

Features

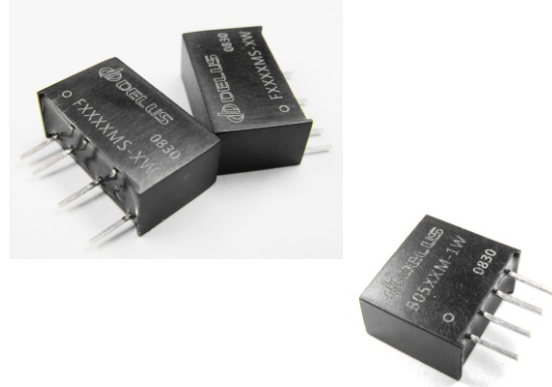
- ◆ Operating temperature: -40 to +85°C
- ◆ 1.5/3.0kVdc isolation
- ◆ 100% burn-in
- ◆ No external component required
- ◆ UL94V-0 package
- ◆ RoHS compliance

Typical Applications

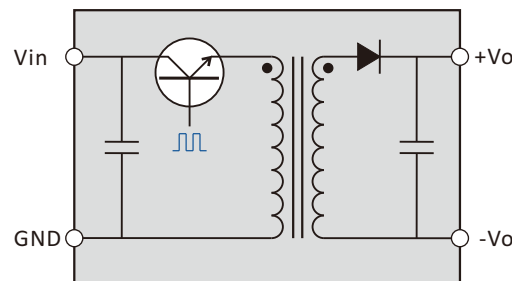
- ◆ Intelligent control, power monitoring equipment, security facilities, radio and television appliances power isolation & transform
- ◆ RS485/232, CAN bus interface, power supply isolation and other digital communication circuit
- ◆ Power ground circulation & interference suppression

General Description

B/F-1W is unregulated single output series, in use can be simply understood as a common frequency transformer (see functional diagram), the only difference is that it can achieve the DC to DC voltage conversion. The family offers a variety of standard voltage combinations, isolation voltage 1.5/3.0kVdc two grades.



Functional Diagram



Selection Guide

B 05 05 S - 1W

Product Series	Input Voltage	Output Voltage	Package Style	Rated Power
B: isolated 1.5kVdc single F: isolated 3.0kVdc single	05 = 5Vdc 12 = 12Vdc 24 = 24Vdc 48 = 48Vdc	03 = 3.3Vdc 05 = 5Vdc 09 = 9Vdc 12 = 12Vdc 15 = 15Vdc 24 = 24Vdc	S,LS,MS,M: single in-line D,LD,N: dual in-line	1W = 1Watt

B-1W & F-1W Series

1w, fixed input, isolated & unregulated single output dc-dc converter



Input Specifications

Item	Min	Typ	Max	Units
Input Surge Voltage (1 sec max)	5V input	-0.7	7	Vdc
	12V output	-0.7	15	
	24V input	-0.7	28	
	48V input	-0.7	54	
Reverse Polarity Input Current			0.4	A
Internal Power Dissipation			0.45	W
Input Filter	"C" filter			

Output Specifications

Item	Test Conditions	Min	Typ	Max	Units
Output Power	Ta=-40-+85°C	0.1		1	W
Line Regulation	For vin change of ±1%			±1.2	%/%
Load Regulation	Nominal 10%-100% load		12	20	%
		3.3V output	10.5	15	
		5V output	8.3	15	
		9V output	6.8	15	
		12V output	6.3	15	
		15V output	5	15	
24V output					
Output Voltage Accuracy	See Tolerance Envelope Graph				
Temperature Drift	Nominal, 100% load			0.03	%/°C
Ripple & Noise	DC-20MHz bandwidth		100	200	mVp-p
Switching Frequency	Nominal, 100% load	80	100	130	KHz
Short Circuit Protection				1	S

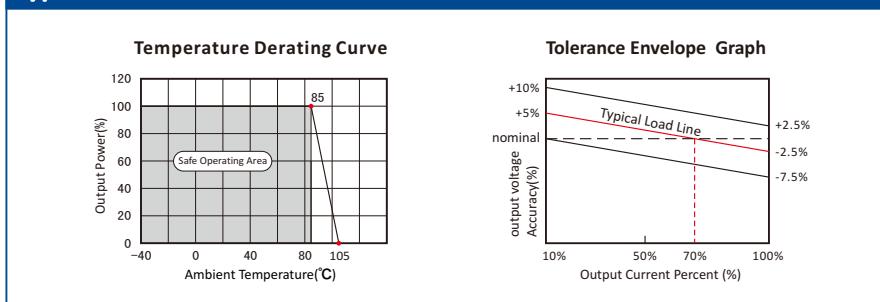
Isolation Specifications

Item	Test Conditions	Min	Typ	Max	Units
Isolation Resistance	Test at 500Vdc	1000			MΩ
Isolation Voltage	Tested for 1S and 1mA max	B			Vdc
		F	1500	3000	

Common Specification

Item	Test Conditions	Min	Typ	Max	Units
Operating Temperature		-45		+85	°C
Maximum Case Temp.			45		
Storage Temperature		-50		+130	
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Humidity				95	%
Case Material	Black Plastic (UL94V-0)				

Typical Characteristic Curve



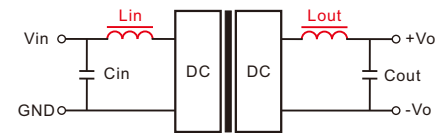
Application Note

1. Requirement On Output Load

To ensure this DC/DC can operate efficiently and reliably, during operation, the minimum output load is not less than 10% of the full load, and that **this product should never be operated under no load!** If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

2. Output filter

The DC/DC without any external filter components in the case that can be stable and reliable work. If you want to further reduce ripple and improve the EMC, please connect a external filter circuit at the inputs and outputs (see figure). General, recommended values 10-100uF with input capacitor, and recommended values with output capacitor see the following table.



"Lin, Lout" not required, recommended values 4.7-22uH

Table 1

Cin	Cout	
10~100uF	3.3V	10uF
	5V	10uF
	9V	4.7uF
	12V	2.2uF
	15V	1uF
	24V	1uF

It's not recommended to connect any external capacitor in the application field with less than 0.5 watt output.

If the maximum external output capacitor still does not meet your requirements of ripple may be required connect the filter inductor (see figure), Lout values recommended 4.7-100uH. It should be noted "LC" filtering network natural frequency should be staggered with the DC/DC operating frequency to avoid mutual interference.

3. This product cannot be used in parallel, can not hot-swappable.

B_LS-1W & F_LS-1W Series

1w, fixed input, isolated & unregulated single output dc-dc converter



Product Program

Model	Input		Output				Eff (%)	Certificate	Mechanical Dimensions First Angle Projection											
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Ripple (mVp-p)														
	Nominal	Range	Nominal	Max	Min															
B0503LS-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 2.1g</p> <p>Isolation: 1500Vdc Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm input or output voltage $\geq 24V$, $T=7.05mm$</p> <table border="1"> <tr> <td>Pin</td> <td>1</td> <td>2</td> <td>4</td> <td>6</td> <td></td> </tr> <tr> <td>Function</td> <td>Vin</td> <td>GND</td> <td>-Vo</td> <td>+Vo</td> <td></td> </tr> </table>	Pin	1	2	4	6		Function	Vin	GND	-Vo	+Vo	
Pin			1	2	4	6														
Function			Vin	GND	-Vo	+Vo														
B0505LS-1W			5	200	20		72													
B0509LS-1W			9	111	12		75													
B0512LS-1W			12	83	9		78													
B0515LS-1W	15	67	7		80															
B0524LS-1W	24	42	5		82															
B1203LS-1W	12	10.8~13.2	3.3	300	30		75													
B1205LS-1W			5	200	20		72													
B1209LS-1W			9	111	12		78													
B1212LS-1W			12	83	9		80													
B1215LS-1W			15	67	7		83													
B1224LS-1W			24	42	5		86													
B2403LS-1W	24	21.6~26.4	3.3	300	30		75													
B2405LS-1W			5	200	20		72													
B2409LS-1W			9	111	12		79													
B2412LS-1W			12	83	9		81													
B2415LS-1W			15	67	7		84													
B2424LS-1W			24	42	5		86													

F0503LS-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 2.1g</p> <p>Isolation: 3000Vdc Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm input or output voltage $\geq 24V$, $T=7.05mm$</p> <table border="1"> <tr> <td>Pin</td> <td>1</td> <td>2</td> <td>5</td> <td>7</td> <td></td> </tr> <tr> <td>Function</td> <td>Vin</td> <td>GND</td> <td>-Vo</td> <td>+Vo</td> <td></td> </tr> </table>	Pin	1	2	5	7		Function	Vin	GND	-Vo	+Vo	
Pin			1	2	5	7														
Function			Vin	GND	-Vo	+Vo														
F0505LS-1W			5	200	20		72													
F0509LS-1W			9	111	12		75													
F0512LS-1W			12	83	9		78													
F0515LS-1W	15	67	7		80															
F0524LS-1W	24	42	5		82															
F1203LS-1W	12	10.8~13.2	3.3	300	30		75													
F1205LS-1W			5	200	20		72													
F1209LS-1W			9	111	12		78													
F1212LS-1W			12	83	9		80													
F1215LS-1W			15	67	7		83													
F1224LS-1W			24	42	5		86													
F2403LS-1W	24	21.6~26.4	3.3	300	30		75													
F2405LS-1W			5	200	20		72													
F2409LS-1W			9	111	12		79													
F2412LS-1W			12	83	9		81													
F2415LS-1W			15	67	7		84													
F2424LS-1W			24	42	5		86													

B_S-1W & F_M-1W Series

1w, fixed input, isolated & unregulated single output dc-dc converter



Product Program

Model	Input		Output				Eff (%)	Certificate	Mechanical Dimensions First Angle Projection				
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Ripple (mVp-p)							
	Nominal	Range	Nominal	Max	Min								
B0503S-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 1.6g</p>	<p>Isolation: 1500Vdc</p> <p>Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm</p> <p>input or output voltage $\geq 24V$, $T=7.55mm$</p>				
B0505S-1W			5	200	20		72						
B0509S-1W			9	111	12		75						
B0512S-1W			12	83	9		78						
B0515S-1W			15	67	7		80						
B0524S-1W			24	42	5		82						
B1203S-1W	12	10.8~13.2	3.3	300	30		75						
B1205S-1W			5	200	20		72						
B1209S-1W			9	111	12		78						
B1212S-1W			12	83	9		80						
B1215S-1W			15	67	7		83						
B1224S-1W			24	42	5		85						
B2403S-1W	24	21.6~26.4	3.3	300	30		75						
B2405S-1W			5	200	20		72						
B2409S-1W			9	111	12		79						
B2412S-1W			12	83	9		81						
B2415S-1W			15	67	7		84						
B2424S-1W			24	42	5		86						
								Pin	1	2	3	4	
								Function	GND	Vin	-Vo	+Vo	

F0503M-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 1.6g</p>	<p>Isolation: 3000Vdc</p> <p>Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm</p> <p>input or output voltage $\geq 24V$, $T=7.55mm$</p>				
F0505M-1W			5	200	20		72						
F0509M-1W			9	111	12		75						
F0512M-1W			12	83	9		78						
F0515M-1W			15	67	7		80						
F0524M-1W			24	42	5		82						
F1203M-1W	12	10.8~13.2	3.3	300	30		75						
F1205M-1W			5	200	20		72						
F1209M-1W			9	111	12		78						
F1212M-1W			12	83	9		80						
F1215M-1W			15	67	7		83						
F1224M-1W			24	42	5		85						
F2403M-1W	24	21.6~26.4	3.3	300	30		75						
F2405M-1W			5	200	20		72						
F2409M-1W			9	111	12		79						
F2412M-1W			12	83	9		81						
F2415M-1W			15	67	7		84						
F2424M-1W			24	42	5		86						
								Pin	1	2	3	4	
								Function	GND	Vin	-Vo	+Vo	

B_MS-1W & F_MS-1W Series

1w, fixed input, isolated & unregulated single output dc-dc converter



Product Program

Model	Input		Output				Eff (%)	Certificate	Mechanical Dimensions First Angle Projection									
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Ripple (mVp-p)												
	Nominal	Range	Nominal	Max	Min													
B0503MS-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 2.0g</p> <p>Isolation: 1500Vdc</p> <p>Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm</p> <table border="1"> <tr> <td>Pin</td> <td>1</td> <td>2</td> <td>4</td> <td>6</td> </tr> <tr> <td>Function</td> <td>Vin</td> <td>GND</td> <td>-Vo</td> <td>+Vo</td> </tr> </table>	Pin	1	2	4	6	Function	Vin	GND	-Vo	+Vo
Pin			1	2	4	6												
Function			Vin	GND	-Vo	+Vo												
B0505MS-1W			5	200	20		80											
B0509MS-1W			9	111	12		75											
B0512MS-1W			12	83	9		78											
B0515MS-1W	15	67	7		80													
B0524MS-1W	24	42	5		82													
B1203MS-1W	12	10.8~13.2	3.3	300	30		75											
B1205MS-1W			5	200	20		80											
B1209MS-1W			9	111	12		78											
B1212MS-1W			12	83	9		80											
B1215MS-1W			15	67	7		83											
B1224MS-1W			24	42	5		85											
B2403MS-1W	24	21.6~26.4	3.3	300	30		75											
B2405MS-1W			5	200	20		80											
B2409MS-1W			9	111	12		79											
B2412MS-1W			12	83	9		81											
B2415MS-1W			15	67	7		84											
B2424MS-1W			24	42	5		86											

F0503MS-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 2.0g</p> <p>Isolation: 3000Vdc</p> <p>Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm</p> <table border="1"> <tr> <td>Pin</td> <td>1</td> <td>2</td> <td>4</td> <td>6</td> </tr> <tr> <td>Function</td> <td>Vin</td> <td>GND</td> <td>-Vo</td> <td>+Vo</td> </tr> </table>	Pin	1	2	4	6	Function	Vin	GND	-Vo	+Vo
Pin			1	2	4	6												
Function			Vin	GND	-Vo	+Vo												
F0505MS-1W			5	200	20		80											
F0509MS-1W			9	111	12		75											
F0512MS-1W			12	83	9		78											
F0515MS-1W	15	67	7		80													
F0524MS-1W	24	42	5		82													
F1203MS-1W	12	10.8~13.2	3.3	300	30		75											
F1205MS-1W			5	200	20		80											
F1209MS-1W			9	111	12		78											
F1212MS-1W			12	83	9		80											
F1215MS-1W			15	67	7		83											
F1224MS-1W			24	42	5		85											
F2403MS-1W	24	21.6~26.4	3.3	300	30		75											
F2405MS-1W			5	200	20		80											
F2409MS-1W			9	111	12		79											
F2412MS-1W			12	83	9		81											
F2415MS-1W			15	67	7		84											
F2424MS-1W			24	42	5		86											

B_LD-1W & F_LD-1W Series

1w, fixed input, isolated & unregulated single output dc-dc converter



Product Program

Model	Input		Output				Eff (%)	Certificate	Mechanical Dimensions First Angle Projection												
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Ripple (mVp-p)															
	Nominal	Range	Nominal	Max	Min																
B0503LD-1W	5	4.5~5.5	3.3	300	30		75	 Isolation: 1500Vdc Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm	<table border="1"> <tr> <td>Pin</td> <td>1</td> <td>7</td> <td>8</td> <td>9</td> <td>14</td> </tr> <tr> <td>Function</td> <td>GND</td> <td>NC</td> <td>-Vo</td> <td>+Vo</td> <td>Vin</td> </tr> </table>	Pin	1	7	8	9	14	Function	GND	NC	-Vo	+Vo	Vin
Pin			1	7	8	9	14														
Function			GND	NC	-Vo	+Vo	Vin														
B0505LD-1W			5	200	20		80														
B0509LD-1W			9	111	12		75														
B0512LD-1W			12	83	9		78														
B0515LD-1W	15	67	7		80																
B0524LD-1W	24	42	5		82																
B1203LD-1W	12	10.8~13.2	3.3	300	30		75														
B1205LD-1W			5	200	20		80														
B1209LD-1W			9	111	12		78														
B1212LD-1W			12	83	9		80														
B1215LD-1W			15	67	7		83														
B1224LD-1W			24	42	5		85														
B2403LD-1W	24	21.6~26.4	3.3	300	30		75														
B2405LD-1W			5	200	20		80														
B2409LD-1W			9	111	12		79														
B2412LD-1W			12	83	9		81														
B2415LD-1W			15	67	7		84														
B2424LD-1W			24	42	5		86														

F0503LD-1W	5	4.5~5.5	3.3	300	30		75	 Isolation: 3000Vdc Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm	<table border="1"> <tr> <td>Pin</td> <td>1</td> <td>7</td> <td>8</td> <td>9</td> <td>14</td> </tr> <tr> <td>Function</td> <td>GND</td> <td>NC</td> <td>-Vo</td> <td>+Vo</td> <td>Vin</td> </tr> </table>	Pin	1	7	8	9	14	Function	GND	NC	-Vo	+Vo	Vin
Pin			1	7	8	9	14														
Function			GND	NC	-Vo	+Vo	Vin														
F0505LD-1W			5	200	20		80														
F0509LD-1W			9	111	12		75														
F0512LD-1W			12	83	9		78														
F0515LD-1W	15	67	7		80																
F0524LD-1W	24	42	5		82																
F1203LD-1W	12	10.8~13.2	3.3	300	30		75														
F1205LD-1W			5	200	20		80														
F1209LD-1W			9	111	12		78														
F1212LD-1W			12	83	9		80														
F1215LD-1W			15	67	7		83														
F1224LD-1W			24	42	5		85														
F2403LD-1W	24	21.6~26.4	3.3	300	30		75														
F2405LD-1W			5	200	20		80														
F2409LD-1W			9	111	12		79														
F2412LD-1W			12	83	9		81														
F2415LD-1W			15	67	7		84														
F2424LD-1W			24	42	5		86														

B_D-1W & F_N-1W Series

1w, fixed input, isolated & unregulated single output dc-dc converter



Product Program

Model	Input		Output				Eff (%)	Certificate	Mechanical Dimensions First Angle Projection			
	Voltage(Vdc)		Voltage(Vdc)	Current(mA)		Ripple (mVp-p)						
	Nominal	Range	Nominal	Max	Min							
B0503D-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 2.1g</p> <p>Isolation: 1500Vdc</p> <p>Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm</p>				
B0505D-1W			5	200	20		72					
B0509D-1W			9	111	12		75					
B0512D-1W			12	83	9		78					
B0515D-1W			15	67	7		80					
B0524D-1W			24	42	5		82					
B1203D-1W	12	10.8~13.2	3.3	300	30		75					
B1205D-1W			5	200	20		72					
B1209D-1W			9	111	12		78					
B1212D-1W			12	83	9		80					
B1215D-1W			15	67	7		83					
B1224D-1W			24	42	5		85					
B2403D-1W	24	21.6~26.4	3.3	300	30		75					
B2405D-1W			5	200	20		72					
B2409D-1W			9	111	12		79					
B2412D-1W			12	83	9		81					
B2415D-1W			15	67	7		84					
B2424D-1W			24	42	5		86					
							Pin	1	4	5	7	
							Function	GND	Vin	+Vo	-Vo	

F0503N-1W	5	4.5~5.5	3.3	300	30		75	<p>Weight: 2.1g</p> <p>Isolation: 3000Vdc</p> <p>Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm</p>				
F0505N-1W			5	200	20		72					
F0509N-1W			9	111	12		75					
F0512N-1W			12	83	9		78					
F0515N-1W			15	67	7		80					
F0524N-1W			24	42	5		82					
F1203N-1W	12	10.8~13.2	3.3	300	30		75					
F1205N-1W			5	200	20		72					
F1209N-1W			9	111	12		78					
F1212N-1W			12	83	9		80					
F1215N-1W			15	67	7		83					
F1224N-1W			24	42	5		85					
F2403N-1W	24	21.6~26.4	3.3	300	30		75					
F2405N-1W			5	200	20		72					
F2409N-1W			9	111	12		79					
F2412N-1W			12	83	9		81					
F2415N-1W			15	67	7		84					
F2424N-1W			24	42	5		86					
							Pin	1	4	5	7	
							Function	GND	Vin	+Vo	-Vo	

File Release Notes

DBN-101 Technical Data Sheet Version



No.	Version	Data	Description
1	V0	2011/11/01	First release
2			
3			
4			
5			

1. All data in addition to particular things, are Ta = 25°C, humidity<75%, nominal input voltage and output measured at rated load;
2. Non-standard models with some of the following indicators may be different from the specific circumstances of the Secretary to direct contact with me;
3. In the use of this manual, if some of them do not quite understand terms please refer to our <<DC / DC Converter Application Guide>>;
4. The Company focused on technological improvements, product specifications and parameter updates without notice, to pay attention to the latest information on website: www.delus.cn

All Delus Corporation's products are manufactured, assembled and tested utilizing ISO9001 quality systems.
For information regarding Delus Corporation and its products please see www.delus.cn