

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

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 VDC | 25 WATTS | + 3.3 VDC | 7500 mA | 75% | 77% | 7000 μ F |
| KAMN3005 | 85 ~ 265 VDC | 30 WATTS | + 5 VDC | 6000 mA | 79% | 81% | 7000 μ F |
| KAMN3012 | 85 ~ 265 VDC | 30 WATTS | + 12 VDC | 2500 mA | 83% | 85% | 7000 μ F |
| KAMN3015 | 85 ~ 265 VDC | 30 WATTS | + 15 VDC | 2000 mA | 84% | 86% | 7000 μ F |
| KAMN3024 | 85 ~ 265 VDC | 30 WATTS | + 24 VDC | 1250 mA | 84% | 86% | 3500 μ F |
| Dual Output Models | | | | | | | |
| KAMN3012D | 85 ~ 265 VDC | 30 WATTS | \pm 12 VDC | \pm 1250 mA | 82% | 84% | \pm 7000 μ F |
| KAMN3015D | 85 ~ 265 VDC | 30 WATTS | \pm 15 VDC | \pm 1000 mA | 83% | 85% | \pm 7000 μ F |
| KAMN30512D | 85 ~ 265 VDC | 30 WATTS | +5 / + 12 VDC | +3A / + 1.25A | 80% | 82% | 7000 μ F |
| KAMN30524D | 85 ~ 265 VDC | 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 | Vi nom, Io nom | | 65 | | KHz | |
| Isolation voltage | Input - Output | 4236/6000 | | | VAC/VDC | |
| Isolation resistance | Input - Output, @ 500VDC | 100 | | | M Ω | |
| Ambient temperature 1) | Operating at Vinom, Io nom | -40 | | + 71 | °C | |
| Case temperature | Operating at Vinom, 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 | | | \pm 0.03 | % / °C | |

NOTE 1 : Pls refer to DERATING CURVE.

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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 | | | | 3000 | m |
| Dimension | | L89 x W63.5 x H25 | | | mm |
| Cooling | Free air convection | | | | |

INPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---------------------|------------------------------|-------|-----------|---------|------|
| Rated input voltage | lo nom | 100 | | 240 | VAC |
| Input voltage range | Ta min ... Ta max, lo nom | AC in | 85 | 265 | VAC |
| | | DC in | 120 | 375 | VDC |
| Rated input current | Vi : 115 / 230 VAC, lo nom | | 0.57-0.34 | 0.8-0.4 | A |
| Line frequency | Vi nom, lo nom | 47 | | 63 | Hz |
| Inrush current | Vi : 115 / 230 VAC, lo nom | | | 20/40 | A |
| Leakage current | Enclosure leakage current | | | 100 | μA |
| | Single fault condition | | | 300 | μA |

OUTPUT SPECIFICATIONS

| Characteristics | Conditions | min. | typ. | max. | unit |
|---|---------------------------------|--|------|------|------|
| Output voltage accuracy | Vi nom, lo 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 | lo nom, Vi min ... Vi max | | | ± 1 | % |
| Load regulation | Vi nom, lo min ... lo 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, lo nom | 15/75 | | | ms |
| Turn on time | Vi nom, lo nom | | | 1000 | ms |
| Rise time | Vi nom, lo nom | | | 150 | ms |
| Fall time | Vi nom, lo nom | | | 150 | ms |
| Transient recovery time | Vi nom, I ~ 0.5 lo nom | | | 1 | ms |
| Ripple & noise | Vi nom, lo nom, BW = 20MHz | | | 50 | mV |
| External trim ADJ. Range 2) (for single output only) | lo = 5% ... 100% | -10 | | +10 | % |
| Efficiency | Vi nom, lo 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 | % |



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APPROVALS AND STANDARDS

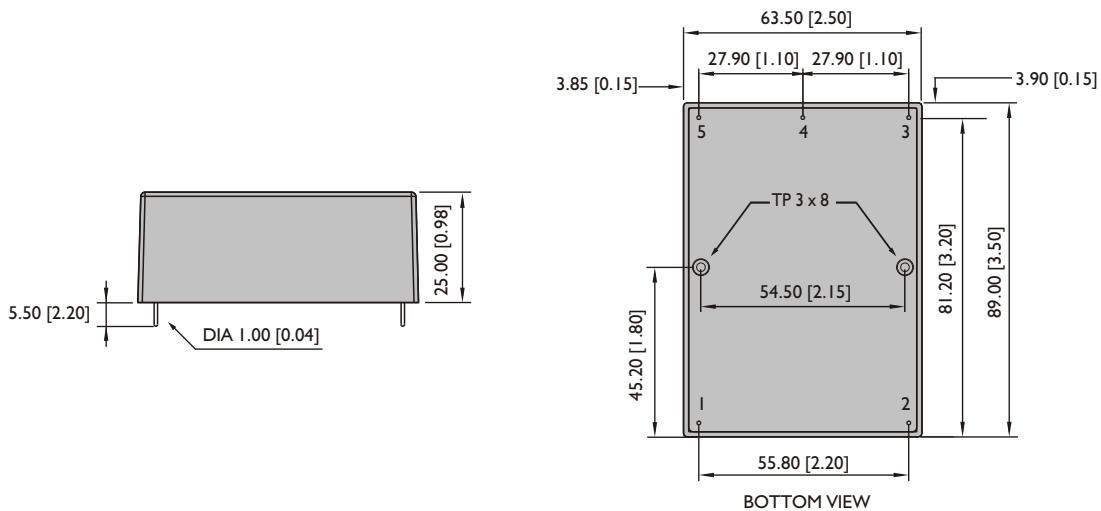
| | |
|----------------------|---|
| UL / cUL | UL 60950-1, UL 60601-1 Recognized |
| TUV | EN 60950-1, EN 60601-1 |
| CE | EN 60601-1-2, EN 55011, EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5 EN 61000-4-6, EN 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]



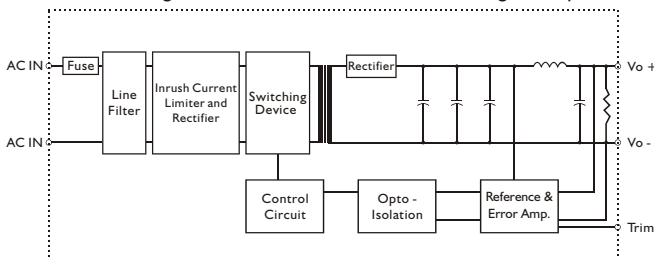
PIN ASSIGNMENT

GENERAL

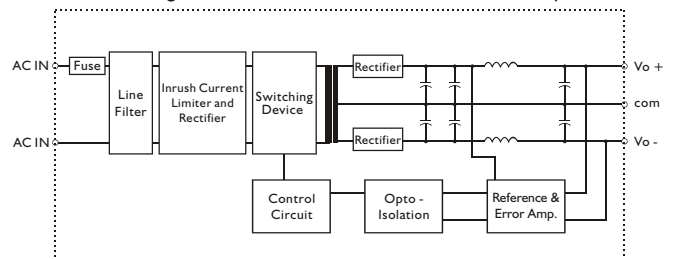
| PIN NO. | 1 | 2 | 3 | 4 | 5 |
|---------|----------|-------|-------|------|------|
| SINGLE | AC IN | AC IN | Vo + | Vo - | Trim |
| DUAL | 12D, 15D | AC IN | AC IN | com | Vo - |
| | 512D | AC IN | AC IN | +5V | +12V |
| | 524D | AC IN | AC IN | +5V | +24V |

CIRCUIT SCHEMATIC

• Block diagram for KAMN30 series with single output



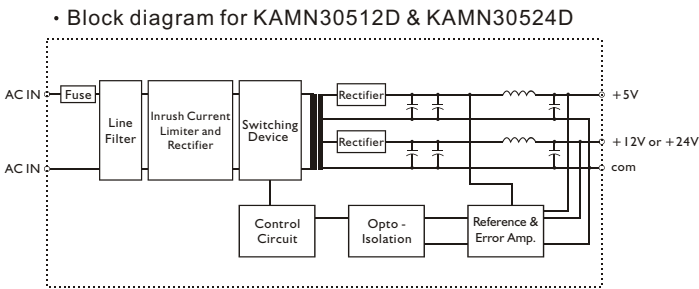
• Block diagram for KAMN30 series with dual output



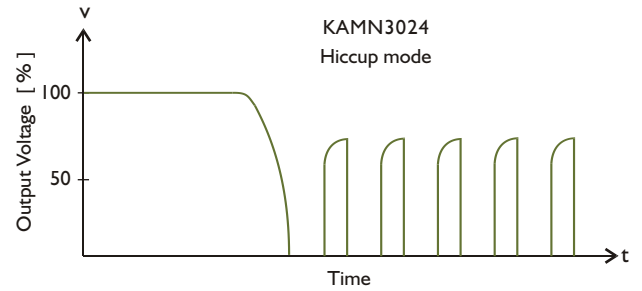
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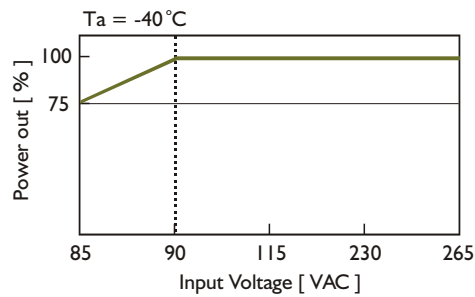
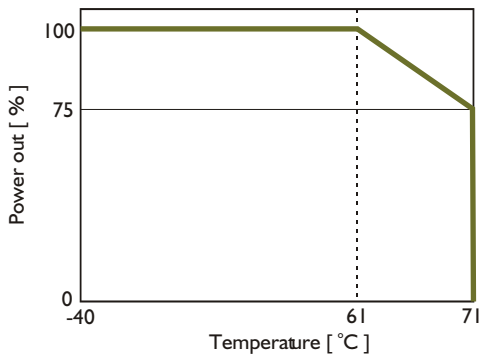
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

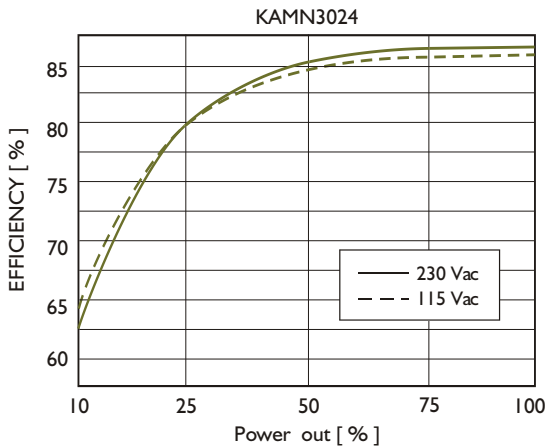


Fig. 1 Trim connection (For single output only)

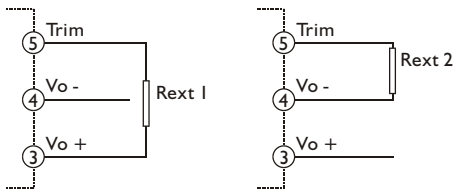


Table 1 Typical resistor values for various output voltage adjustment settings and max continuous power

| Type | Rext 1 | | Rext 2 | | Max continuous power |
|----------|------------|-------------|------------|-------------|----------------------|
| | Vo nom -5% | Vo nom -10% | Vo nom +5% | Vo nom +10% | |
| KAMN3003 | 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 | 5.1KΩ | 8.2KΩ | 0Ω | 30 W |