50	73
PSK-15W-5	5	2.8	14	50	76
PSK-15W-9	9	1.6	15	50	78
PSK-15W-12	12	1.25	15	50	80
PSK-15W-15	15	1.0	15	50	80
PSK-15W-24	24	0.625	15	50	83
PSK-15W-48	48	0.32	15	50	85

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
voltage		85 100		305 430	Vac Vdc
frequency		47		63	Hz
current	at 155 Vac at 230 Vac			.37 .22	A A
inrush current	at 155 Vac at 230 Vac		16 30		A A
leakage current	277 Vac			0.25	mA
no load power consumption	at 230 Vac 3.3, 5, 9, 12,15, 24 output 48 output			0.5 0.55	W W

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	3.3 Vdc output models 5 Vdc output models 9 Vdc output models 12 Vdc output models 15 Vdc output models 24 Vdc output models 48 Vdc output models			30,000 16,000 5,500 4,500 4,000 800 220	µF
output voltage accuracy	all load range 3.3 V output all other models		 ±3 ±2		 % %
line regulation	rated load		±0.5		%
load regulation	0~100% load		±1.0		%
hold-up time	at 155 Vac at 230 Vac		5 40		ms ms
temperature coefficient			±0.02		%/°C

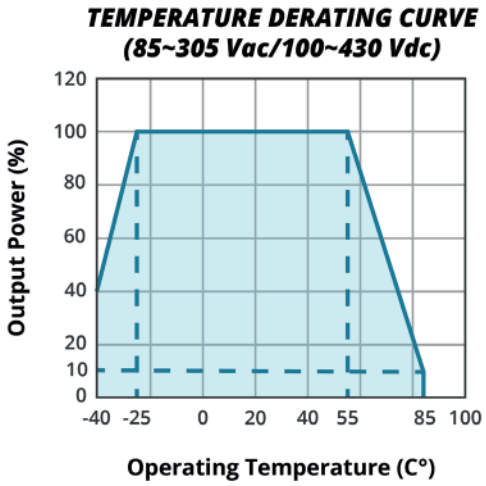
PROTECTIONS

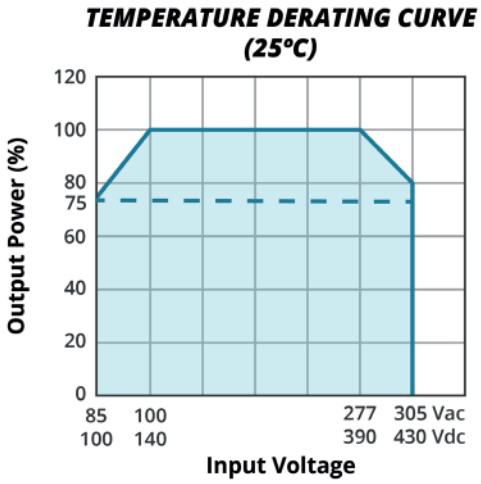
parameter	conditions/description	min	typ	max	units
over voltage protection	3.3 / 5 Vdc output models 9 Vdc output models 12 / 15 Vdc output models 24 Vdc output models 48 Vdc output models			7.5 15 20 30 60	Vdc
over current protection	self recovery	150		300	Io%
short circuit protection	hiccup, continuous, self recovery				

SAFETY & COMPLIANCE

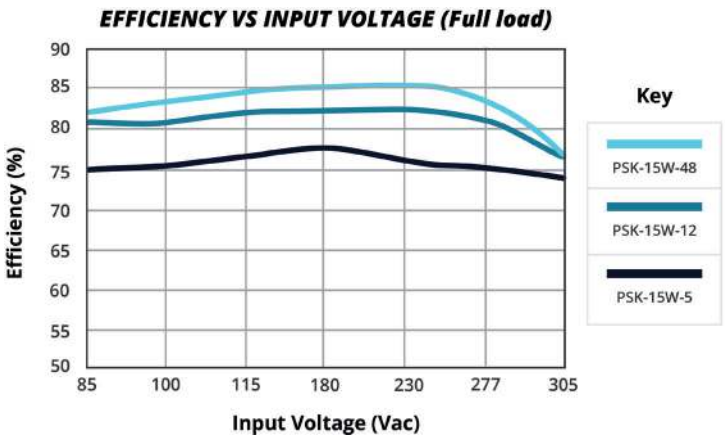
parameter	conditions/description	min	typ	max	units
isolation voltage	input to output	4,000			Vac
safety approvals	IEC 62368/EN 62368/UL 62368				
safety class	Class II				
EMI/EMC	CISPR 32/EN 55032: 2015 Class B				
ESD	IEC/EN 61000-4-2 Contact ±6KV/ Air ±8KV, perf. Criteria B				
radiated immunity	EC/EN 61000-4-3 10V/m, perf. Criteria A				
EFT/burst	IEC/EN 61000-4-4 ±2KV 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	EC/EN 61000-4-6 10Vr.m.s, perf. Criteria A				
MTBF	as per MIL-HDBK-217F @ 25°C	300,000			hours
RoHS	yes				

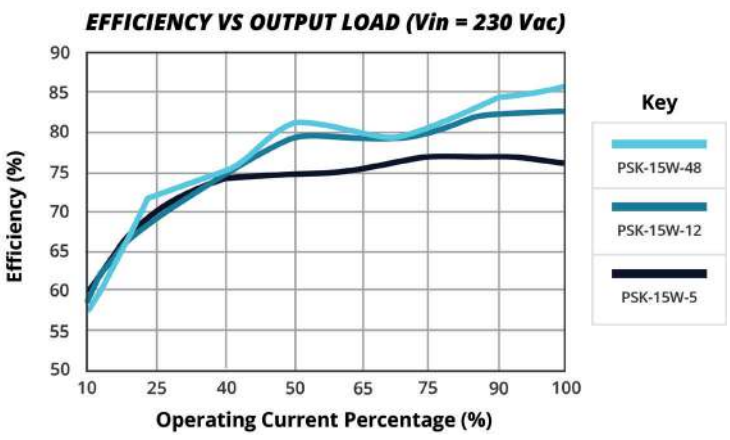
DERATING CURVE





EFFICIENCY CURVES





ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-40		85	°C
storage temperature		-40		105	°C
storage humidity	non-condensing	0		95	%

SOLDERABILITY

parameter	conditions/description	min	typ	max	units
wave soldering	for 5~10 seconds	255	260	265	°C
hand soldering	for 3~5 seconds	350	360	370	°C

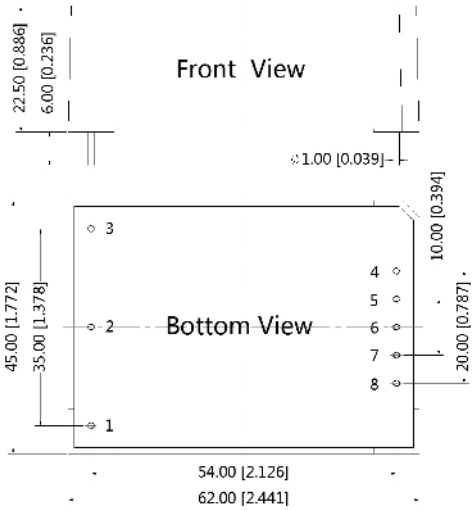
MECHANICAL

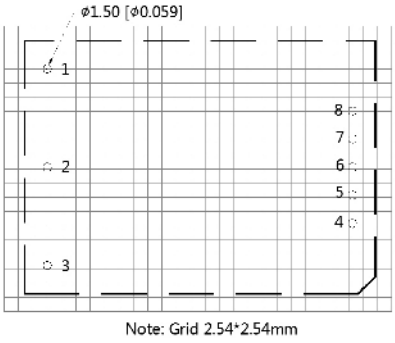
parameter	conditions/description	min	typ	max	units
dimensions	62.00 x 45.00 x 22.50 (board mount) 96.10 x 54.00 x 31.00 (chassis mount) 96.10 x 54.00 x 35.60 (DIN-rail)				mm mm mm
weight	board mount chassis mount DIN-rail		90 140 180		g g g
cooling	free air convection				
case material	Black plastic, flame-retardant and heat-resistant (UL94V-0)				

MECHANICAL DRAWING (BOARD MOUNT)

units: mm [inch]
tolerance: ±0.50 [±0.020]
pin diameter tolerances: ±0.10 [±0.004]

PIN CONNECTIONS	
PIN	Function
1	no pin
2	AC (N)
3	AC (L)
4	+Vo
5	no pin
6	no pin
7	no pin
8	-Vo

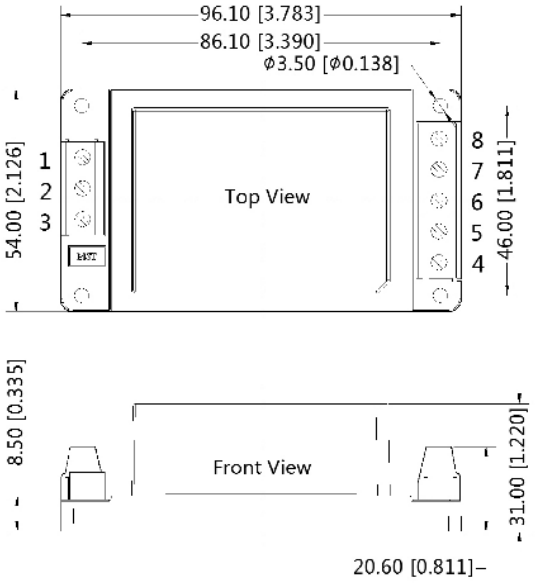




MECHANICAL DRAWING (CHASSIS MOUNT)

units: mm [inch]
tolerance: ±1.0 [±0.040]
wire range: 24~12 AWG
tightening torque: max 0.4 N·m

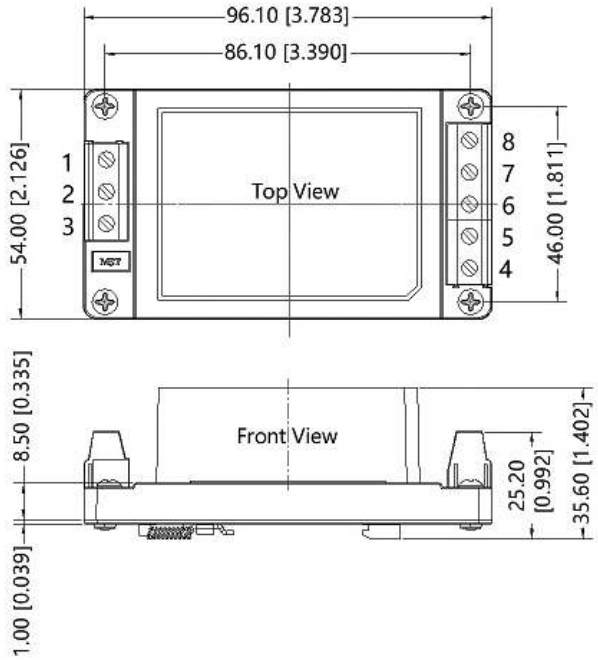
PIN CONNECTIONS	
PIN	Function
1	NC
2	AC (N)
3	AC (L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo



MECHANICAL DRAWING (DIN-RAIL MOUNT)

units: mm [inch]
tolerance: ±1.00 [±0.040]
wire range: 24~12 AWG
tightening torque: max 0.4 N·m

PIN CONNECTIONS	
PIN	Function
1	NC
2	AC (N)
3	AC (L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo



APPLICATION CIRCUIT

Figure 1

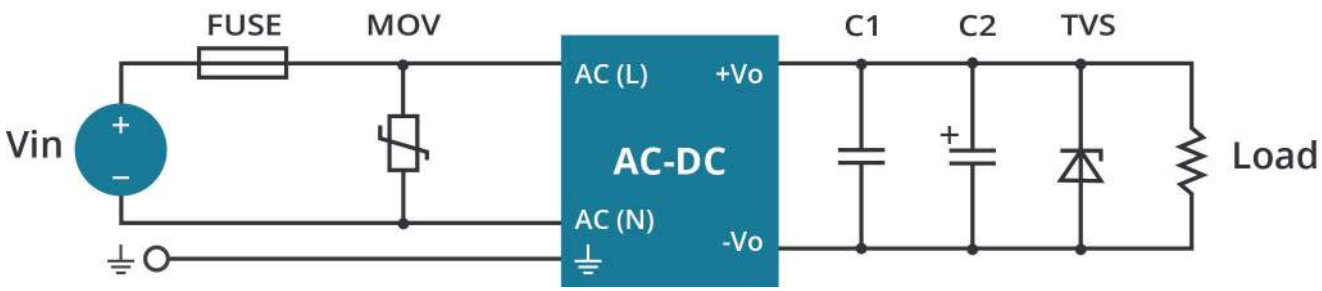


Table 1

Recommended External Circuit Components					
Vo (Vdc)	FUSE[6]	MOV[6]	C1	C2	TVS
3.3	2A/300V	S14K350	1 µF	680 µF	SMBJ7.0A
5	2A/300V	S14K350	1 µF	680 µF	SMBJ7.0A
9	2A/300V	S14K350	1 µF	470 µF	SMBJ12A
12	2A/300V	S14K350	1 µF	220 µF	SMBJ20A
15	2A/300V	S14K350	1 µF	220 µF	SMBJ20A
24	2A/300V	S14K350	1 µF	68 µF	SMBJ30A
48	2A/300V	S14K350	1 µF	33 µF	SMBJ64A

Notes: 6. Chassis Mount and DIN-Rail Mount versions include the fuse and MOV components.

EMC RECOMMENDED CIRCUIT

Figure 2

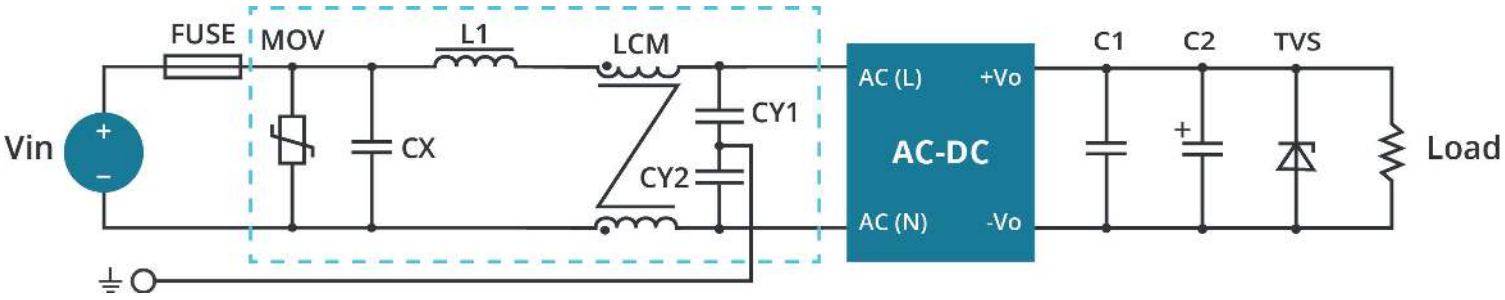


Table 2

Recommended External Circuit Components	
MOV	S14K350
CY1/CY2	1000 pF/400 Vac
CX	0.1 µF/310 Vac
LCM	10 mH
L1	4.7 µH/ 2 A
FUSE	2 A/300 V, slow blow, required

Note: Also refer to Table 1.

Notes: 7. C1 is a ceramic capacitor used to filter high frequency noise.
8. C2 is an electrolytic capacitor and it is recommended to be high frequency and low impedance. For capacitance and current of capacitor, refer to the datasheet provided by the manufacturer. Voltage derating of capacitor should be at least 80%.
9. TVS is a recommended component to protect post-circuits (if converter fails).

REVISION HISTORY

rev.	description	date
1.0	initial release	06/30/2020
1.01	figure and circuit drawings updated	02/24/2021
1.02	din-rail mount mechanical drawing updated	04/28/2021
1.03	UKCA mark added	06/03/2022

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

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