

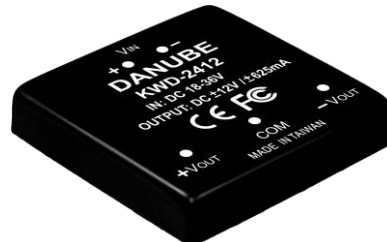
KW SERIES

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
- REGULATED OUTPUT
- 100% BURN IN
- 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
Start up time (Nominal input) Vin: 12V & 24V	25ms max.
Start up time (Nominal input) Vin: 48V	1.5s max.

GENERAL SPECIFICATIONS

Efficiency	75% typ.
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(UL94V-0)
Radiated Emissions	EN55032 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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2020/03/23

● 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	1800uF
KWS-1205(-3K)	9-18	5	3000	1623	40	77	1800uF
KWS-1209(-3K)	9-18	9	1670	1580	30	79	1800uF
KWS-1212(-3K)	9-18	12	1250	1563	40	80	1500uF
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	+/-820uF
KWD-1212(-3K)	9-18	+/-12	+/-625	1563	40	80	+/-680uF
KWD-1215(-3K)	9-18	+/-15	+/-500	1525	38	82	+/-560uF
KWD-1224(-3K)	9-18	+/-24	+/-313	1510	40	83	+/-470uF
KWS-2403.3(-3K)	18-36	3.3	3600	643	20	77	1800uF
KWS-2405(-3K)	18-36	5	3000	780	20	80	1800uF
KWS-2409(-3K)	18-36	9	1670	770	20	81	1800uF
KWS-2412(-3K)	18-36	12	1250	762	18	82	1500uF
KWS-2415(-3K)	18-36	15	1000	762	18	82	1500uF
KWS-2424(-3K)	18-36	24	625	781	18	80	1000uF
KWS-2427(-3K)	18-36	27	556	749	21	83	820uF
KWD-2405(-3K)	18-36	+/-5	+/-1500	750	20	83	+/-820uF
KWD-2412(-3K)	18-36	+/-12	+/-625	762	18	82	+/-680uF
KWD-2415(-3K)	18-36	+/-15	+/-500	753	25	83	+/-560uF
KWD-2424(-3K)	18-36	+/-24	+/-313	750	35	83	+/-470uF
KWS-4803.3(-3K)	36-72	3.3	3600	321	10	77	1800uF
KWS-4805(-3K)	36-72	5	3000	396	10	79	1800uF
KWS-4809(-3K)	36-72	9	1670	385	10	81	680uF
KWS-4812(-3K)	36-72	12	1250	381	9	82	680uF
KWS-4815(-3K)	36-72	15	1000	381	9	82	560uF
KWS-4824(-3K)	36-72	24	625	375	9	83	470uF
KWD-4805(-3K)	36-72	+/-5	+/-1500	375	10	83	+/-820uF
KWD-4812(-3K)	36-72	+/-12	+/-625	381	9	82	+/-330uF
KWD-4815(-3K)	36-72	+/-15	+/-500	381	17	82	+/-220uF
KWD-4824(-3K)	36-72	+/-24	+/-313	375	9	83	+/-220uF

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 CURRENT(mA)		EFF (%) ⁴	CAPACITOR LOAD MAX.
				FULL LOAD	NO LOAD		
KWS-1205G(-3K)	9-27	5	3000	1623	40	77	1800uF
KWS-1209G(-3K)	9-27	9	1670	1600	30	78	1800uF
KWS-1212G(-3K)	9-27	12	1250	1562	40	80	1500uF
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	+/-820uF
KWD-1212G(-3K)	9-27	+/-12	+/-625	1562	40	80	+/-680uF
KWD-1215G(-3K)	9-27	+/-15	+/-500	1562	38	80	+/-560uF
KWS-2405G(-3K)	18-54	5	3000	791	20	79	1800uF
KWS-2409G(-3K)	18-54	9	1670	782	20	80	1800uF
KWS-2412G(-3K)	18-54	12	1250	771	18	81	1500uF
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	+/-820uF
KWD-2412G(-3K)	18-54	+/-12	+/-625	771	18	81	+/-680uF
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 3000VDC)**

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 CURRENT(mA)		EFF (%) ⁶	CAPACITOR LOAD MAX.
				FULL LOAD	NO LOAD		
KWS-1203.3TA	9-36	3.3	4000	1430	40	77	1800uF
KWS-1205T(-3K)	9-36	5	3000	1645	40	76	1800uF
KWS-1209T(-3K)	9-36	9	1670	1600	30	78	1800uF
KWS-1212T(-3K)	9-36	12	1250	1562	40	80	1500uF
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	+/-820uF
KWD-1212T(-3K)	9-36	+/-12	+/-625	1562	40	80	+/-680uF
KWD-1215T(-3K)	9-36	+/-15	+/-500	1562	38	80	+/-560uF
KWS-2405T(-3K)	18-72	5	3000	791	20	79	1800uF
KWS-2409T(-3K)	18-72	9	1670	782	20	80	1800uF
KWS-2412T(-3K)	18-72	12	1250	771	18	81	1500uF
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	+/-820uF
KWD-2412T(-3K)	18-72	+/-12	+/-625	771	18	81	+/-680uF
KWD-2415T(-3K)	18-72	+/-15	+/-500	762	18	82	+/-560uF

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

ORDERING INFORMATION:

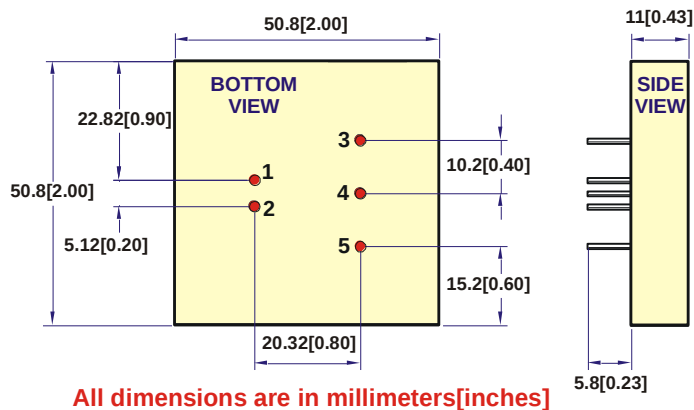
FOR EXAMPLE: **KW*-*****-3K(Isolation Voltage For 3000VDC)**

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

⁵ NOMINAL INPUT VOLTAGE.

⁶ NOMINAL INPUT VOLTAGE, FULL LOAD.

● MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS



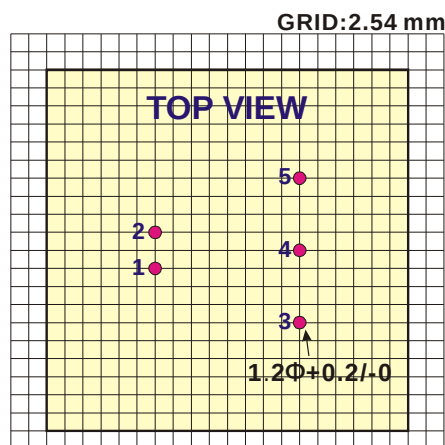
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	NP	Common
5	-Vout	-Vout

NOTE:

All dimensions are in millimeters [inches]

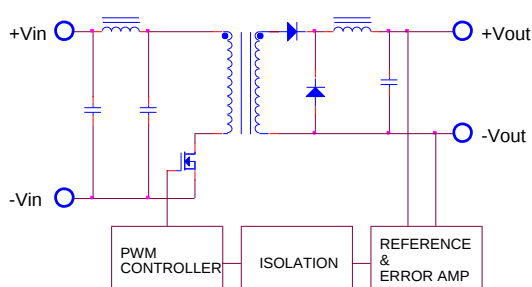
Pin Size is Tolerance $1.0\Phi \pm 0.10\text{mm}$

Tolerance .X or .XX = $\pm 0.5\text{mm}$

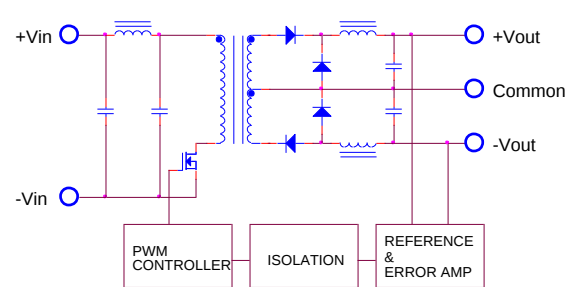


● SIMPLIFIED SCHEMATIC

SINGLE OUTPUT

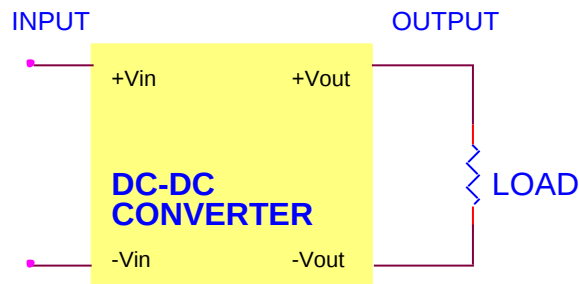


DUAL OUTPUT

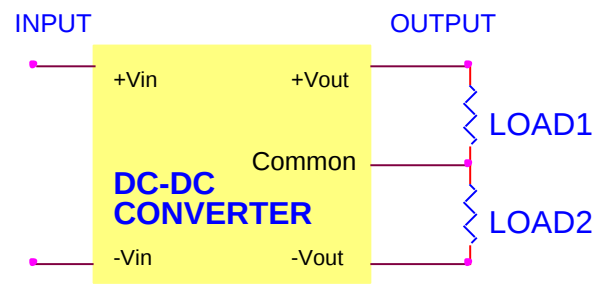


● TYPICAL APPLICATIONS

SINGLE OUTPUT



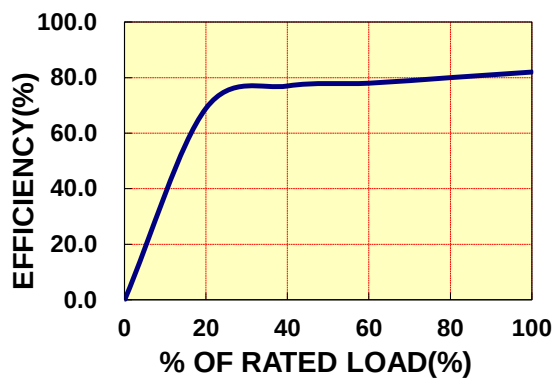
DUAL OUTPUT



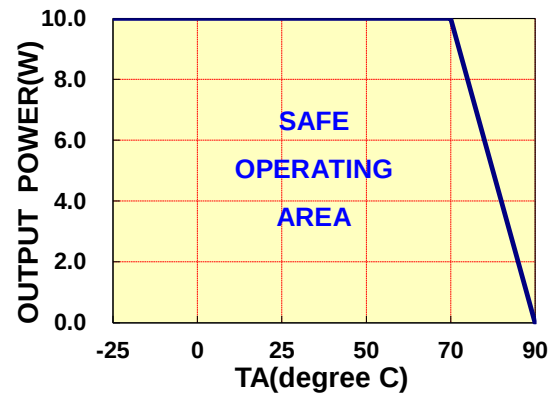
● TYPICAL PERFORMANCE CURVES

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

OUTPUT LOAD VS EFFICIENCY



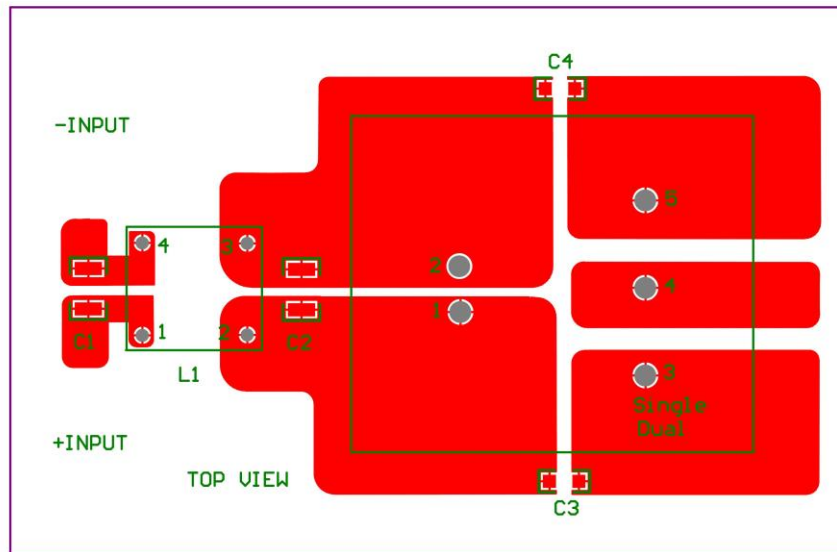
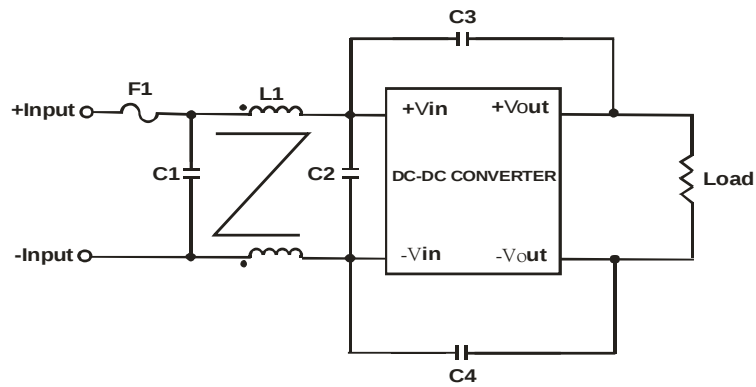
TEMPERATURE DERATING



● Recommended Filter for EN55032 Class B Compliance

The components used in the above figure, together with the manufacturer's part numbers for these components, are as follows:

	C1	C2	C3	C4	L1
KW*-12**(A)(-3K)	3.3uF/50V 1210 MLCC	N/A	1000pF/2KV or 1000pF/3KV MLCC	1000pF/2KV or 1000pF/3KV MLCC	325uH Common Choke
KW*-24**(A)(-3K) KW*-12**T(A)	3.3uF/50V 1210 MLCC	N/A	1000pF/2KV or 1000pF/3KV MLCC	1000pF/2KV or 1000pF/3KV MLCC	325uH Common Choke
KW*-48**(A)(-3K) KW*-24**T(A)	1.5uF/100V 1210 MLCC	1.5uF/100V 1812 MLCC	1000pF/2KV or 1000pF/3KV MLCC	1000pF/2KV or 1000pF/3KV MLCC	325uH Common Choke



Recommended EN55032 Class B Filter Circuit Layout

● 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 EN55032 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

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