

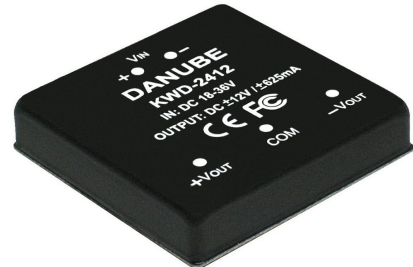
KW SERIES

15W WIDE INPUT RANGE

DANUBE

FEATURES

- 15W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- 9-18V,18-36V,36-72V,9-27V,18-54V, 9-36V,18-72V WIDE INPUT RANGE
- NO EXTERNAL COMPONENTS REQUIRED
- REGULATED OUTPUT
- 100% BURN IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS

| | |
|---------------------------------------|------------------|
| Voltage Setpoint Accuracy | +/-2% max |
| Temperature Coefficient | +/-0.05%/°C |
| Ripple & Noise(20MHz BW) ¹ | 100mVp-p max |
| Line Regulation ² | +/-0.5% max |
| Load Regulation ³ | +/-0.5% max |
| Minimum Load | 10% of Full Load |
| Short Circuit Protection | Continuous |
| Short Circuit Restart | Automatic |
| Over Load Protection | 180% Typ |
| Transient Response ⁵ | 200uS max |

ENVIRONMENTAL SPECIFICATIONS

| | |
|----------------------------|---------------------|
| Operating Temperature | -25°C to +71°C |
| Operating Temperature Case | -25°C to +90°C |
| Storage Temperature | -55°C to +125°C |
| Humidity | 95% max |
| Cooling | Free-Air Convection |

INPUT SPECIFICATIONS

| | |
|---------------------|-------------------------|
| Input Voltage Range | 2:1 3:1 4:1 Input Range |
| Input Filter | Pi Network |
| Protection | Fuse Recommended |

GENERAL SPECIFICATIONS

| | |
|--------------------------------|---|
| Efficiency | 70% min |
| Isolation Voltage ⁴ | 1500 VDC min Standard Models 3000 VDC min Suffix "3K" Models |
| Isolation Resistance | 10 ⁹ ohms min |
| Isolation Capacitance | 550pF max |
| Switching Frequency | 150 KHz min |
| MTBF ⁶ | >320,000 Hours |
| Weight | 60.0g Typ |
| Case Material | Six-Side Shielded Case |
| Case Size | 50.8mm*50.8mm*11mm |
| Potting Material | Epoxy(UL94-V0) |
| Conducted Emissions | EN55022 Class A |
| Radiated Emissions | EN55022 Class A |

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD , AND 25° C UNLESS OTHERWISE NOTED.

¹ Measured with 1uF ceramic capacitor connect to the output pins.

² High Line to Low Line.

³ Load Regulation is for output load current change from 10% to 100%.

⁴ 1500VDC for 10 seconds,3000VDC for 3 seconds.

⁵ 25% Step Load Change.

⁶ MIL-HDBK-217F @25 °C , Ground Benign.

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2013/07/01

● **SELECTION GUIDE(1)**
2:1 12W-15W OUTPUT

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ¹ CURRENT(mA) | | EFF (%) ² | CAPACITOR LOAD MAX. |
|-----------------|---------------------|----------------------|---------------------|--------------------------------|---------|----------------------|---------------------|
| | | | | FULL LOAD | NO LOAD | | |
| KWS-1203.3(-3K) | 9-18 | 3.3 | 3600 | 1320 | 40 | 75 | 2700uF |
| KWS-1205(-3K) | 9-18 | 5 | 3000 | 1623 | 40 | 77 | 2700uF |
| KWS-1209(-3K) | 9-18 | 9 | 1670 | 1580 | 30 | 79 | 2200uF |
| KWS-1212(-3K) | 9-18 | 12 | 1250 | 1563 | 40 | 80 | 1800uF |
| KWS-1215(-3K) | 9-18 | 15 | 1000 | 1545 | 38 | 81 | 1500uF |
| KWS-1224(-3K) | 9-18 | 24 | 625 | 1543 | 38 | 81 | 1000uF |
| KWD-1205(-3K) | 9-18 | +/-5 | +/-1500 | 1623 | 40 | 77 | +/-1200uF |
| KWD-1212(-3K) | 9-18 | +/-12 | +/-625 | 1563 | 40 | 80 | +/-820uF |
| KWD-1215(-3K) | 9-18 | +/-15 | +/-500 | 1525 | 38 | 82 | +/-680uF |
| KWD-1224(-3K) | 9-18 | +/-24 | +/-313 | 1510 | 40 | 83 | +/-560uF |
| KWS-2403.3(-3K) | 18-36 | 3.3 | 3600 | 643 | 20 | 77 | 2700uF |
| KWS-2405(-3K) | 18-36 | 5 | 3000 | 780 | 20 | 80 | 2700uF |
| KWS-2409(-3K) | 18-36 | 9 | 1670 | 770 | 20 | 81 | 2200uF |
| KWS-2412(-3K) | 18-36 | 12 | 1250 | 762 | 18 | 82 | 1800uF |
| KWS-2415(-3K) | 18-36 | 15 | 1000 | 762 | 18 | 82 | 1500uF |
| KWS-2424(-3K) | 18-36 | 24 | 625 | 753 | 18 | 83 | 1000uF |
| KWS-2427(-3K) | 18-36 | 27 | 556 | 749 | 21 | 83 | 820uF |
| KWD-2405(-3K) | 18-36 | +/-5 | +/-1500 | 750 | 20 | 83 | +/-1200uF |
| KWD-2412(-3K) | 18-36 | +/-12 | +/-625 | 762 | 18 | 82 | +/-820uF |
| KWD-2415(-3K) | 18-36 | +/-15 | +/-500 | 753 | 25 | 83 | +/-680uF |
| KWD-2424(-3K) | 18-36 | +/-24 | +/-313 | 750 | 35 | 83 | +/-560uF |
| KWS-4803.3(-3K) | 36-72 | 3.3 | 3600 | 321 | 10 | 77 | 660uF |
| KWS-4805(-3K) | 36-72 | 5 | 3000 | 396 | 10 | 79 | 660uF |
| KWS-4809(-3K) | 36-72 | 9 | 1670 | 385 | 10 | 81 | 470uF |
| KWS-4812(-3K) | 36-72 | 12 | 1250 | 381 | 9 | 82 | 470uF |
| KWS-4815(-3K) | 36-72 | 15 | 1000 | 381 | 9 | 82 | 470uF |
| KWS-4824(-3K) | 36-72 | 24 | 625 | 375 | 9 | 83 | 330uF |
| KWD-4805(-3K) | 36-72 | +/-5 | +/-1500 | 375 | 10 | 83 | +/-100uF |
| KWD-4812(-3K) | 36-72 | +/-12 | +/-625 | 381 | 9 | 82 | +/-100uF |
| KWD-4815(-3K) | 36-72 | +/-15 | +/-500 | 381 | 17 | 82 | +/-100uF |
| KWD-4824(-3K) | 36-72 | +/-24 | +/-313 | 375 | 9 | 83 | +/-100uF |

Note: Other input to output voltages may be available. Please contact factory.

ORDERING INFORMATION:

FOR EXAMPLE: **KW*-****-3K(Isolation Voltage For 3000VDC)**

¹ NOMINAL INPUT VOLTAGE.

² NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(2)**
3:1 15W OUTPUT

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ³ | | EFF (%) ⁴ | CAPACITOR LOAD MAX. |
|----------------|---------------------|----------------------|---------------------|--------------------|---------|----------------------|---------------------|
| | | | | CURRENT(mA) | | | |
| | | | | FULL LOAD | NO LOAD | | |
| KWS-1205G(-3K) | 9-27 | 5 | 3000 | 1623 | 40 | 77 | 2700uF |
| KWS-1209G(-3K) | 9-27 | 9 | 1670 | 1600 | 30 | 78 | 2200uF |
| KWS-1212G(-3K) | 9-27 | 12 | 1250 | 1562 | 40 | 80 | 1800uF |
| KWS-1215G(-3K) | 9-27 | 15 | 1000 | 1562 | 38 | 80 | 1500uF |
| KWS-1224G(-3K) | 9-27 | 24 | 625 | 1562 | 28 | 80 | 1000uF |
| KWD-1205G(-3K) | 9-27 | +/-5 | +/-1500 | 1623 | 40 | 77 | +/-1200uF |
| KWD-1212G(-3K) | 9-27 | +/-12 | +/-625 | 1562 | 40 | 80 | +/-820uF |
| KWD-1215G(-3K) | 9-27 | +/-15 | +/-500 | 1562 | 38 | 80 | +/-680uF |
| KWS-2405G(-3K) | 18-54 | 5 | 3000 | 791 | 20 | 79 | 2700uF |
| KWS-2409G(-3K) | 18-54 | 9 | 1670 | 782 | 20 | 80 | 2200uF |
| KWS-2412G(-3K) | 18-54 | 12 | 1250 | 771 | 18 | 81 | 1800uF |
| KWS-2415G(-3K) | 18-54 | 15 | 1000 | 762 | 18 | 82 | 1500uF |
| KWS-2424G(-3K) | 18-54 | 24 | 625 | 762 | 15 | 82 | 1000uF |
| KWD-2405G(-3K) | 18-54 | +/-5 | +/-1500 | 791 | 20 | 79 | +/-1200uF |
| KWD-2412G(-3K) | 18-54 | +/-12 | +/-625 | 771 | 18 | 81 | +/-820uF |
| KWD-2415G(-3K) | 18-54 | +/-15 | +/-500 | 762 | 18 | 82 | +/-560uF |

Note: Other input to output voltages may be available. Please contact factory.

ORDERING INFORMATION:

FOR EXAMPLE: KW*-**-3K(Isolation Voltage For 300VDC)**

³ NOMINAL INPUT VOLTAGE.

⁴ NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(3)**
4:1 15W OUTPUT

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ⁵ | | EFF (%) ⁶ | CAPACITOR LOAD MAX. |
|----------------|---------------------|----------------------|---------------------|--------------------|---------|----------------------|---------------------|
| | | | | CURRENT(mA) | | | |
| | | | | FULL LOAD | NO LOAD | | |
| KWS-1203.3TA | 9-36 | 3.3 | 4000 | 1430 | 40 | 77 | 2700uF |
| KWS-1205T(-3K) | 9-36 | 5 | 3000 | 1623 | 40 | 77 | 2700uF |
| KWS-1209T(-3K) | 9-36 | 9 | 1670 | 1600 | 30 | 78 | 2200uF |
| KWS-1212T(-3K) | 9-36 | 12 | 1250 | 1562 | 40 | 80 | 1800uF |
| KWS-1215T(-3K) | 9-36 | 15 | 1000 | 1562 | 38 | 80 | 1500uF |
| KWS-1224T(-3K) | 9-36 | 24 | 625 | 1562 | 28 | 80 | 1000uF |
| KWD-1205T(-3K) | 9-36 | +/-5 | +/-1500 | 1623 | 40 | 77 | +/-1200uF |
| KWD-1212T(-3K) | 9-36 | +/-12 | +/-625 | 1562 | 40 | 80 | +/-820uF |
| KWD-1215T(-3K) | 9-36 | +/-15 | +/-500 | 1562 | 38 | 80 | +/-680uF |
| KWS-2405T(-3K) | 18-72 | 5 | 3000 | 791 | 20 | 79 | 2700uF |
| KWS-2409T(-3K) | 18-72 | 9 | 1670 | 782 | 20 | 80 | 2200uF |
| KWS-2412T(-3K) | 18-72 | 12 | 1250 | 771 | 18 | 81 | 1800uF |
| KWS-2415T(-3K) | 18-72 | 15 | 1000 | 762 | 18 | 82 | 1500uF |
| KWS-2424T(-3K) | 18-72 | 24 | 625 | 780 | 18 | 80 | 1000uF |
| KWD-2405T(-3K) | 18-72 | +/-5 | +/-1500 | 791 | 20 | 79 | +/-1200uF |
| KWD-2412T(-3K) | 18-72 | +/-12 | +/-625 | 771 | 18 | 81 | +/-820uF |
| KWD-2415T(-3K) | 18-72 | +/-15 | +/-500 | 762 | 18 | 82 | +/-680uF |

Note: Other input to output voltages may be available. Please contact factory.

ORDERING INFORMATION:

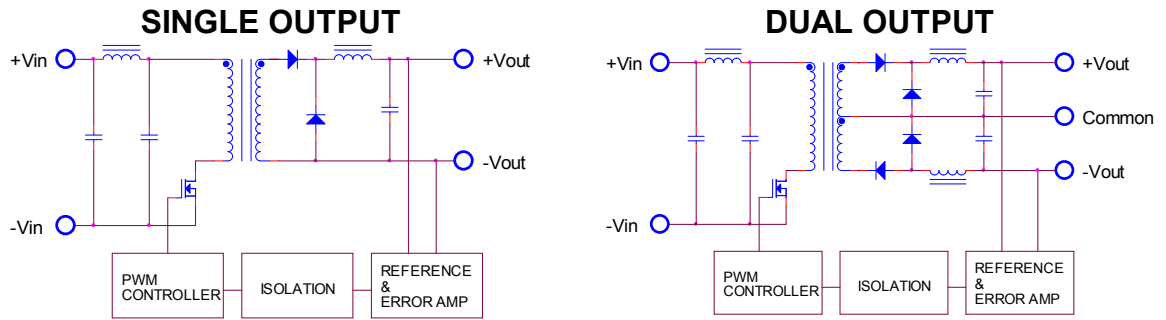
FOR EXAMPLE: KW*-**-3K(Isolation Voltage For 3000VDC)**

KWS-1203.3A(PACKAGE "A" For REMOTE CONTROL)

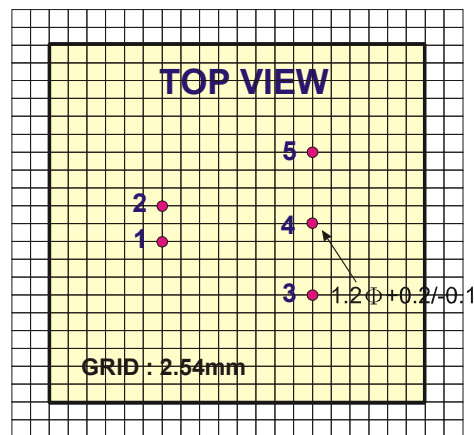
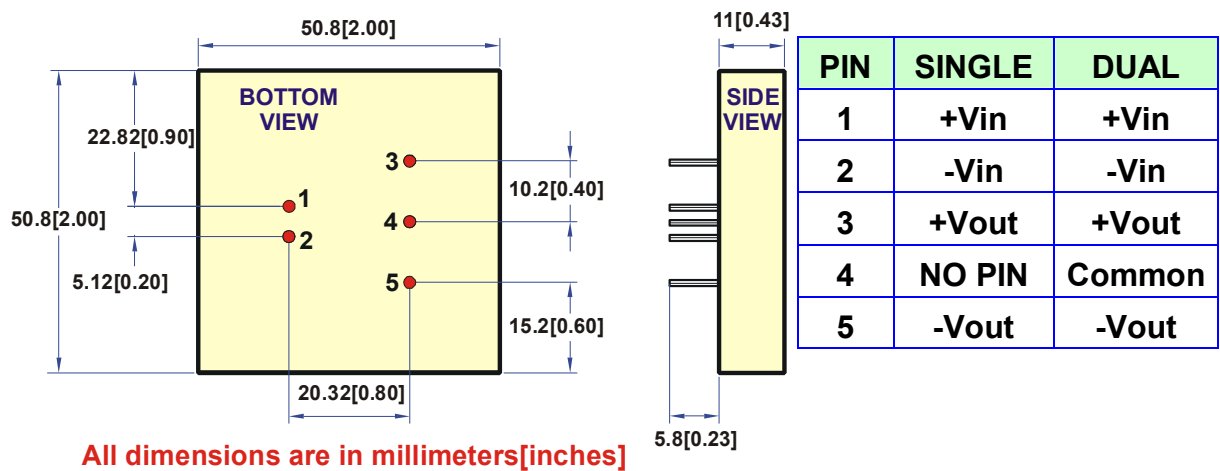
⁵ NOMINAL INPUT VOLTAGE.

⁶ NOMINAL INPUT VOLTAGE, FULL LOAD.

● SIMPLIFIED SCHEMATIC

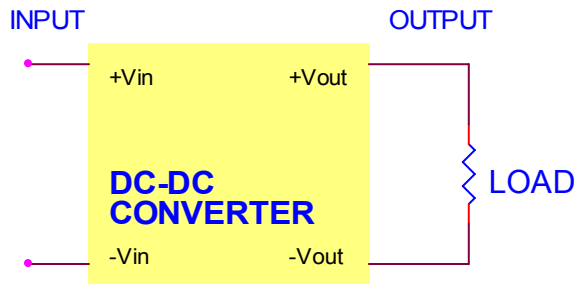


● MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

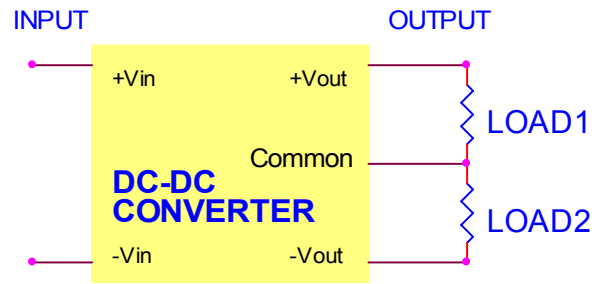


● TYPICAL APPLICATIONS

SINGLE OUTPUT



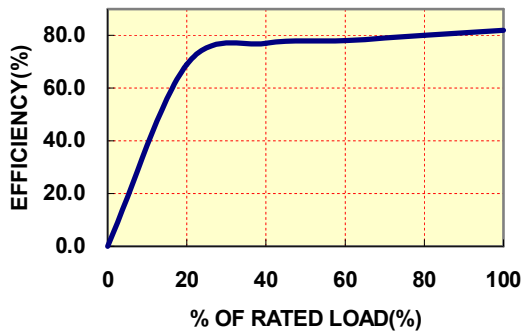
DUAL OUTPUT



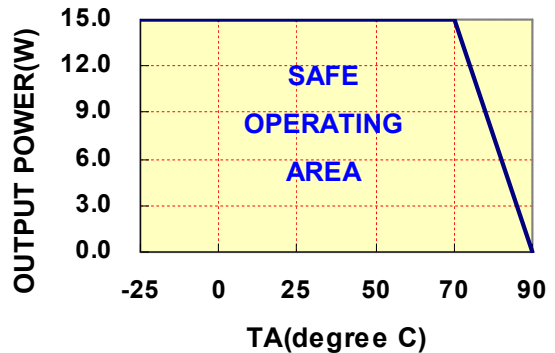
● TYPICAL PERFORMANCE CURVES

Specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

OUTPUT LOAD VS EFFICIENCY



TEMPERATURE DERATING



● INPUT FUSE SELECTION GUIDE

| 9-18V or 9-27V or 9-36V INPUT VOLTAGE(VDC) | 18-36V or 18-54V or 18-72V INPUT VOLTAGE(VDC) | 36-72V INPUT VOLTAGE(VDC) |
|---|--|------------------------------|
| 3000mA Slow-Blow Type | 1500mA Slow-Blow Type | 750mA Slow-Blow Type |

Note: Certain applications may require the installation of external fuse in front of the input.

KW SERIES APPLICATION NOTES:

EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the KW series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 220KHz is required.

External output capacitance is not required for operation, however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

Additional output capacitance may be added for increased filtering, but should not exceed 1000uF.

We Can Offer EMC-Filter According To EN55011/22 Class B.

Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

FOR MORE INFORMATION CALL:

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Home Page

<http://www.danube.com.tw>
