KAMN30 SERIES

AC - DC POWER MODULE
25 ~ 30W UL / cUL / TUV / CE

FEATURES

- AC/DC POWER MODULE
- UNIVERSAL INPUT 85 ~ 265 VAC
- HIGH EFFICIENCY UP TO 86%
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 3 YEARS WARRANTY
- MEDICAL SAFETY APPROVED
- LOW LEAKAGE CURRENT

UL 60950-1 UL 60601-1 EN 60950-1 EN 60601-1

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
Single Output Models							
KAMN3003	85 ~ 265 VAC	25 WATTS	+3.3 VDC	7500 mA	75%	77%	7000 μF
KAMN3005	85 ~ 265 VAC	30 WATTS	+ 5 VDC	6000 mA	79%	81%	7000 μF
KAMN3012	85 ~ 265 VAC	30 WATTS	+ 12 VDC	2500 mA	83%	85%	7000 μF
KAMN3015	85 ~ 265 VAC	30 WATTS	+ 15 VDC	2000 mA	84%	86%	7000 μF
KAMN3024	85 ~ 265 VAC	30 WATTS	+ 24 VDC	1250 mA	84%	86%	3500 μF
Dual Output Models							
KAMN3012D	85 ~ 265 VAC	30 WATTS	± 12 VDC	± 1250 mA	82%	84%	± 7000 μF
KAMN3015D	85 ~ 265 VAC	30 WATTS	± 15 VDC	± 1000 mA	83%	85%	± 7000 μF
KAMN30512D	85 ~ 265 VAC	30 WATTS	+5 / + 12 VDC	+3A / + 1.25A	80%	82%	7000 μF
KAMN30524D	85 ~ 265 VAC	30.6 WATTS	+5 / + 24 VDC	+3A / + 0.65A	80%	82%	7000 μF

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		65		KHz
Isolation voltage	Input - Output	4236/6000			VAC/VDC
Isolation resistance	Input - Output, @ 500VDC	100			MΩ
Ambient temperature 1)	Operating at Vi nom, Io nom	-40		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 85	°C
Derating	Vi nom, +61 to + 71°C			2.5	% / °C
Storage temperature	Non operational	-40		+100	°C
Relative humidity	Vi nom, Io nom	20		95	% RH
Temperature coefficient	Vi nom, Io min			± 0.03	% / °C

NOTE1 : Pls refer to DERATING CURVE.

SPECIFICATION

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GENERAL

Characteristics	Conditions		min.	typ.	max.	unit
MTBF	Bellcore issue 6 @40°C, GB	3.3V, 5V, 512D & 524D models		703000		Hours
		12V, 12D & 15D models		722000		Hours
		15V & 24V models		740000		Hours
Altitude during operation	IEC 60068-2-13				4850	m
Dimension				L89 x W63.5 x H25		mm
Cooling	Free air convection					

INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Rated input voltage	Io nom		100		240	VAC
Input voltage range	Ta min ... Ta max, Io nom	AC in	85		265	VAC
		DC in	120		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom			0.56 / 0.34		A
Rated input current	Vi : 100 ~ 240 VAC, Io nom				0.8 - 0.4	A
Line frequency	Vi nom, Io nom		47		63	Hz
Inrush current	Vi : 115 / 230 VAC, Io nom				20/40	A
Leakage current	Normal condition				100	μA
	Single fault condition				300	μA

OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom	single output models			± 1	%
		dual output models			± 2	%
		524D model			± 4	%
Minimum load	Vi nom	single output models	0			%
		dual output models (each output)	20			%
Line regulation	Io nom, Vi min ...Vi max				± 1	%
Load regulation	Vi nom, Io min ...Io nom	single output models			± 1	%
		dual output models			± 2	%
Cross regulation (Dual model)	Asymmetrical load 20% / 100% FL				± 6	%
Hold up time	Vi : 115 / 230 VAC, Io nom		15/75			ms
Turn on time	Vi nom, Io nom				1000	ms
Rise time	Vi nom, Io nom				150	ms
Fall time	Vi nom, Io nom				150	ms
Transient recovery time	Vi nom, 1~0.5 Io nom				1	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz				50	mV
External trim ADJ. Range 2) (for single output only)	Io = 5% ...100%		-10		+10	%
Efficiency	Vi nom, Io nom, Po / Pi			Up to 86%, See model list and typ efficiency curve		

NOTE 2 : Pls refer to Fig 1 & Table 1 for connection and resistance recommended.

CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse			T2A / 250VAC internal		
Internal surge voltage protection	IEC 61000-4-5		Varistor		
Output short circuit			Hiccup mode		
Rated over load protection	Vi nom (see typ current limited curve)	120		160	%

SPECIFICATION

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APPROVALS AND STANDARDS

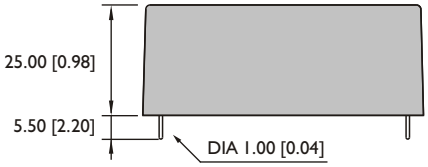
UL / cUL	UL 60950-1, UL 60601-1 Recognized
TUV	EN 60950-1, EN 60601-1
CE	EN 60601-1-2, EN 55011, EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5 EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 axes, 6 Faces, 3 times for each Face)

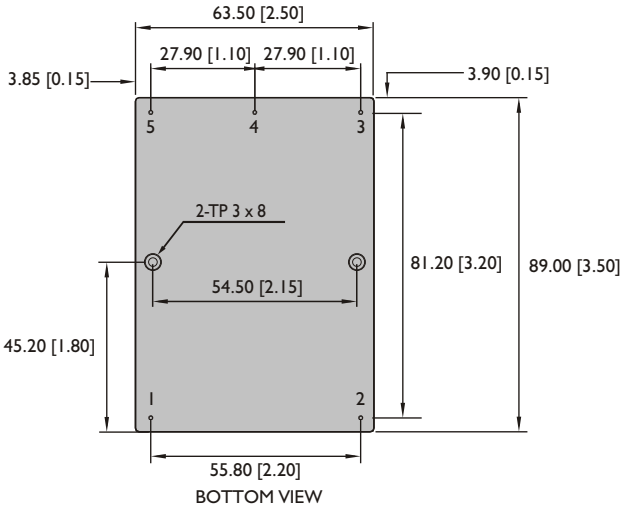
PHYSICAL CHARACTERISTICS

Case size	89 x 63.5 x 25mm (3.5 x 2.5 x 0.98 inches)
Case material	Plastic
Weight	250g
Potting material	Epoxy

MECHANISM & PIN CONFIGURATION

mm [inch]





GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

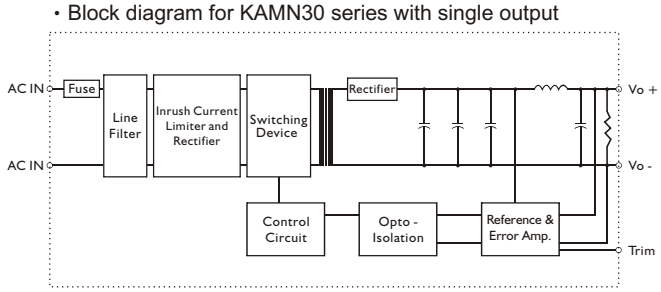
PIN ASSIGNMENT

GENERAL

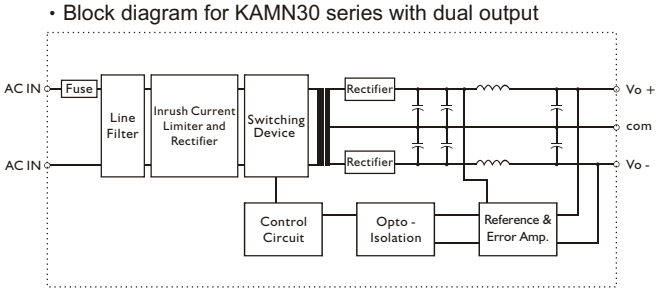
PIN NO.		1	2	3	4	5
SINGLE		AC IN	AC IN	Vo +	Vo -	Trim
DUAL	12D, 15D	AC IN	AC IN	Vo +	com	Vo -
	512D	AC IN	AC IN	+5V	com	+12V
	524D	AC IN	AC IN	+5V	com	+24V

CIRCUIT SCHEMATIC

• Block diagram for KAMN30 series with single output

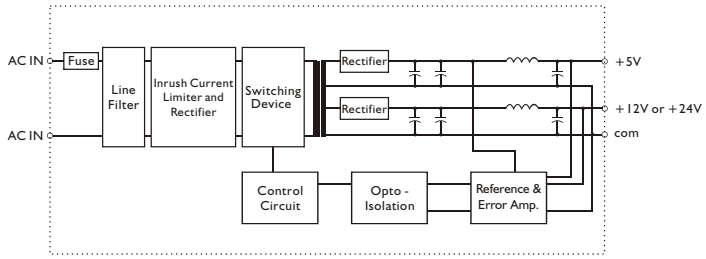


• Block diagram for KAMN30 series with dual output

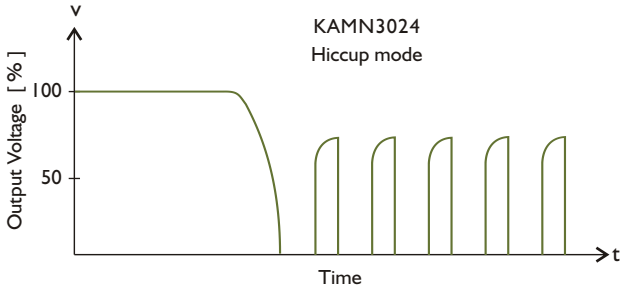


CIRCUIT SCHEMATIC

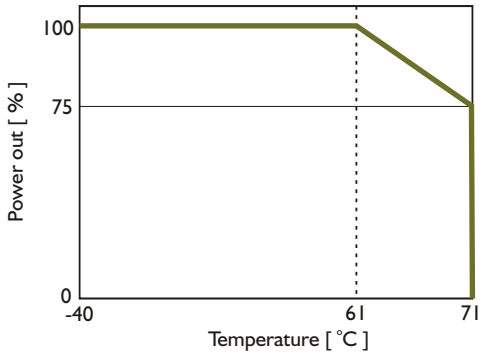
• Block diagram for KAMN30512D & KAMN30524D

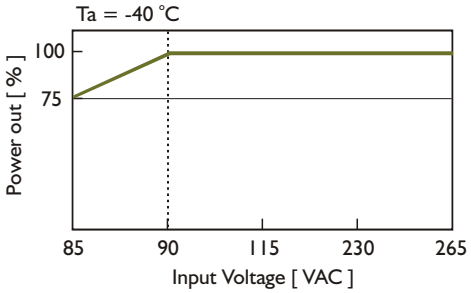


TYP. CURRENT LIMITED CURVE



DERATING CURVE





TYP. EFFICIENCY CURVE

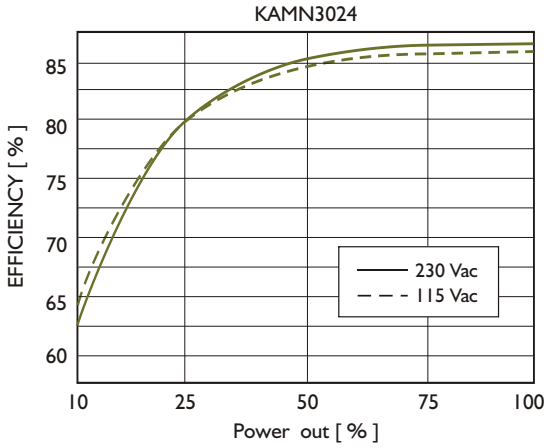


Fig. 1 Trim connection

(For single output only)

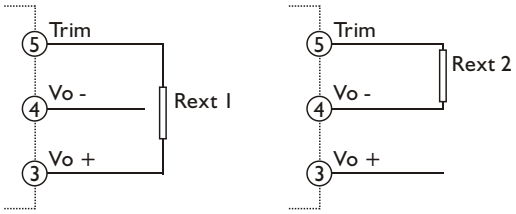


Table 1 Typical resistor values for various output voltage adjustment settings and max continuous power

Type	Rext 1		Rext 2		Max continuous power
	Vo nom -5%	Vo nom -10%	Vo nom +5%	Vo nom +10%	
KAMN3003	20KΩ	5.1KΩ	3KΩ	1KΩ	25 W
KAMN3005	5.1KΩ	1KΩ	6.8KΩ	2KΩ	30 W
KAMN3012	39KΩ	20KΩ	10KΩ	0Ω	30 W
KAMN3015	180KΩ	56KΩ	30KΩ	5.1KΩ	30 W
KAMN3024	150KΩ	51KΩ	8.2KΩ	0Ω	30 W