



**20 Watt, Regulated
AC/DC Modules, PCB mounting
Series DVM20-L70-A5-4KV**



Features

- Input Range 90 – 528Vac & 100 – 745 VDC
- Regulated Output, Low Ripple & Noise
- Efficiency to 83%
- ES1 Output (EN62368)
- Meets IEC/EN62368
- Safety UL62368 Approval (Vout 12V & 24V)
- I/O Isolation 4000 VAC
- Over Current Protection
- Over Voltage Protection
- Output Short Circuit Protection
- EFT / Surge $\pm 4KV$ Perf. Criteria B
- Meets CISPR32 / EN55032 Class B

MODEL NUMBER	OUTPUT VOLTAGE [VDC]	OUTPUT CURRENT [mA] MAX.	OUTPUT POWER [W]	EFF. [%] TYP.	MAX. CAP. LOAD [μF] MAX.	CERTIFICATION
DVM20-L70-S3,3-A5-4KV	3,3	3600	11,88	74	10000	--
DVM20-L70-S05-A5-4KV	5	3600	18	78	10000	UL62368
DVM20-L70-S09-A5-4KV	9	2230	20	79	7000	--
DVM20-L70-S12-A5-4KV	12	1660	20	82	5000	UL62368
DVM20-L70-S15-A5-4KV	15	1330	20	83	3000	UL62368
DVM20-L70-S24-A5-4KV	24	833	20	83	1000	UL62368

Note:

1. Unless otherwise specified, all specifications above are measured at rated input voltage and rated output load TA=25°C, humidity <75%

INPUT SPECIFICATIONS:

Input Voltage Range.....	90 to 528VAC / 100 to 745VDC
AC Input Frequency	47 to 63Hz
Input Current.....	115VAC 800mA / 230VAC 400mA max.
Inrush Current.....	230VAC 60A typ.
Leakage Current (@277Vac/50Hz)	0,25mA RMS typ.

OUTPUT SPECIFICATIONS:

Voltage Accuracy.....	Vout 3,3VDC	±3% typ.
	Others	±2% typ.
Minimum Load		0% min.
Line Regulation.....	Full Load	±0,5% typ.
Load Regulation	0-100% Load	±1,0% typ.
Ripple & Noise (Note 3)	20MHz Bandwidth	150mVp-p max.
Temperature Coefficient.....		±0.02 %/°C
Stand-by Power Consumption		0,75W max.
Short Circuit Protection		Hiccup, Continuous, self-recovery
Over Current Protection		130-400%Io, self-recovery
Over Voltage Protection	Vout 3,3V/5V	≤ 7.5 V (Output voltage clamp)
	Vout 9V	≤ 15 V (Output voltage clamp)
	Vout 12V/15V	≤ 20 V (Output voltage clamp)
	Vout 24V	≤ 30 V (Output voltage clamp)
Hold-up Time		230Vac,35ms typ. / 400Vac, 100ms typ.

GENERAL SPECIFICATIONS:

Efficiency		see table
Isolation Voltage Input/Output.....	Test for 1min., leakage current <5mA	4000Vac min.
Operating Temperature Range		-40°C to +70°C
Output Voltage Derating.....		see Derating Curve
Input Voltage Derating		see Derating Curve
Storage Temperature Range		-40°C to +85°C
Humidity (non condensing)		95%RH max.
Cooling.....		Free Air Convection
Switching Frequency		65kHz typ.
MTBF (MIL-HDBK-217@25°C).....		>300.000 hrs
Soldering Temperature	Wave-soldering	260 ± 5°C; time: 5 - 10s
	Manual-welding	360 ±10°C; time: 3 - 5s
Safety standards meets		IEC/EN62368
Safety Approved.....	Vout 5V/12V/15V/24V	UL62368
Safety Class.....		CLASS II
EMI.....	CE/RE	CISPR32/EN55032 Class B
Immunity	ESD	IEC/EN61000-4-2 ,Contact ±6KV/Air ±8KV,
	RS	IEC/EN61000-4-3 10V/m
	EFT	IEC/EN 61000-4-4 ±2KV
	EFT	±4KV (See Fig. 2 or Fig. 3 for recommended circuit)
	CS	IEC/EN61000-4-6 10Vr.m.s
	Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11 0%, 70%

MECHANICAL SPECIFICATIONS:

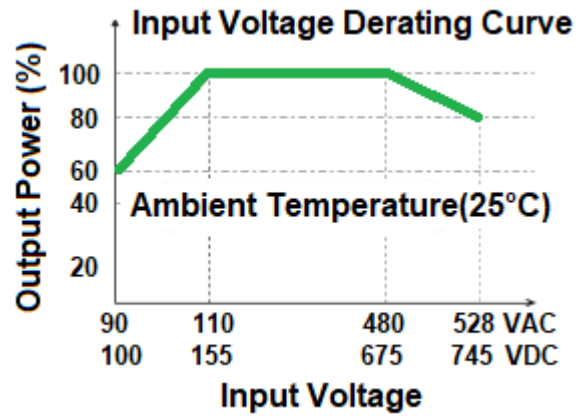
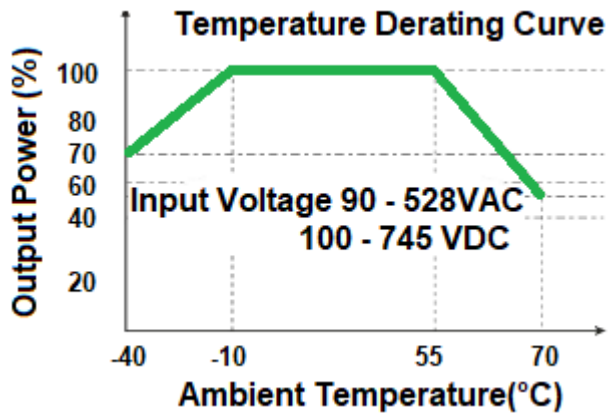
Case Material	Plastic UL94V-0
Dimension.....	70,00 x 48,00 x 30,00 (mm)
Weight.....	160g typ.

Note:

1. External input FUSE is required to use 3.15A/500V, slow blow.
2. External MOV S20K625 is recommended between AC(L) and AC(N).
3. Ripple and Noise are measured by the method of parallel lines

Derating Curve

Series DVM20-L70-A5-4KV



Dimension

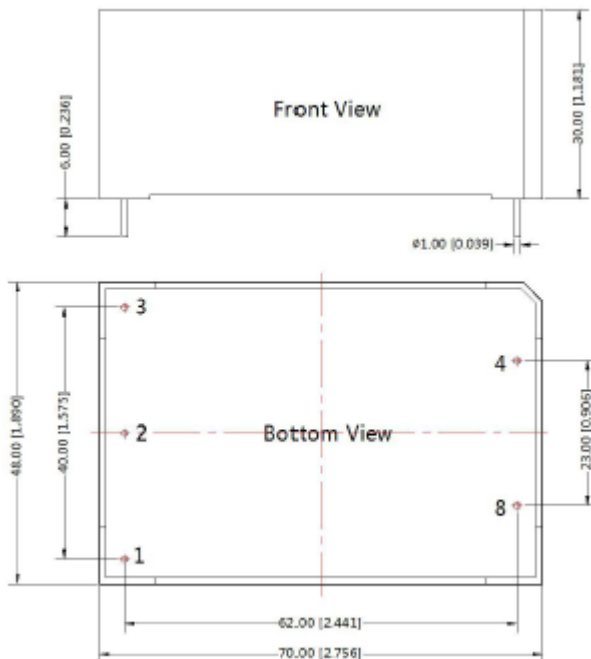
Series DVM20-L70-A5-4KV

Note:

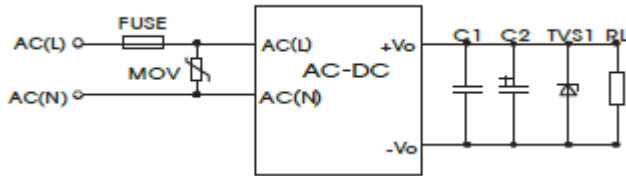
Unit: mm [inch]

Pin diameter tolerances: $\pm 0.10\text{mm}$ [± 0.004]

General tolerances: $\pm 0.50\text{mm}$ [± 0.020]



Pin	Single Output
1	No Pin
2	AC (N)
3	AC (L)
4	+Vo
8	-Vo



MODEL NUMBER	FUSE	MOV	C1 (μF)	C2 (μF)	TVS1
DVM20-L70-S3,3-A5-4KV	3,15A/500VAC slow-blow required	S20K625	1	330	SMBJ7.0A
DVM20-L70-S05-A5-4KV	3,15A/500VAC slow-blow required	S20K625	1	330	SMBJ7.0A
DVM20-L70-S09-A5-4KV	3,15A/500VAC slow-blow required	S20K625	1	220	SMBJ12A
DVM20-L70-S12-A5-4KV	3,15A/500VAC slow-blow required	S20K625	1	220	SMBJ20A
DVM20-L70-S15-A5-4KV	3,15A/500VAC slow-blow required	S20K625	1	220	SMBJ20A
DVM20-L70-S24-A5-4KV	3,15A/500VAC slow-blow required	S20K625	1	220	SMBJ20A

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.

EMC compliance recommended circuit

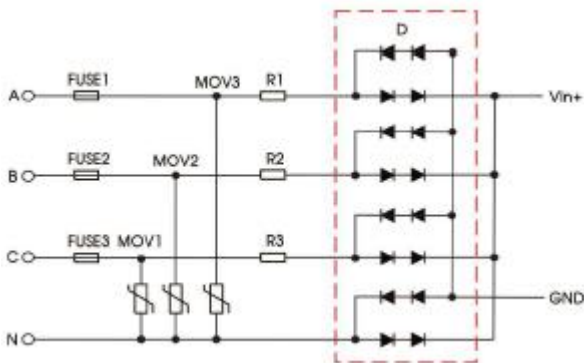


Fig. 2 Recommended circuit for applications which require 4KV differential-mode inrush standard (full-wave rectification)

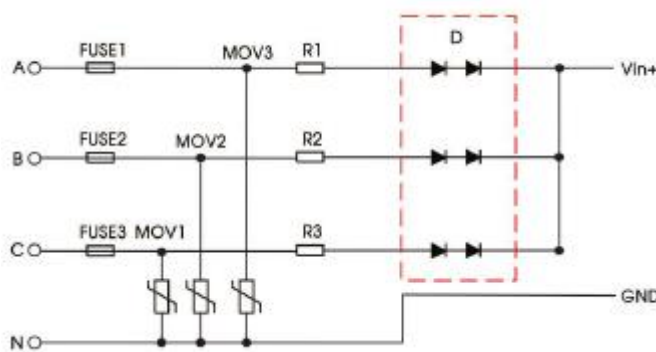


Fig. 3 Recommended circuit for applications which require 4KV differential-mode inrush standard (half-wave rectification)

Recommend Parameter For Higher EMC Standard Circuit	
Component	Recommended value
MOV1, MOV2, MOV3	S20K510
D	2A/1000V
R1, R2, R3	10Ω/5W
FUSE1, FUSE2, FUSE3	3.15A/500VAC, slow-blow, required