

- Up to 3.0 watts output power
- 100 Megohm isolation at 500 Vdc
- Standard 24-pin DIP package
- Thick film hybrid technology
- 5 input voltage ranges — 5, 12, 24, 28, 48 Vdc
- Single and dual outputs
- No external components required
- Solid-potted epoxy module

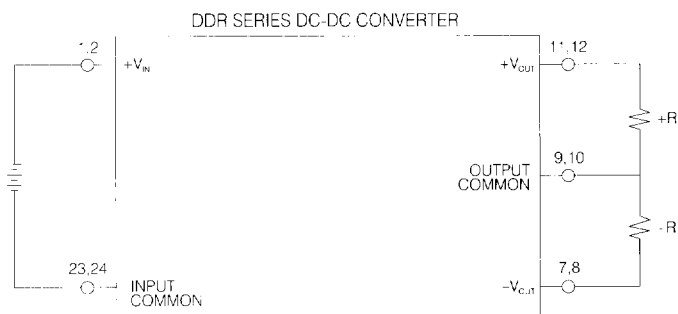
The DDR series is a line of dc-dc converters in a 24-pin double-DIP encapsulated package. The DDR models are isolated, regulated output converters, with power outputs up to 3 watts. Standard models are available with input voltages of 5, 12, 24, 28 or 48 volts and output voltages of +5, ± 12 or ± 15 volts. See the table on the back for more details and model numbers.

The converters utilize a non-saturating core circuit, operating at a frequency of approximately 100 kHz, which reduces reflected input ripple and minimizes EMI/RFI problems. They are designed to operate over an ambient temperature range of -20°C to $+70^{\circ}\text{C}$ with no heat sinks. The case temperature should not be allowed to exceed 85°C to prevent internal damage.

The DDR converters are capable of being used in a wide range of applications within the electrical limits shown above. Balanced loads are not required, but the total combined P_O should not exceed the maximum ratings as shown in the electrical specifications. The converter can be started reliably by applying the full input voltage or ramping up the input voltage.

Users may elect to use a dual output DDR converter to provide a single output at double the rated output voltage. The double voltage connection is achieved by leaving the normal output common pin unconnected and using either the positive or negative V_{OUT} pin for the output common connection.

TYPICAL APPLICATION:



DDR DC-DC CONVERTER TYPICAL CONNECTION DIAGRAM

Figure 1

TYPICAL CHARACTERISTICS: $T_A = 25^\circ\text{C}$ and $V_{IN} = \text{nominal}$ unless specified otherwise.

INPUT VOLTAGE RANGE: 5V models – 4.5 to 5.5 Vdc;

12V models – 10.8 to 14.0 Vdc;

24V models – 20.0 to 28.0 Vdc;

28V models – 24.0 to 32.0 Vdc;

48V models – 44.0 to 56.0 Vdc

OUTPUT VOLTAGE TOLERANCE: ± 0.25 Vdc maximum on 5V output models and $\pm 1\%$ maximum on dual output models.

LOAD REGULATION: 50mV on 5V output models and 5 mV on dual output models, from no load to full load.

LINE REGULATION: 20mV on 5V output models and 5mV on dual output models, from low line to high line, at full load (Except DDR0512DT and DDR0515DT, which are specified at 80% of full load from low line to high line. Full load operation on those models is permitted from 4.75 to 5.5 V_{IN}).

ISOLATION: 100 Megohm minimum at 500 Vdc.

CONVERTER FREQUENCY: 50 kHz on 5V input models and 140 kHz on 12V, 24V, 28V and 48V input models.

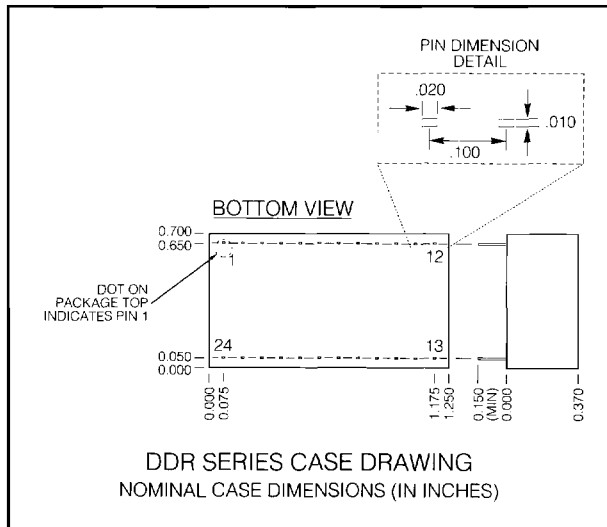
OUTPUT VOLTAGE TEMPERATURE COEFFICIENT: 0.02%/°C maximum.

OPERATING TEMPERATURE: -20°C to $+70^\circ\text{C}$ ambient. (Case temperature should not exceed $+85^\circ\text{C}$.)

STORAGE TEMPERATURE: -40°C to $+125^\circ\text{C}$.

MODEL NUMBER	INPUT VOLTAGE Vdc	OUTPUT VOLTAGE Vdc	MAXIMUM LOAD ($T_A = -20^\circ\text{C}$ TO $+70^\circ\text{C}$) mA	MAXIMUM POWER ($T_A = -20^\circ\text{C}$ TO $+70^\circ\text{C}$) Watts	EFFICIENCY AT FULL LOAD		INPUT CURRENT AT NO LOAD		INPUT RIPPLE CURRENT (FULL LOAD)	OUTPUT RIPPLE	
					%		mA		mApp	mVpp	
					MIN	TYP	TYP	MAX		TYP	MAX
DDR0505S	5	5	400	2.0	40	45	95	105	150	20	40
DDR0512DT	5	± 12	± 104	2.5	50	52	130	170	150	5	30
DDR0515DT	5	± 15	± 83	2.5	50	52	130	170	150	5	30
DDR1205S	12	5	500	2.5	40	45	35	50	40	20	40
DDR1212DT	12	± 12	± 125	3.0	52	55	50	70	65	5	30
DDR1215DT	12	± 15	± 100	3.0	52	55	50	70	65	5	30
DDR2405S	24	5	500	2.5	40	45	25	30	70	20	40
DDR2412DT	24	± 12	± 125	3.0	52	55	40	45	70	5	30
DDR2415DT	24	± 15	± 100	3.0	52	55	40	45	70	5	30
DDR2805S	28	5	500	2.5	40	45	20	25	60	20	40
DDR2812DT	28	± 12	± 125	3.0	50	55	30	40	60	5	30
DDR2815DT	28	± 15	± 100	3.0	50	55	30	40	60	5	30
DDR4805S	48	5	500	2.5	40	45	15	20	50	20	40
DDR4812DT	48	± 12	± 125	3.0	52	55	22	32	50	5	30
DDR4815DT	48	± 15	± 100	3.0	52	55	22	32	50	5	30

CASE DRAWING



DESIGNATION	PIN NO.
Positive input	1,2
No connection	3-6
Negative output	7,8
Output common	9,10
Positive output (Single output)	11,12
No connection	13-22*
Input common	23,24

*Except on dual output models where pin 13 is a 30 to 40 volt P-P square wave at approx. 100 kHz.