

Features

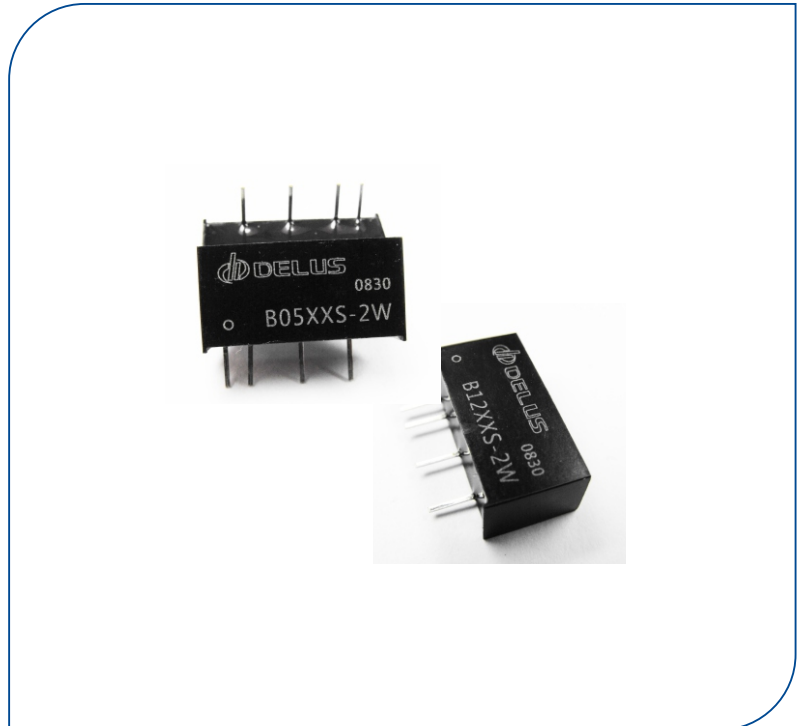
- ◆ Operating temperature: -40 to +85°C
- ◆ 1.5/3.0kVdc isolation
- ◆ 100% burn-in
- ◆ No external component required
- ◆ UL94V-0 package
- ◆ RoHS compliance

Typical Applications

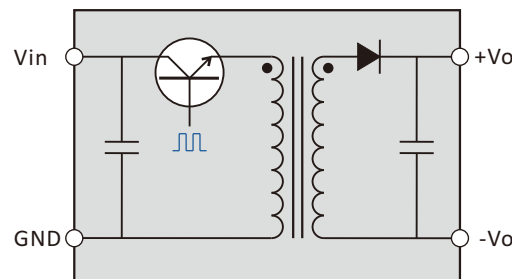
- ◆ Intelligent control, power monitoring equipment, security facilities, radio and television appliances power isolation & transform
- ◆ RS485/232, CAN bus interface, power supply isolation and other digital communication circuit
- ◆ Power ground circulation & interference suppression

General Description

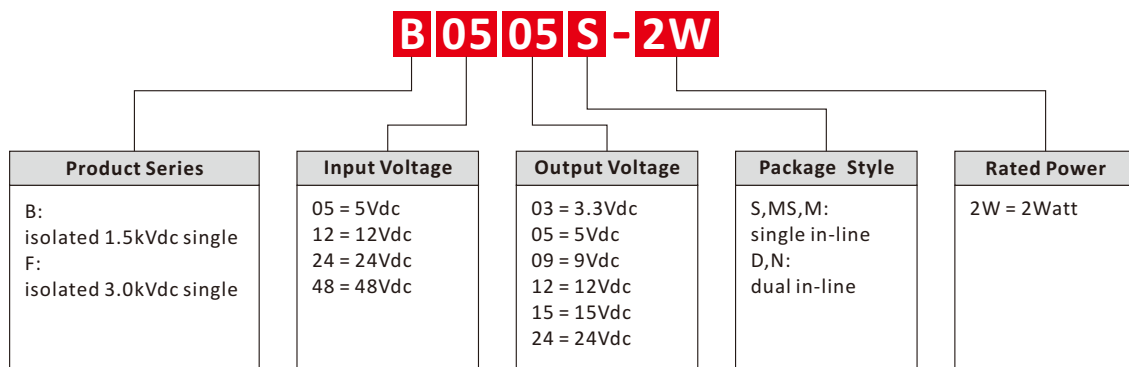
B/F-2W is unregulated single output series, in use can be simply understood as a common frequency transformer (see functional diagram), the only difference is that it can achieve the DC to DC voltage conversion. The family offers a variety of standard voltage combinations, isolation voltage 1.5/3.0kVdc two grades.



Functional Diagram



Selection Guide



B-2W & F-2W Series

2w, 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	0.2		2	W	
Line Regulation	For vin change of ±1%			±1.2	%/%	
Load Regulation	Nominal 10%-100% load		15	20	%	
		3.3V output		12.8		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		150	300	mVp-p	
Switching Frequency	Nominal, 100% load	80	100	130	KHz	
Short Circuit Protection				1	S	

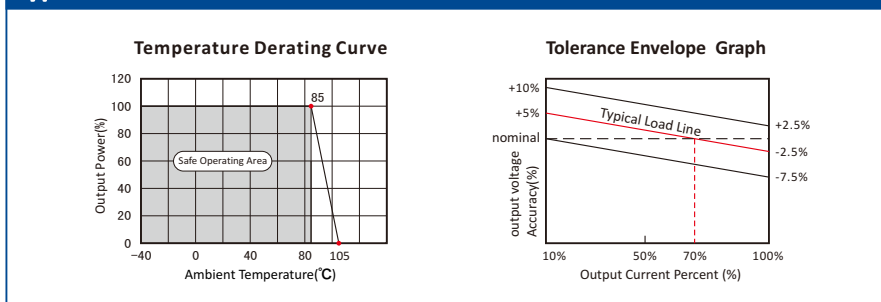
Isolation Specifications

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.				55	
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



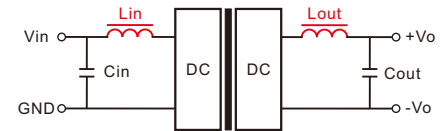
Application Note

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_S-2W & F_S-2W Series

2w, 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-2W	5	4.5~5.5	3.3	600	60		75	<p>Weight: 2.2g</p>					
B0505S-2W			5	400	40		81						
B0509S-2W			9	222	23		84						
B0512S-2W			12	167	17		84						
B0515S-2W			15	133	14		84						
B0524S-2W			24	83	9		84						
B1203S-2W	12	10.8~13.2	3.3	600	60		75						
B1205S-2W			5	400	40		81						
B1209S-2W			9	222	23		84						
B1212S-2W			12	167	17		84						
B1215S-2W			15	133	14		84						
B1224S-2W			24	83	9		84						
B2403S-2W	24	21.6~26.4	3.3	600	60		75			<p>Weight: 2.2g</p>			
B2405S-2W			5	400	40		81						
B2409S-2W			9	222	23		84						
B2412S-2W			12	167	17		84						
B2415S-2W			15	133	14		84						
B2424S-2W			24	83	9		84						
								Pin	1	2	4	6	
								Function	Vin	GND	-Vo	+Vo	

F0503S-2W	5	4.5~5.5	3.3	600	60		75	<p>Weight: 2.2g</p>					
F0505S-2W			5	400	40		81						
F0509S-2W			9	222	23		84						
F0512S-2W			12	167	17		84						
F0515S-2W			15	133	14		84						
F0524S-2W			24	83	9		84						
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F2409S-2W			9	222	23		84						
F2412S-2W			12	167	17		84						
F2415S-2W			15	133	14		84						
F2424S-2W			24	83	9		84						
								Pin	1	2	5	7	
								Function	Vin	GND	-Vo	+Vo	

B_M-2W & F_M-2W Series

2w, 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								
B0503M-2W	5	4.5~5.5	3.3	600	60		75	<p>Weight: 1.5</p>					
B0505M-2W			5	400	40		81						
B0509M-2W			9	222	23		84						
B0512M-2W			12	167	17		84						
B0515M-2W			15	133	14		84						
B0524M-2W			24	83	9		84						
B1203M-2W	12	10.8~13.2	3.3	600	60		75						
B1205M-2W			5	400	40		81						
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B2403M-2W	24	21.6~26.4	3.3	600	60		75						
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B2412M-2W			12	167	17		84						
B2415M-2W			15	133	14		84						
B2424M-2W			24	83	9		84						
								Pin	1	2	3	4	
								Function	GND	Vin	-Vo	+Vo	

F0503M-2W	5	4.5~5.5	3.3	600	60		75	<p>Weight: 1.5g</p>					
F0505M-2W			5	400	40		81						
F0509M-2W			9	222	23		84						
F0512M-2W			12	167	17		84						
F0515M-2W			15	133	14		84						
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F2415M-2W			15	133	14		84						
F2424M-2W			24	83	9		84						
								Pin	1	2	3	4	
								Function	GND	Vin	-Vo	+Vo	

B_MS-2W & F_MS-2W Series

2w, 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-2W	5	4.5~5.5	3.3	600	60		75	<p>Weight: 2.1g</p>																	
B0505MS-2W			5	400	40		81																		
B0509MS-2W			9	222	23		84																		
B0512MS-2W			12	167	17		84																		
B0515MS-2W			15	133	14		84																		
B0524MS-2W			24	83	9		84																		
B1203MS-2W	12	10.8~13.2	3.3	600	60		75			<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					
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Function			Vin	GND	-Vo	+Vo																			
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F0503MS-2W	5	4.5~5.5	3.3	600	60		75	<p>Weight: 2.1g</p>																		
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F0512MS-2W			12	167	17		84																			
F0515MS-2W			15	133	14		84																			
F0524MS-2W			24	83	9		84																			
F1203MS-2W	12	10.8~13.2	3.3	600	60		75				<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																				
F1205MS-2W			5	400	40		81																			
F1209MS-2W			9	222	23		84																			
F1212MS-2W			12	167	17		84																			
F1215MS-2W	15	133	14		84																					
F1224MS-2W	24	83	9		84																					
F2403MS-2W	24	21.6~26.4	3.3	600	60		75					<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																				
F2405MS-2W			5	400	40		81																			
F2409MS-2W			9	222	23		84																			
F2412MS-2W			12	167	17		84																			
F2415MS-2W	15	133	14		84																					
F2424MS-2W	24	83	9		84																					

B_D-2W & F_D-2W Series

2w, 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-2W	5	4.5~5.5	3.3	600	60		75	 Weight: 2.5g						
B0505D-2W			5	400	40		81							
B0509D-2W			9	222	23		84							
B0512D-2W			12	167	17		84							
B0515D-2W			15	133	14		84							
B0524D-2W			24	83	9		84							
B1203D-2W	12	10.8~13.2	3.3	600	60		75							
B1205D-2W			5	400	40		81							
B1209D-2W			9	222	23		84							
B1212D-2W			12	167	17		84							
B1215D-2W			15	133	14		84							
B1224D-2W			24	83	9		84							
B2403D-2W	24	21.6~26.4	3.3	600	60		75		 Isolation: 1500Vdc Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm					
B2405D-2W			5	400	40		81							
B2409D-2W			9	222	23		84							
B2412D-2W			12	167	17		84							
B2415D-2W			15	133	14		84							
B2424D-2W			24	83	9		84							
								Pin		1	7	8	9	14
								Function		GND	NC	-Vo	+Vo	Vin

F0503D-2W	5	4.5~5.5	3.3	600	60		75	 Weight: 2.5g						
F0505D-2W			5	400	40		81							
F0509D-2W			9	222	23		84							
F0512D-2W			12	167	17		84							
F0515D-2W			15	133	14		84							
F0524D-2W			24	83	9		84							
F1203D-2W	12	10.8~13.2	3.3	600	60		75							
F1205D-2W			5	400	40		81							
F1209D-2W			9	222	23		84							
F1212D-2W			12	167	17		84							
F1215D-2W			15	133	14		84							
F1224D-2W			24	83	9		84							
F2403D-2W	24	21.6~26.4	3.3	600	60		75		 Isolation: 3000Vdc Note: all size units mm, diameter of all terminal 0.5mm, distance between all adjacent terminal 2.54mm					
F2405D-2W			5	400	40		81							
F2409D-2W			9	222	23		84							
F2412D-2W			12	167	17		84							
F2415D-2W			15	133	14		84							
F2424D-2W			24	83	9		84							
								Pin		1	7	8	9	14
								Function		GND	NC	-Vo	+Vo	Vin

B_N-2W & F_N-2W Series

2w, 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													
B0503N-2W	5	4.5~5.5	3.3	600	60		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</p>										
B0505N-2W			5	400	40		81											
B0509N-2W			9	222	23		84											
B0512N-2W			12	167	17		84											
B0515N-2W			15	133	14		84											
B0524N-2W			24	83	9		84											
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B1205N-2W			5	400	40		81											
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B1212N-2W			12	167	17		84											
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B2405N-2W			5	400	40		81											
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B2412N-2W			12	167	17		84											
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Pin	1	4	5	7														
Function	GND	Vin	+Vo	-Vo														

F0503N-2W	5	4.5~5.5	3.3	600	60		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</p>										
F0505N-2W			5	400	40		81											
F0509N-2W			9	222	23		84											
F0512N-2W			12	167	17		84											
F0515N-2W			15	133	14		84											
F0524N-2W			24	83	9		84											
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Pin	1	4	5	7														
Function	GND	Vin	+Vo	-Vo														

File Release Notes

DBN-102 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