

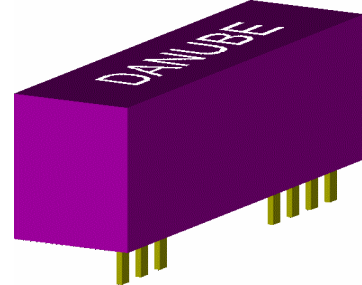
1R SERIES

1W REGULATED

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 1W REGULATED OUTPUT POWER
- 100% BURNED IN
- HIGH EFFICIENCY
- INTERNAL FILTERING
- LOW NOISE
- NO EXTERNAL COMPONENTS REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS

Voltage Setpoint Accuracy	+/-3% 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	Current Limit Protection
Short Circuit Restart	Automatic
Transient Response ⁵	200uS max

INPUT SPECIFICATIONS

Input Voltage Range	+/-10% max
Input Filter	Capacitor Typ
Protection	Fuse Recommended

GENERAL SPECIFICATIONS

Efficiency	60% min
Isolation Voltage ⁴	1000 VDC min
Isolation Resistance	10 ⁹ ohms min
Isolation Capacitance	80pF max
Switching Frequency	50KHz min
MTBF ⁶	>800,000 Hours
Weight	7.0g Typ
Case Material	Non-Conductive Plastic
Case Size	31.8mm*8.6mm*14.5mm
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A

ENVIRONMENTAL SPECIFICATIONS

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

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 For 10 seconds.

⁵ 25% Step Load Change.

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

● **SELECTION GUIDE(1)**
1W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁷ CURRENT(mA)		EFF (%) ⁸	ISOLATION (VDC)
				FULL LOAD	NO LOAD		
				1RS-0505	4.5-5.5		
1RS-0509	4.5-5.5	9	111	333	22	60	1000
1RS-0512	4.5-5.5	12	84	322	22	62	1000
1RS-0515	4.5-5.5	15	67	322	21	62	1000
1RD-0505	4.5-5.5	+/-5	+/-100	322	23	62	1000
1RD-0512	4.5-5.5	+/-12	+/-42	322	22	62	1000
1RD-0515	4.5-5.5	+/-15	+/-34	322	21	62	1000
1RS-1205	10.8-13.2	5	200	124	15	67	1000
1RS-1209	10.8-13.2	9	111	134	15	62	1000
1RS-1212	10.8-13.2	12	84	130	15	64	1000
1RS-1215	10.8-13.2	15	67	132	15	63	1000
1RD-1205	10.8-13.2	+/-5	+/-100	124	15	67	1000
1RD-1212	10.8-13.2	+/-12	+/-42	130	15	64	1000
1RD-1215	10.8-13.2	+/-15	+/-34	132	15	63	1000
1RS-2405	21.6-26.4	5	200	61	7	68	1000
1RS-2409	21.6-26.4	9	111	64	6	65	1000
1RS-2412	21.6-26.4	12	84	60	6	70	1000
1RS-2415	21.6-26.4	15	67	60	6	70	1000
1RD-2405	21.6-26.4	+/-5	+/-100	61	7	68	1000
1RD-2412	21.6-26.4	+/-12	+/-42	66	6	64	1000
1RD-2415	21.6-26.4	+/-15	+/-34	60	6	70	1000

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

⁷ NOMINAL INPUT VOLTAGE.

⁸ NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(2)**
0.5W~1W OUTPUT

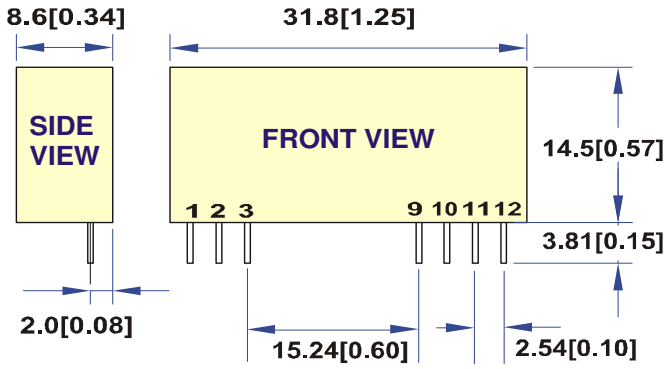
MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁹ CURRENT(mA)		EFF (%) ¹⁰	ISOLATION (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
1RS-0505Y	4.5-5.5	5	200	322	23	62	1000	Y
1RS-0509Y	4.5-5.5	9	111	333	22	60	1000	Y
1RS-0512Y	4.5-5.5	12	84	322	22	62	1000	Y
1RS-0515Y	4.5-5.5	15	67	322	21	62	1000	Y
1RS-1205Y	10.8-13.2	5	200	124	15	67	1000	Y
1RS-1209Y	10.8-13.2	9	111	134	15	62	1000	Y
1RS-1212Y	10.8-13.2	12	84	130	15	64	1000	Y
1RS-1215Y	10.8-13.2	15	67	132	15	63	1000	Y
1RS-2405Y	21.6-26.4	5	200	61	7	68	1000	Y
1RS-2409Y	21.6-26.4	9	111	64	6	65	1000	Y
1RS-2412Y	21.6-26.4	12	84	60	6	70	1000	Y
1RS-2415Y	21.6-26.4	15	67	60	6	70	1000	Y

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

⁹ NOMINAL INPUT VOLTAGE.

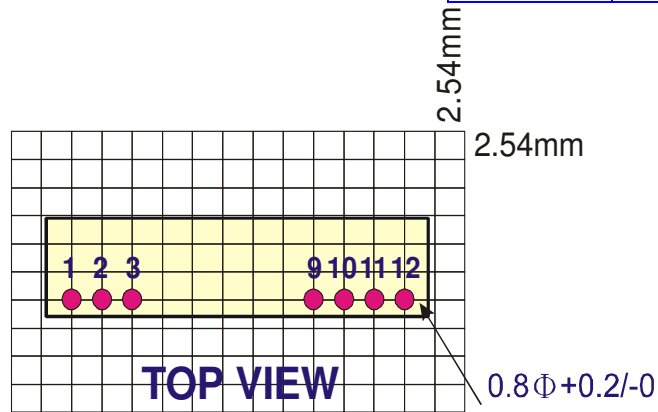
¹⁰ NOMINAL INPUT VOLTAGE, FULL LOAD.

● **MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS**

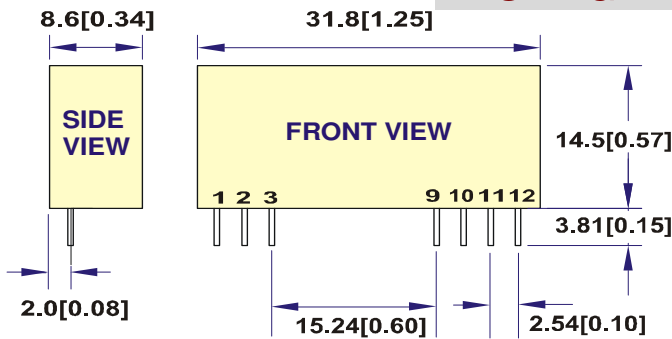


PIN	SINGLE	DUAL
1	+Vin	+Vin
2	NC	-Vout
3	NC	Common
9	NC	NC
10	-Vout	Common
11	+Vout	+Vout
12	-Vin	-Vin

All dimensions are in millimeters[inches]

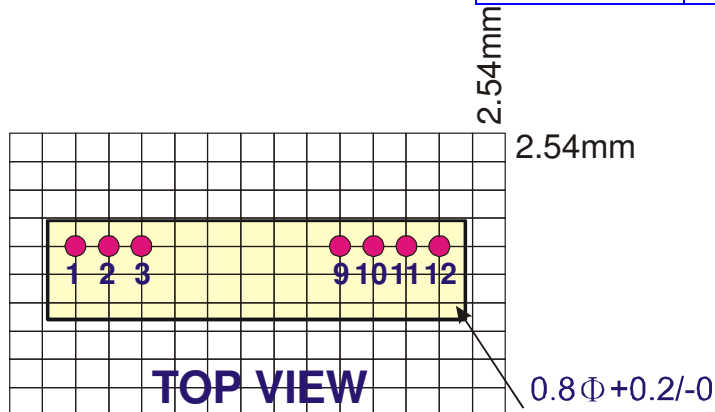


PACKAGE "Y"

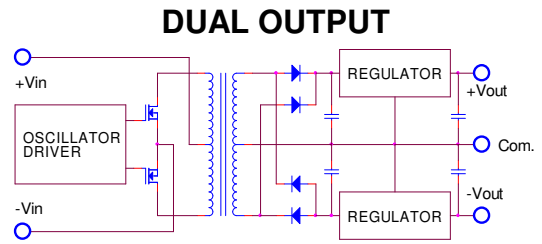
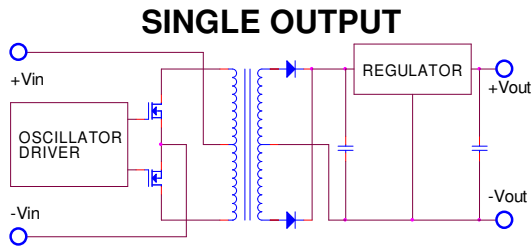


PIN	SINGLE
1	+Vin
2	NC
3	NC
9	NC
10	-Vout
11	+Vout
12	-Vin

All dimensions are in millimeters[inches]

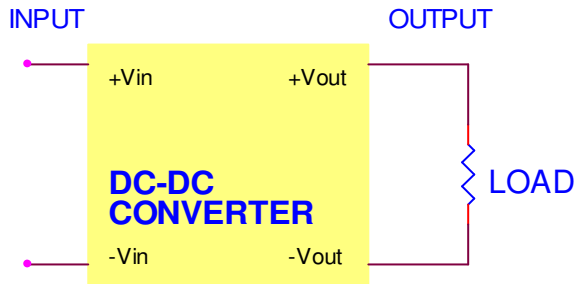


● SIMPLIFIED SCHEMATIC

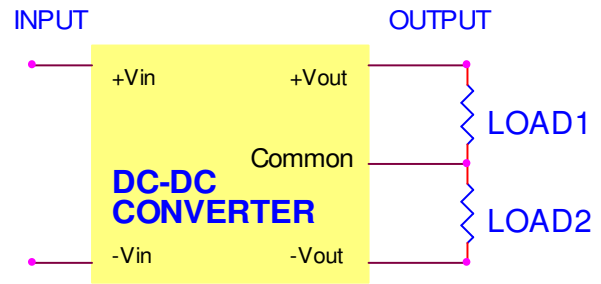


● TYPICAL APPLICATIONS

SINGLE OUTPUT



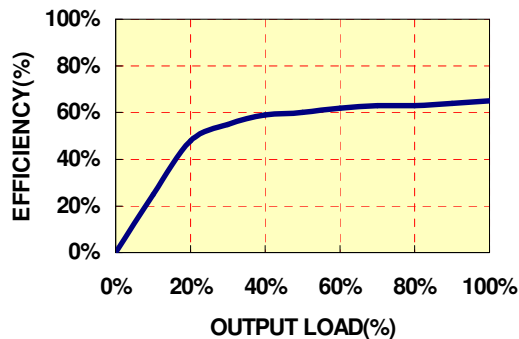
DUAL OUTPUT



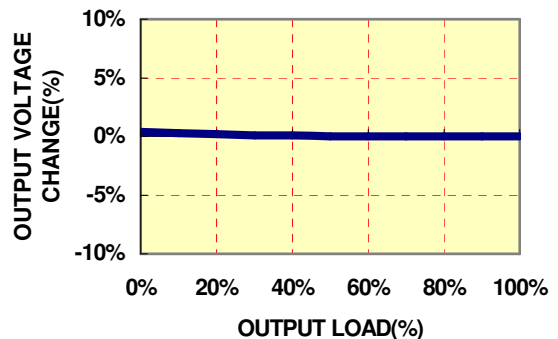
● TYPICAL PERFORMANCE CURVES

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

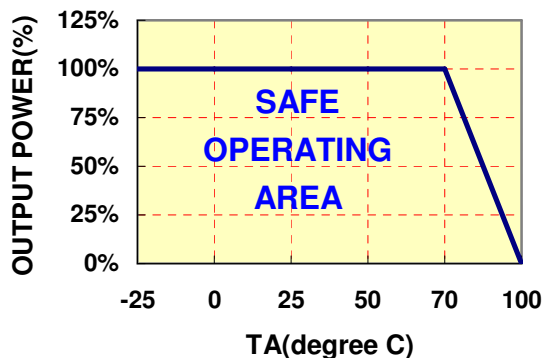
OUTPUT LOAD VS EFFICIENCY



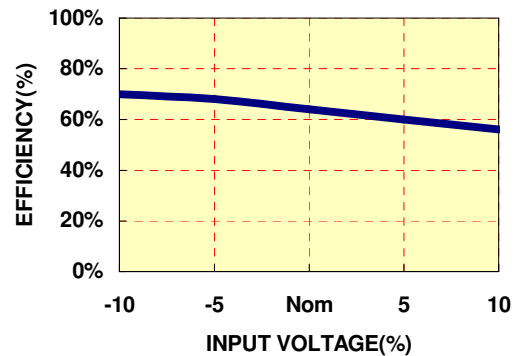
OUTPUT LOAD VS OUTPUT VOLTAGE



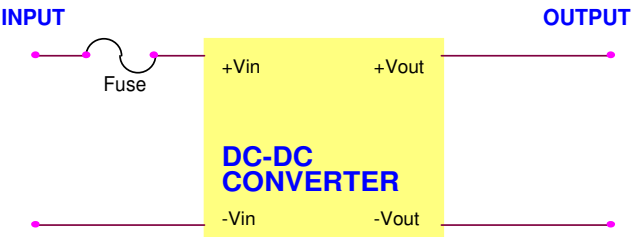
TEMPERATURE DERATING



INPUT VOLTAGE VS EFFICIENCY



● INPUT FUSE SELECTION GUIDE

4.5-5.5V INPUT VOLTAGE(VDC)	10.8-13.2V INPUT VOLTAGE(VDC)	21.6-26.4V INPUT VOLTAGE(VDC)
500mA Slow-Blow Type	250mA Slow-Blow Type	100mA Slow-Blow Type
		

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

1R SERIES APPLICATION NOTES:

EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the 1R series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 100KHz 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 220uF.

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

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