

**SERIES:** PSK-45 | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

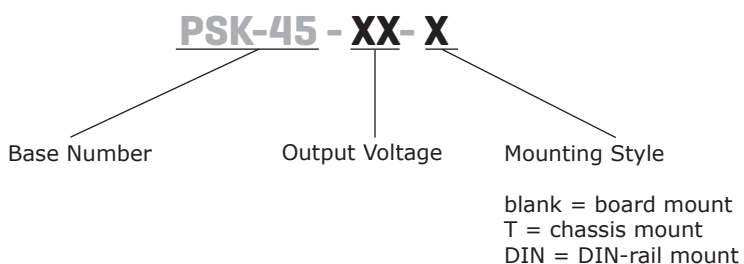
**FEATURES**

- universal input voltage range (85~264 VAC)
- IEC/EN/UL 62368 certified
- meets CISPR32/EN 55032 Class B without external components
- 4,000 VAC isolation rating
- short-circuit, over-current, over-voltage protections



MODEL	output voltage	output current max	output power max	ripple and noise max	efficiency
	(Vdc)	(A)	(W)	(mVp-p)	typ (%)
PSK-45-5	5	8.0	40	120	81
PSK-45-12	12	3.8	45	120	84
PSK-45-15	15	3.0	45	120	85
PSK-45-24	24	1.9	45	120	86
PSK-45-48	48	0.94	45	120	87

**PART NUMBER KEY**



**INPUT**

parameter	conditions/description	min	typ	max	units
voltage	ac input	85		264	Vac
	dc input	100		370	Vdc
frequency		47		63	Hz
current	at 115 Vac			1.5	A
	at 230 Vac			0.75	
inrush current	at 115 Vac		50		A
	at 230 Vac		70		
no load power consumption	at 230 Vac			0.5	W

**OUTPUT**

parameter	conditions/description	min	typ	max	units
capacitive load	5 Vdc output			30,000	
	12 Vdc output			6,400	
	15 Vdc output			5,600	μF
	24 Vdc output			2,000	
	48 Vdc output			600	
initial set point accuracy	at full load		±2		%
line regulation	rated load		±0.5		%
load regulation	0%~100% load		±1.0		%
hold-up time	at 115 Vac		8		ms
	at 230 Vac		50		
temperature coefficient			±0.02		%/°C

**PROTECTIONS**

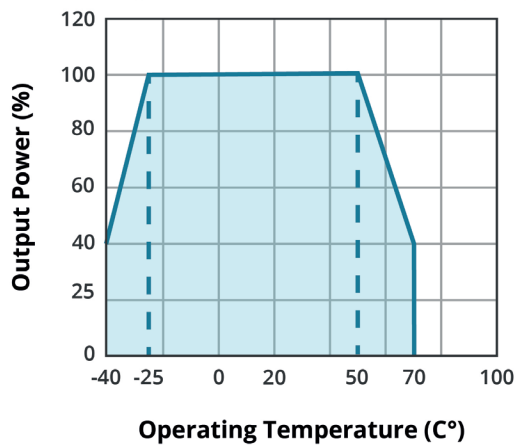
parameter	conditions/description	min	typ	max	units
over voltage protection	5 Vdc output, clamp or hiccup			9	
	12 Vdc output, clamp or hiccup			16	
	15 Vdc output, clamp or hiccup			24	V
	24 Vdc output, clamp or hiccup			35	
	48 Vdc output, clamp or hiccup			56	
over current protection	auto recovery	110			%
short circuit protection	hiccup, continuous, auto recovery				

**SAFETY & COMPLIANCE**

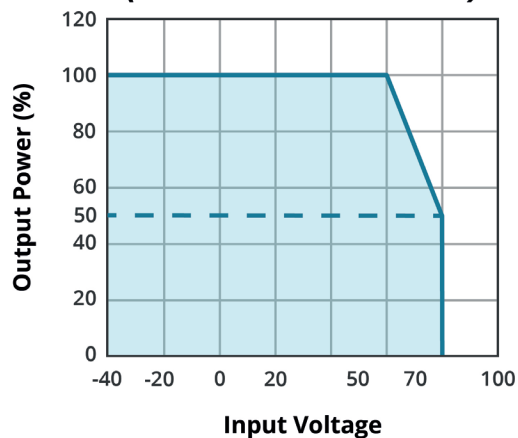
parameter	conditions/description	min	typ	max	units
isolation voltage	input to output	4,000			Vac
safety approvals	UL/cUL, EN, IEC 62368				
safety class	Class II				
EMI/EMC	CISPR 32/EN 55032 Class B				
ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV, perf. Criteria B				
radiated immunity	IEC/EN 61000-4-3 10 V/m, perf. Criteria A				
EFT/burst	IEC/EN 61000-4-4 ±4KV, perf. Criteria B				
surge	IEC/EN 61000-4-5 line to line +/-2kV/line to ground +/-4kV (see recommended EMC circuit)				
	IEC/EN 61000-4-5 line to line +/-1kV perf. Criteria B				
conducted immunity	IEC/EN 61000-4-6 10 Vr.m.s, perf. Criteria A				
voltage dips and interruption	IEC/EN 61000-4-11 0%, 70%, perf. Criteria B				
MTBF	per MIL-HDBK-217F at 25 °C	300,000			hours
RoHS	yes				

## DERATING CURVE

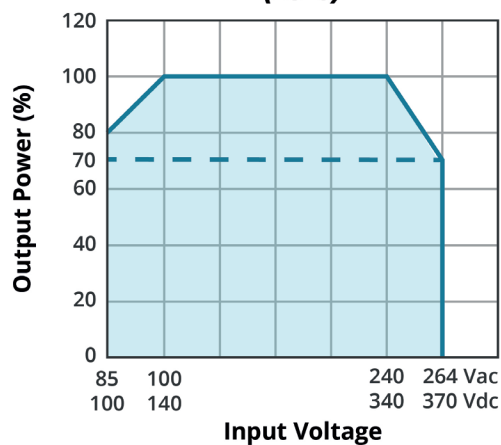
**TEMPERATURE DERATING CURVE**  
(85~220 Vac/100~280 Vdc)



**TEMPERATURE DERATING CURVE**  
(220~264 Vac/280~370 Vdc)

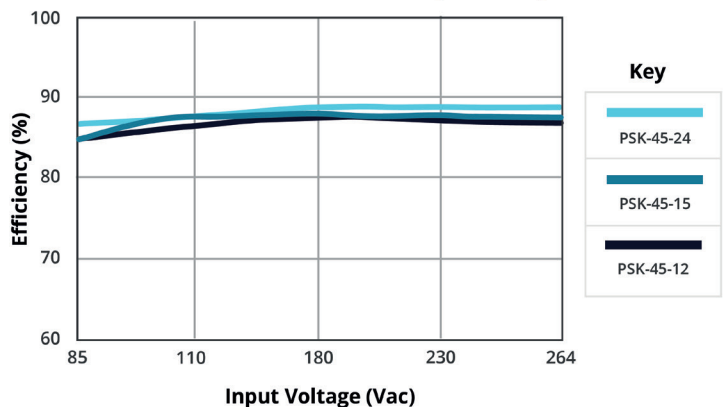


**INPUT VOLTAGE DERATING CURVE**  
(25°C)

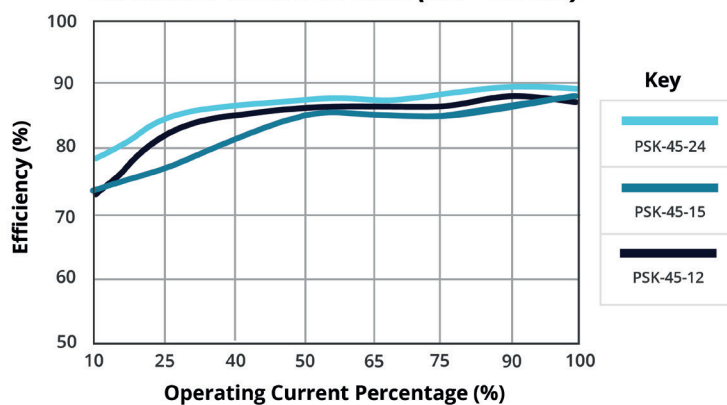


## EFFICIENCY CURVES

**EFFICIENCY VS INPUT VOLTAGE (Full load)**



**EFFICIENCY VS OUTPUT LOAD (Vin = 230 Vac)**



## 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	5~10 seconds ( $\pm 5$ °C)			260	°C
manual welding	3~5 seconds ( $\pm 10$ °C)			360	°C

## MECHANICAL

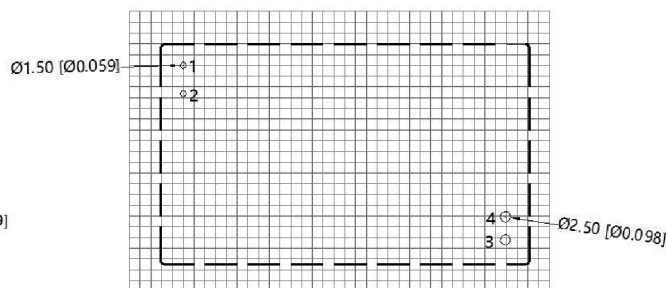
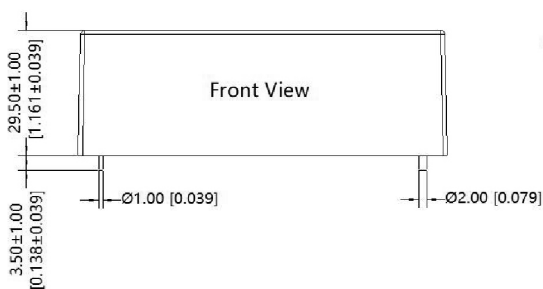
parameter	conditions/description	min	typ	max	units
dimensions	87.00 x 52.00 x 29.50 (board mount)				mm
	135.00 x 70.00 x 37.90 (chassis mount)				mm
	137.00 x 70.00 x 42.40 (DIN-rail)				mm
weight	board mount		205		g
	chassis mount		290		g
	DIN-rail		360		g
cooling	free air convection				
case material	black plastic, flame-retardant and heat-resistant (UL94V-0)				

## MECHANICAL DRAWING (BOARD MOUNT)

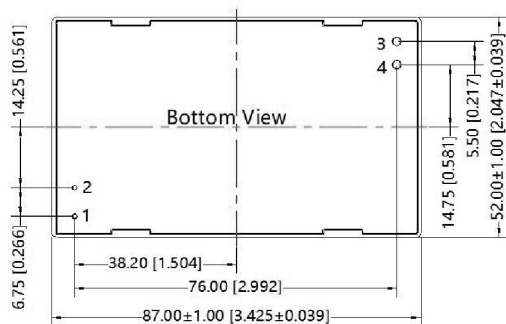
units: mm [inch]

pin diameter tolerance:  $\pm 0.1$  [ $\pm 0.004$ ]

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



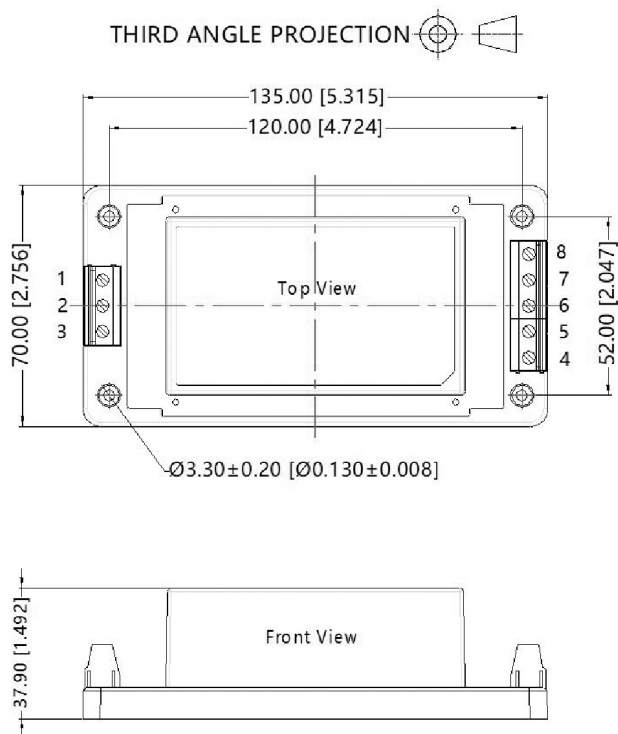
Note : Grid 2.54\*2.54mm



## MECHANICAL DRAWING (CHASSIS MOUNT)

units: mm [inch]  
 tolerance:  $\pm 1.00$  [ $\pm 0.040$ ]  
 wire range: 24 - 12 AWG  
 tightening torque: 0.4 N·m

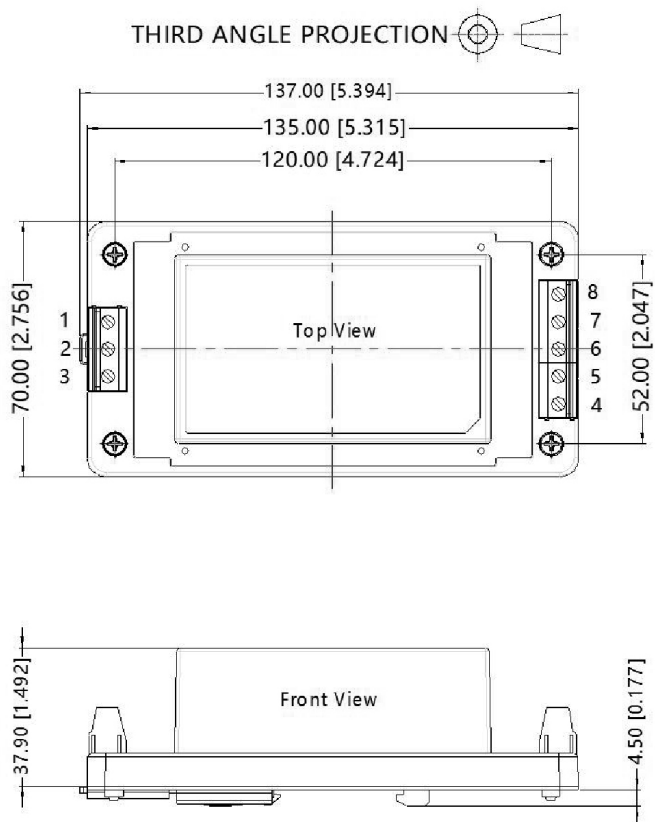
PIN CONNECTIONS	
PIN	Function
1	AC(L)
2	NC
3	AC(N)
4	+Vo
5	-Vo
6	NC
7	NC
8	NC



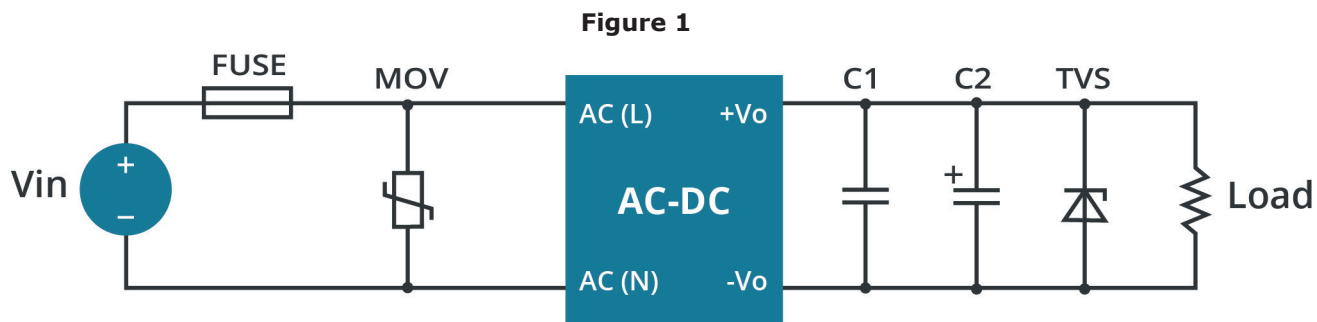
## MECHANICAL DRAWING (DIN-RAIL MOUNT)

units: mm [inch]  
 tolerance:  $\pm 1.00$  [ $\pm 0.040$ ]  
 wire range: 24 - 12 AWG  
 tightening torque: 0.4 N·m  
 installed on DIN-RAIL TS35

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



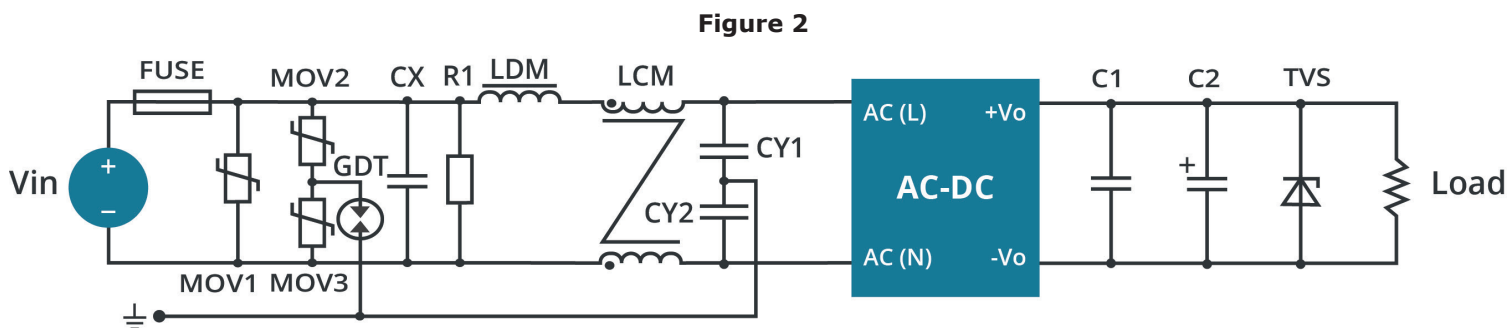
## APPLICATION CIRCUIT



**Table 1**

Recommended External Circuit Components					
Part no.	C1	C2	FUSE	MOV	TVS
PSK-45-5	1 $\mu$ F	680 $\mu$ F	3.15A/250V, slow-blow	S14K350	SMBJ7.0A
PSK-45-12		220 $\mu$ F			SMBJ20A
PSK-45-15		220 $\mu$ F			SMBJ20A
PSK-45-24		120 $\mu$ F			SMBJ30A
PSK-45-48		100 $\mu$ F			SMBJ64A

## EMC RECOMMENDED CIRCUIT



**Table 2**

Component	Reccomended value
FUSE	3.15A/250V, slow-blow, required
MOV1	S20K300
MOV2/MOV3	S10K300
GDT	EM3600XS
CX	0.22 $\mu$ F/ 275 Vac
CY1, CY2	1 nF / 400 Vac
R1	1 M $\Omega$ / 1 W
LDM	4.7 uH
LCM	2 mH

## REVISION HISTORY

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rev.	description	date
1.0	initial release	07/13/2020
1.01	figure and circuit drawings updated	03/25/2021
1.02	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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