

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
- 2 YEARS WARRANTY
- MEDICAL SAFETY APPROVED
- LOW LEAKAGE CURRENT



MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
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Single Output Models

KAMN3003	85 ~ 265 VAC	25 WATTS	+ 3.3 VDC	7500 mA	75%	77%	7000 μ F
KAMN3005	85 ~ 265 VAC	30 WATTS	+ 5 VDC	6000 mA	79%	81%	7000 μ F
KAMN3012	85 ~ 265 VAC	30 WATTS	+ 12 VDC	2500 mA	83%	85%	7000 μ F
KAMN3015	85 ~ 265 VAC	30 WATTS	+ 15 VDC	2000 mA	84%	86%	7000 μ F
KAMN3024	85 ~ 265 VAC	30 WATTS	+ 24 VDC	1250 mA	84%	86%	3500 μ F

Dual Output Models

KAMN3012D	85 ~ 265 VAC	30 WATTS	$\pm$ 12 VDC	$\pm$ 1250 mA	82%	84%	$\pm$ 7000 μ F
KAMN3015D	85 ~ 265 VAC	30 WATTS	$\pm$ 15 VDC	$\pm$ 1000 mA	83%	85%	$\pm$ 7000 μ F
KAMN30512D	85 ~ 265 VAC	30 WATTS	+5 / + 12 VDC	+3A / + 1.25A	80%	82%	7000 μ F
KAMN30524D	85 ~ 265 VAC	30 WATTS	+5 / + 24 VDC	+3A / + 0.625A	80%	82%	7000 μ F

SPECIFICATION

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

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	V_i nom, I_o nom		65		KHz
Isolation voltage	Input - Output	4236/6000			VAC/VDC
Isolation resistance	Input - Output, @ 500VDC	100			M Ω
Ambient temperature (I)	Operating at V_i nom, I_o nom	-40		+ 71	°C
Case temperature	Operating at V_i nom, I_o nom			+ 85	°C
Derating	V_i nom, + 61 to + 71 °C			2.5	% / °C
Storage temperature	Non operational	-40		+ 100	°C
Relative humidity	V_i nom, I_o nom	20		95	% RH
Temperature coefficient	V_i nom, I_o min			$\pm$ 0.03	% / °C

NOTE1 : Pls refer to DERATING CURVE.

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SPECIFICATION

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

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
MTBF	Bellcore issue 6 @40°C, GB 3.3V, 5V, 512D & 524D models 12V, 12D & 15D models 15V & 24V models		703000		Hours
			722000		Hours
			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	85		265	VAC
		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			± 1	%
	single output models			± 2	%
	dual output models			± 4	%
Minimum load	Vi nom	0			%
	524D model	20			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io min ... Io nom			± 1	%
	single 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, I ~ 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

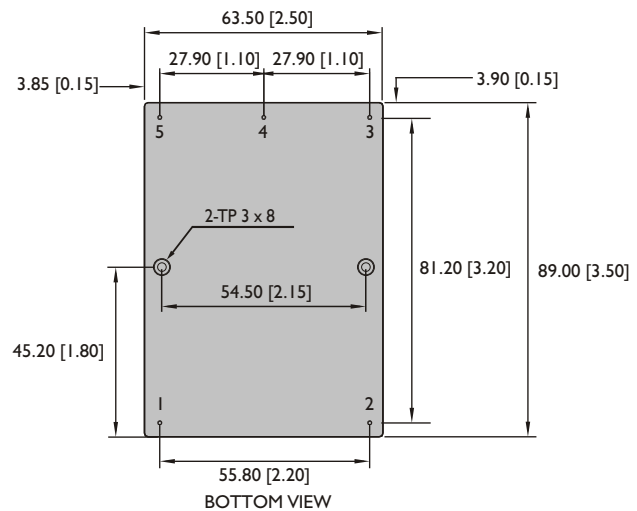
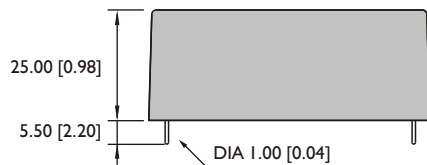
UL / cUL	UL 60950-I, UL 60601-I Recognized
TUV	EN 60950-I, EN 60601-I
CE	EN 60601-1-2, EN 55011, EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5 EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 61204-3
Vibration resistance	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]

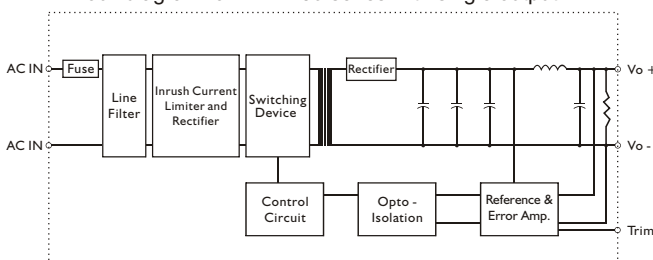
PIN ASSIGNMENT

GENERAL

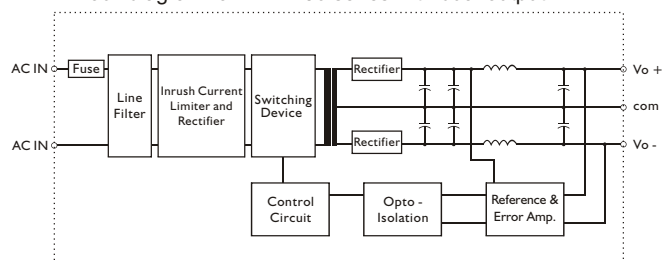
PIN NO.		1	2	3	4	5
SINGLE		AC IN	AC IN	Vo +	Vo -	Trim
DUAL	12D, 15D	AC IN	AC IN	Vo +	com	Vo -
	512D	AC IN	AC IN	+5V	com	+12V
	524D	AC IN	AC IN	+5V	com	+24V

CIRCUIT SCHEMATIC

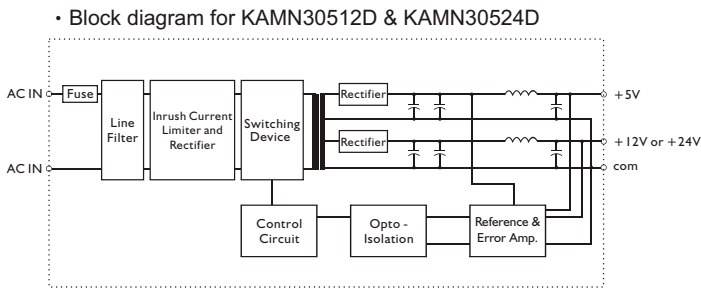
• Block diagram for KAMN30 series with single output



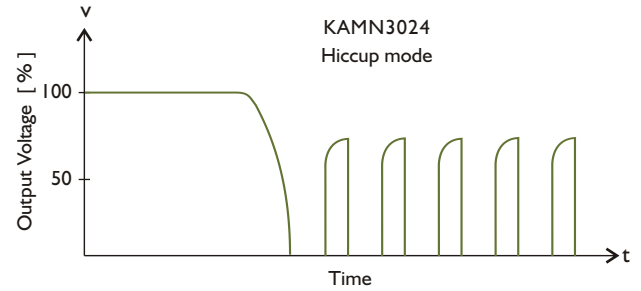
• Block diagram for KAMN30 series with dual output



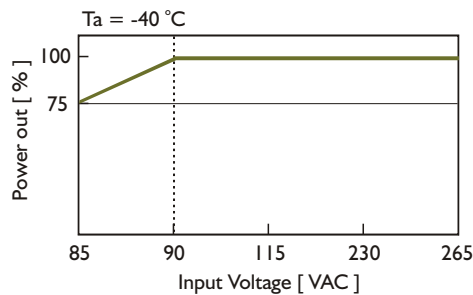
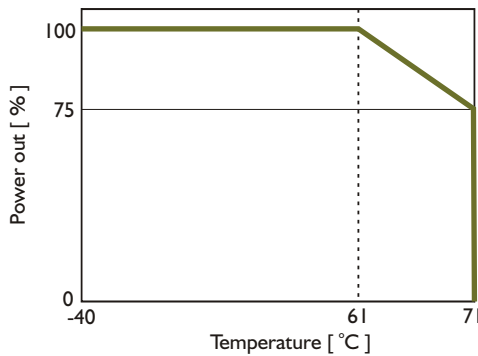
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

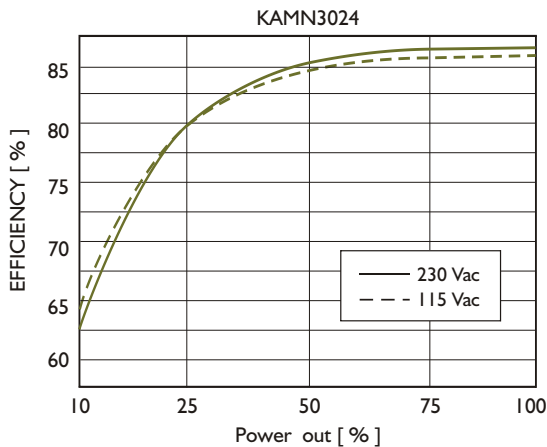


Fig. 1 Trim connection (For single output only)

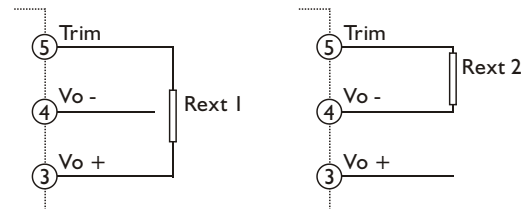


Table 1 Typical resistor values for various output voltage adjustment settings and max continuous power

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