

Single output 5-25W AC-DC Board Mount Power Supplies

<https://product.tdk.com/en/power/kws-a>
www.emea.lambda.tdk.com/kws-a



Industrial



Test



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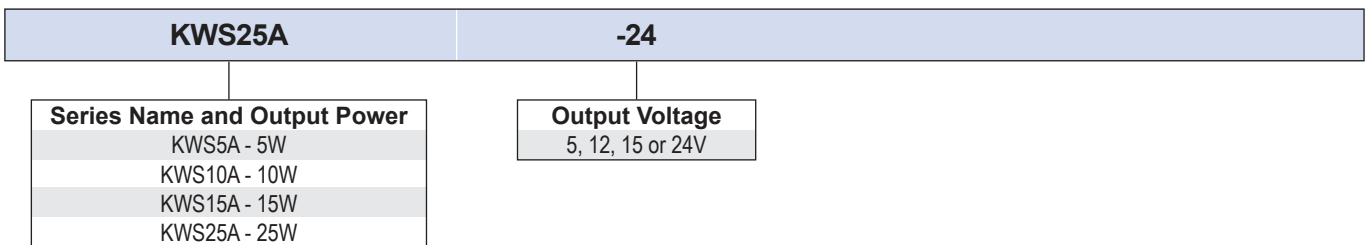


Broadcast

The industrial grade KWS-A series of 5W, 10W, 15W and 25W board mount power supplies offer high efficiency levels of up to 88% in compact package sizes and footprints. The KWS-A has a wide operating temperature range of -40 (start up) to +85°C with derating above 45/55°C and less than 0.5W off-load power consumption. These converters are Class II double insulated, allowing operation without an earth ground connection.

| Features | Benefits |
|--|---|
| • High Efficiency, Up to 88% | • Lower Operating Costs, Improved Thermal Performance |
| • Class B EMI with an External X Capacitor | • Minimal External Components Required |
| • Low No Load Power Consumption | • Energy Saving |
| • Wide Operating Temperature | • Operation In Harsh Environments |
| • Class II, Wide Range Input (85-265Vac) | • Global Application, No Earth Required |

| Model Selector | | | | | | | |
|----------------|--------------------|---------------------|-------------------|---------------|---------------|--------------------|------------------------------|
| Model | Output Voltage (V) | Maximum Current (A) | Maximum Power (W) | Load Reg (mV) | Line Reg (mV) | Ripple /Noise (mV) | Efficiency (typ)% 115/230Vac |
| KWS5A-5 | 5 | 1 | 5 | 40 | 20 | 200 | 76 / 74 |
| KWS10A-5 | 5 | 2 | 10 | 40 | 20 | 200 | 76 / 77 |
| KWS15A-5 | 5 | 3 | 15 | 40 | 20 | 200 | 77 / 78 |
| KWS25A-5 | 5 | 5 | 25 | 40 | 20 | 200 | 81 / 82 |
| KWS5A-12 | 12 | 0.45 | 5.4 | 96 | 48 | 240 | 78 / 75 |
| KWS10A-12 | 12 | 0.9 | 10.8 | 96 | 48 | 240 | 80 / 81 |
| KWS15A-12 | 12 | 1.3 | 15.6 | 96 | 48 | 240 | 81 / 83 |
| KWS25A-12 | 12 | 2.2 | 26.4 | 96 | 48 | 240 | 84 / 86 |
| KWS5A-15 | 15 | 0.35 | 5.3 | 120 | 60 | 240 | 79 / 75 |
| KWS10A-15 | 15 | 0.7 | 10.5 | 120 | 60 | 240 | 81 / 82 |
| KWS15A-15 | 15 | 1 | 15 | 120 | 60 | 240 | 82 / 84 |
| KWS25A-15 | 15 | 1.7 | 25.5 | 120 | 60 | 240 | 85 / 87 |
| KWS5A-24 | 24 | 0.22 | 5.3 | 150 | 96 | 240 | 80 / 77 |
| KWS10A-24 | 24 | 0.5 | 12 | 150 | 96 | 240 | 82 / 84 |
| KWS15A-24 | 24 | 0.7 | 16.8 | 150 | 96 | 240 | 82 / 85 |
| KWS25A-24 | 24 | 1.1 | 26.4 | 150 | 96 | 240 | 86 / 88 |



| Specifications | | KWS5A | KWS10A | KWS15A | KWS25A |
|---|-----|--|-------------|-------------|-------------|
| Input | | | | | |
| AC Input Voltage Range (Operating) | Vac | 85 - 265. Derate to 80% load from 100 to 85 input (KWS5A 90% load from 90 to 85) | | | |
| Nominal Input Voltage Range | Vac | 100 - 240 (Note: Safety certified for 90-264Vac only) | | | |
| DC Input Voltage Range | Vdc | 120 - 370 (Note: Safety certified for AC input only) | | | |
| Input Current (115/230Vac) | A | 0.13 / 0.07 | 0.25 / 0.13 | 0.33 / 0.24 | 0.56 / 0.34 |
| Inrush Current at 200Vac (typ) (Cold Start) | A | 30 | | | |
| Leakage Current (264Vac) | uA | <250 | | | |
| Harmonic Compliance | - | Designed to meet IEC61000-3-2 | | | |
| No Load Power Consumption | W | <0.5. See evaluation data on website for measured results | | | |
| Hold Up Time (typ) at 115 / 230Vac Input ⁽¹⁾ | ms | 15 / 45 | 10 / 30 | | |
| Efficiency | - | See model selector table | | | |
| Conducted & Radiated EMI | - | EN55011/EN55032-A, FCC-A, VCCI-A. (External components are required for B, consult Evaluation Data) | | | |
| Immunity | - | IEC61000-4-2, -3, -4, -5, -6, -8, -11; IEC61000-6-2 (See immunity table below and immunity reports on website) | | | |
| Insulation Class | - | Class II | | | |
| Safety Certifications and Markings | - | IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark | | | |

| Immunity | | | | |
|--------------------------------------|--------------|--|----------|--|
| Test | Standard | Test Level | Criteria | Notes |
| ESD | EN61000-4-2 | Air ±8kV and contact ±4kV | B | See immunity reports on website for more details |
| Radiated Susceptibility | EN61000-4-3 | 80M -1GHz: 10V/m 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m | A | |
| Electrical Fast Transient Burst | EN61000-4-4 | ± 2kV | B | |
| Surge | EN61000-4-5 | Normal Mode ± 1kV | B | |
| Conducted Susceptibility | EN61000-4-6 | 10Vm/s | A | |
| Magnetic fields | EN61000-4-8 | 30A/m | A | |
| Voltage Dips and Input Interruptions | EN61000-4-11 | 30% 500ms 60% 10ms 100% 20ms 100% 5000ms | B | |

| Specifications | | KWS5A | KWS10A | KWS15A | KWS25A |
|-----------------------------|------|---|---------------------------------|---------------------------------|----------------------------------|
| Output | | | | | |
| Output Voltage Tolerance | % | ±5 | | | |
| Output Voltage Adjustment | - | None | | | |
| Switching Frequency (Fixed) | kHz | 130 | | | |
| Line Regulation | - | See model selector table | | | |
| Load Regulation | - | See model selector table | | | |
| External Load Capacitance | uF | 5V: 2000, 12/15: 820, 24V: 330 | 5V: 2000, 12/15: 1000, 24V: 390 | 5V: 2000, 12/15: 1000, 24V: 560 | 5V: 4700, 12/15: 2200, 24V: 1500 |
| Ripple & Noise | - | See model selector table | | | |
| Temperature Coefficient | %/°C | 0.02 | | | |
| Minimum Load | - | No minimum load required | | | |
| Overcurrent Protection | % | >105. Hiccup with auto recovery | | | |
| Overvoltage Protection | V | 5V: 5.75 - 7, 12V: 13.8 - 18.3, 15V: 17.25 - 22.4, 24V: 27.6 - 34.0 | | | |
| Parallel Operation | - | Not possible | | | |

| Specifications | | KWS5A | KWS10A | KWS15A | KWS25A |
|----------------------------------|--------|---|--------------------|------------------|------------------|
| Environmental | | | | | |
| Operating Temperature | °C | -40 start-up; -10 to +85. Derate linearly to 10% load from +55 to +85 ⁽²⁾ | | | |
| Storage Temperature | °C | -40 to +85 | | | |
| Humidity (non condensing) | %RH | 30 - 90 Operating, 20 - 95 Storage | | | |
| Cooling | - | Convection | | | |
| Altitude | m | 3000 | | | |
| Withstand Voltage (For 1 minute) | Vac | Input to Output 3,000 | | | |
| Isolation Resistance | MΩ | >100 at 25°C, 70%RH & 500VDC | | | |
| Vibration (non operating) | - | 10-55Hz (Sweep for 1min.) Amplitude 1.65 mm (Max 10G, 98m/s ²) Constant X,Y,Z 1 hour each | | | |
| Shock (non operating) | - | Less than 50G (490m/s ²), 11ms, ±X, ±Y, ±Z 3 times each | | | |
| Other | | | | | |
| Weight (Typ) | g | 35 | 35 | 60 | 85 |
| Size (LxWxH) | mm | 38.1 x 25.4 x 21.5 | 38.1 x 25.4 x 21.5 | 50.8 x 25.4 x 24 | 63.5 x 25.4 x 29 |
| Size (LxWxH) | Inches | 1.5 x 1.0 x 0.85 | 1.5 x 1.0 x 0.85 | 2.0 x 1.0 x 0.94 | 2.5 x 1.0 x 1.14 |
| Case Material | - | Plastic, UL94V0 | | | |
| MTBF - Telcordia SR-332 issue 3* | Hours | 14,416,059 | 7,784,121 | 8,202,502 | 5,747,627 |
| Warranty | yrs | 3 | | | |

Notes:

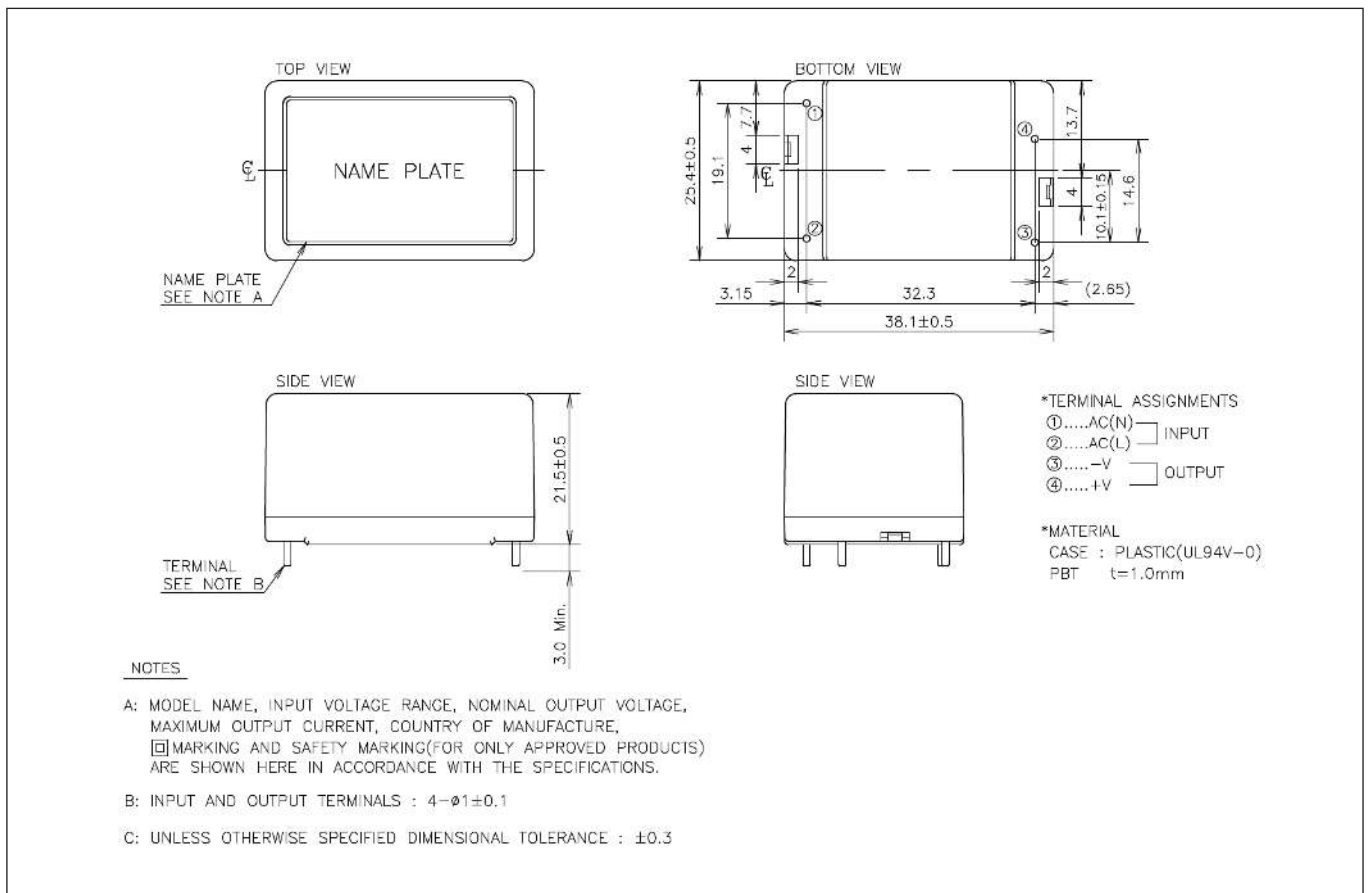
See website for detailed specifications, test methods and installation manual

*24V model, 25°C ambient, full load, 230Vac Input

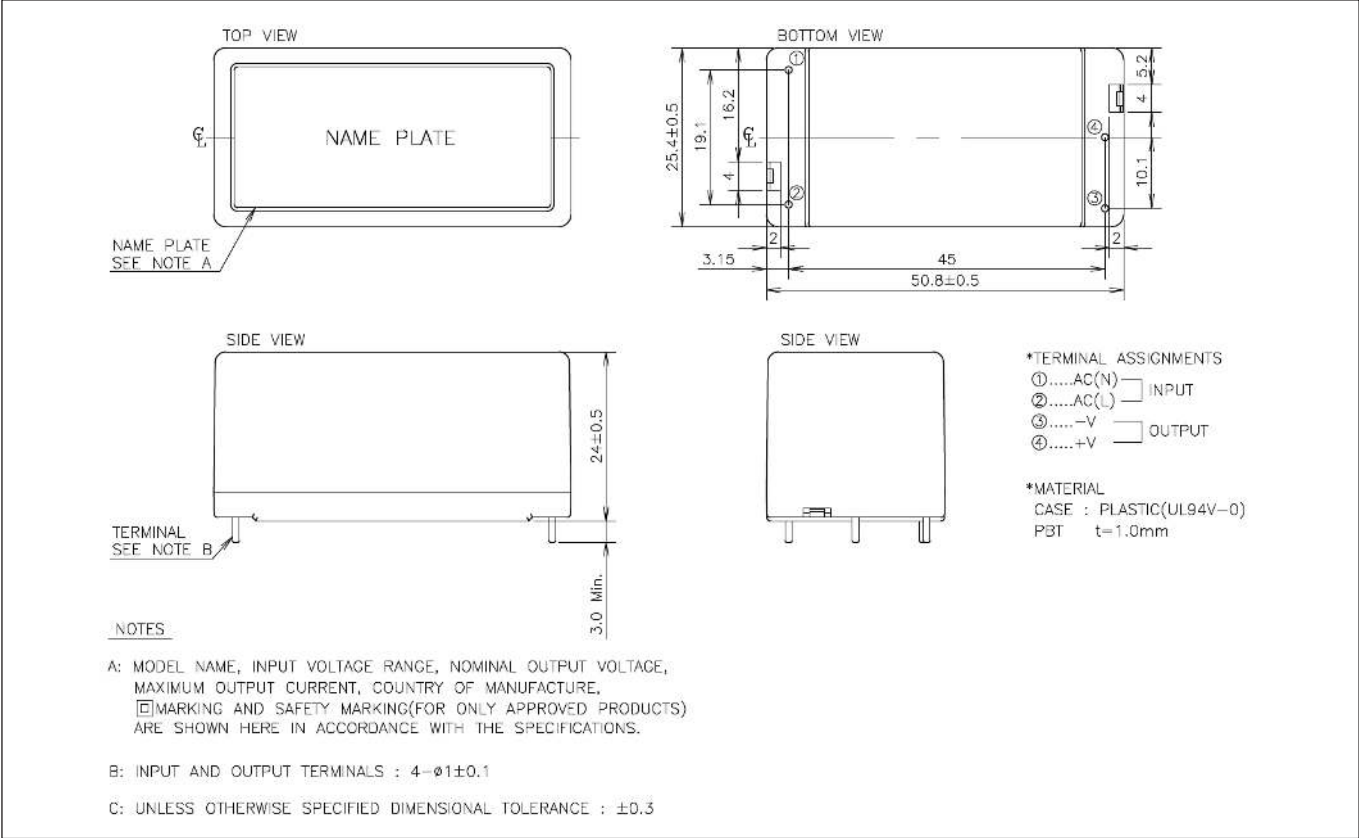
(1) At 100Vac and 115Vac with 80% load (70% load for KWSA10), 200Vac and 230Vac with 100% load

(2) KWS10A-5, KWS15A-5, KWS25A-5: Derate linearly to 10% load from +45 to +85°C

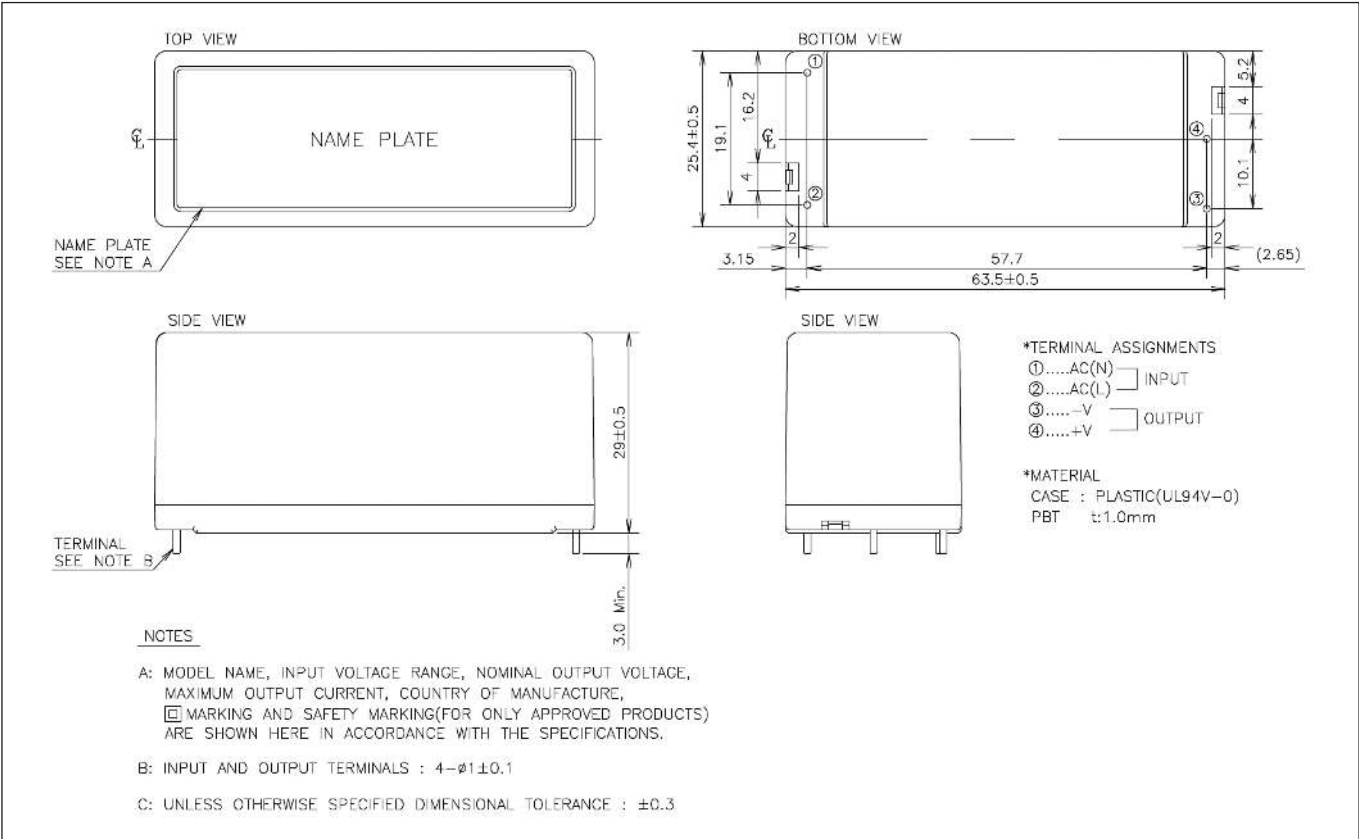
KWS5A, KWS10A Outline Drawing



KWS15A Outline Drawings & Pin Out



KWS25A Outline Drawings & Pin Out





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