



50,100,200,300 series

Single & Dual Output DC/DC Converter

DESCRIPTIONS

The 50, 100, 200 and 300 series is a family of compact high performance 0.5 to 3 W DC/DC converters that operate over input voltage ranges of 4.3-6 VDC, 10.3-15.0 VDC, 15.5-22.5 VDC, 20.4-30.0 VDC, 24.2-36.0 VDC and 41.3-60.0 VDC and provide precisely regulated output voltages of 5V, 12V, 15V, $\pm 5V$, $\pm 12V$ and $\pm 15V$.

The $-30^{\circ}C$ to $+75^{\circ}C$ operating temperature range makes it ideal for data communication equipment, mobile battery driven equipment, distributed power systems, telecommunication equipment, mixed analog/digital subsystems, process/machine control equipment, computer peripheral systems industrial robot systems.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Set Point			± 5.0	% Output voltage at nominal line & FL
Output Voltage Balance (Duals)			± 3.0	% Equal Output Loads
Line Regulation			± 0.3	% Output voltage measured from min. input line to maximum
Load Regulation			± 0.3	% Output voltage measured from FL to 10% load
Ripple/Noise			50	mV p-p, Nom.Line @FL, 20MHz B.W., using 1 μ f bypass capacitor
Short Circuit Protection				Continuous, Automatic Recovery
Temperature Coefficient			± 0.01	% per degree C

FEATURES

- Up to 66% Efficiency
- Single & Dual Output, 0.5 to 3 watt converter
- 500 to 1000 VDC Input / Output Isolation
- Continuous Short Circuit Protection
- UL 1950 Approved, File No. E14065
- CSA 22.2 Approved, File No. LR89494

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency			1000	kHz
Isolation Voltage	500			VDC, Case B, 1 min.
	1000			VDC, Case B1, 1 min.
Isolation Capacitance			80	pF
Isolation Resistance	1000			Mohm, 500VDC
Input Filter				Pi Filter



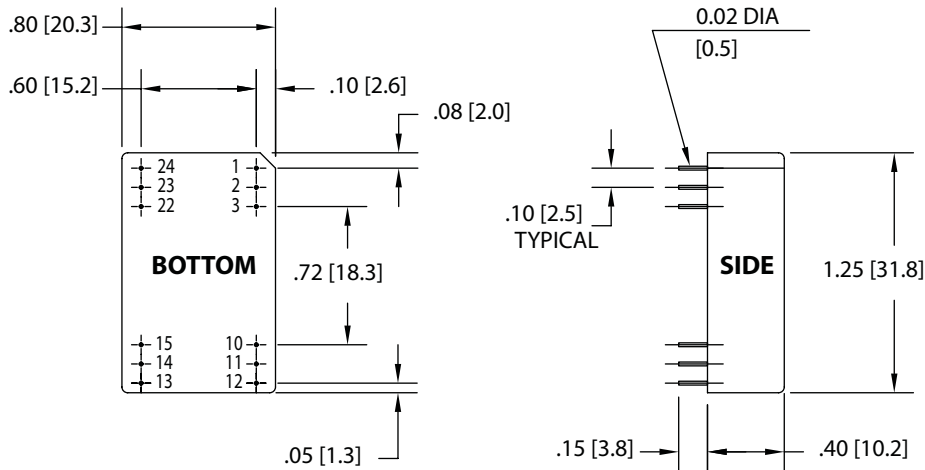
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-30		+75	°C; Ambient
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection
MTBF			1.5	Million Hours @ 25°C Ambient Ground Benign

PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	1.25 X 0.8 X 0.4 inches (31.8 X 20.3 X 10.2 mm)
Case Material	Non-conductive Black Plastic
Flammability	UL94V-0
Weight	0.5 oz.

OUTLINE DRAWING: CASE "B" AND "B1"



STANDARD PIN OUT CHART (CASE B)

Pins	Single	Dual
1	+ V in	+Vin
2	NC	- Vout
3	NC	COMMON
10	- Vout	COMMON
11	+ Vout	+Vout
12	- Vin	-Vin
13	- Vin	-Vin
14	+Vout	+Vout
15	-Vout	COMMON
22	NC	COMMON
23	NC	-Vout
24	+V in	+Vin

ALTERNATE PIN OUT CHART (CASE B1)

Pins	Single
1, 2, 3	+ Vin
22, 23, 24	- Vin
15	+ Vout
13	- Vout
10, 11	COMMON
12, 14	NC

NC = No Connection

Notes:

1. Ordering Information

- 1.1 Case "B" configuration is standard. Omit "B" from the number.
- 1.2 For Case "B1" alternate pin configuration, add "-B1" to the number. Example: 215D5-B1.
- 1.3 For RoHS Compliant models add "-Y" suffix to the number. Example: 215D5-Y or 212D5-B1-Y.

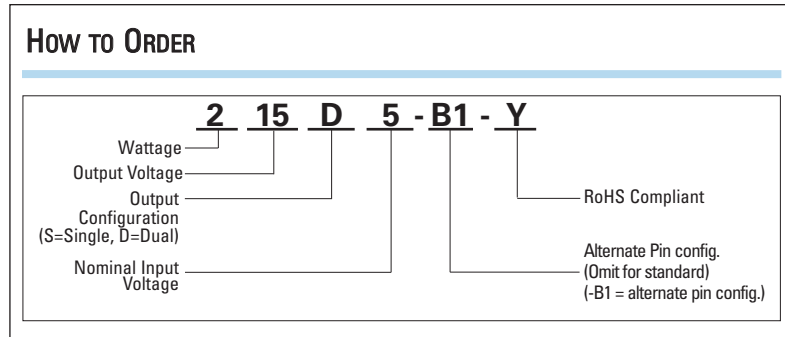
2. Unless otherwise specified dimensions are in inches (mm).

Tolerances	Inches	mm
	X.XX = ±0.02	X.X = ±0.5
	X.XXX = ±0.010	X.XX = ±0.25
Pin :	±0.002	±0.05

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified.
External, low ESR, 10 microfarad (minimum) capacitor across output is recommended for operation.



How To ORDER



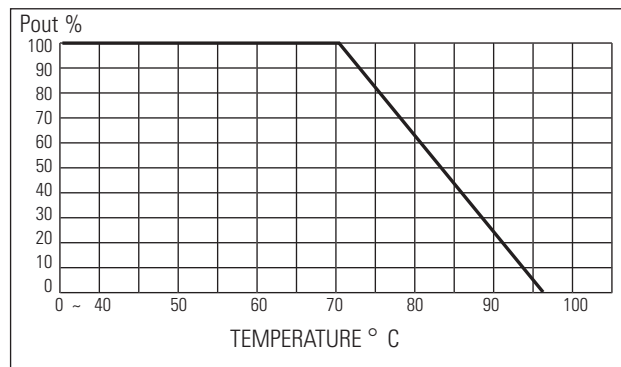
INPUT VOLTAGE RANGE VS OUTPUT LOAD

Input Voltage Range (VDC) at:

Nominal Input (VDC)	20% Load	40% Load	60% Load	100% Load
5	4.30 - 6.00	4.40 - 5.70	4.55 - 5.60	4.65 - 5.25
12	10.3 - 15.0	10.4 - 14.6	10.6 - 13.6	10.9 - 13.2
18	15.5 - 22.5	15.7 - 21.6	15.8 - 20.4	16.4 - 19.8
24	20.4 - 30.0	20.6 - 29.0	21.0 - 27.0	21.6 - 26.4
28	24.2 - 36.0	24.5 - 34.0	24.9 - 31.3	25.2 - 30.8
48	41.3 - 60.0	42.0 - 58.0	42.3 - 54.4	43.2 - 52.8

DERATING CURVES

MODEL 50, 100, 200, 300 SERIES





MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Full Load Output Current (mA)	Efficiency @ FL (%)	Case Style
55S5	5	130	310	5	100	32	B
105S5	5	120	500	5	200	40	B
112S5	5	120	600	12	100	40	B
115S5	5	150	690	15	100	43	B
112S12	12	50	200	12	100	50	B
115S12	12	45	220	15	100	56	B
112S18	18	40	140	12	100	48	B
115S18	18	40	140	15	100	59	B
112S24	24	35	100	12	100	50	B
115S24	24	35	125	15	100	50	B
112S28	28	35	83	12	100	52	B
115S28	28	35	102	15	100	52	B
112S48	48	32	48	12	100	52	B
115S48	48	32	60	15	100	52	B
105D5	5	100	435	±5	±100	46	B
105D24	24	35	96	±5	±100	43	B
105D48	48	32	42	±5	±100	50	B
205S5	5	100	800	5	400	50	B
212S5	5	100	960	12	200	50	B
215S5	5	100	1200	15	200	50	B
205S12	12	35	310	5	400	52	B
205S18	18	35	220	5	400	52	B
205S24	24	35	157	5	400	52	B
205S28	28	35	140	5	400	52	B
205S48	48	32	80	5	400	52	B
212S12	12	50	360	12	200	55	B
212S18	18	40	250	12	200	55	B
212S24	24	35	180	12	200	55	B
212S28	28	35	145	12	200	58	B
212S48	48	32	88	12	200	56	B
212D5	5	100	900	±12	±100	53	B or B1
215D5	5	160	750	±15	±75	60	B or B1
212D12	12	50	300	±12	±100	66	B or B1
315D12	12	50	420	±15	±100	60	B or B1
212D18	18	40	250	±12	±100	53	B or B1
315S12	12	50	400	15	200	55	B
315S18	18	40	280	15	200	56	B
315S24	24	35	210	15	200	59	B
315S28	28	35	170	15	200	60	B
315S48	48	32	100	15	200	60	B
315D18	24	40	280	±15	±100	59	B or B1
212D24	24	35	180	±12	±100	55	B or B1
315D24	28	35	210	±15	±100	59	B or B1
212D28	28	35	145	±12	±100	58	B or B1
315D28	48	35	170	±15	±100	60	B or B1
212D48	48	35	88	±12	±100	56	B or B1
315D48	48	32	100	±15	±100	60	B or B1