



FEATURES

- ◆Footprint from 0.69cm²
- ◆I/O isolation voltage 1000VDC
- ◆Operating Temperature: -40°C ~ + 85°C
- ◆High efficiency up to 80%
- ◆Fully encapsulated toroidal magnetics
- ◆Internal SMD construction
- ◆Power density up to 0.85W/cm³
- ◆No electrolytic or tantalum capacitors
- ◆5V,9V,12V and 15V output
- ◆No heatsink required
- ◆Dual output from a single input rail
- ◆UL 94V-0 package material
- ◆No external components required
- ◆Industry standard pinout
- ◆Power sharing on output
- ◆MTTF up to 3.4 million hours

MODEL SELECTION

B^①05^②05^③X^④S^⑤

- ① Product Series
- ② Input Voltage
- ③ Output Voltage
- ④ Fixed Input
- ⑤ SIP Package

APPLICATIONS

The B-X(S)D series of DC/DC converters is particularly suited to isolating and/or converting DC power rails. The galvanic isolation allows the device to be configured to provide an isolated negative rail in systems where only positive rails exist. The wide temperature range guarantees startup from -40°C and full 1 watt output at 85°C. For lower ripple, refer to output ripple reduction section.



CE REACH

SELECTION GUIDE

Order code	Input Voltage (V)	Output Voltage (V)	Output Current (mA)	Input Current (Rated Load) (mA)	Efficiency (%)	Isolation Capacitance (PF)	MTTF ¹ (KHRS)
B0505XD	5	5	200	289	69	30	3415
B0509XD	5	9	111	260	77	37	3078
B0512XD	5	12	83	256	78	33	2205
B0515XD	5	15	66	250	80	40	1532
B0524XD	5	24	42	248	80	48	900
B0505XS	5	5	200	289	69	30	3415
B0509XS	5	9	111	260	77	37	3078
B0512XS	5	12	83	256	78	33	2205
B0515XS	5	15	66	250	80	40	1532
B0524XS	5	24	42	248	80	48	900
B1205XD	12	5	200	120	69	33	2493
B1209XD	12	9	111	115	74	48	2311
B1212XD	12	12	83	105	76	55	1780
B1215XD	12	15	66	110	75	52	1313
B1205XS	12	5	200	120	69	33	2493
B1209XS	12	9	111	116	74	48	2311
B1212XS	12	12	83	110	76	55	1780
B1215XS	12	15	66	111	75	52	1313
B2405XD	24	5	200	60	70	40	201
B2409XD	24	9	111	55	75	59	185
B2412XD	24	12	83	52	80	78	163
B2415XD	24	15	66	52	80	79	136
B2405XS	24	5	200	60	70	40	201
B2409XS	24	9	111	55	75	59	185
B2412XS	24	12	83	52	80	78	163
B2415XS	24	15	66	52	80	79	136
B2424XS	24	24	42	52	80	78	126
B4805XD	48	5	200	30	70	32	213
B4809XD	48	9	111	28	75	50	194
B4812XD	48	12	83	26	80	76	164
B4815XD	48	15	66	26	80	75	140
B4805XS	48	5	200	30	70	32	213
B4809XS	48	9	111	28	75	50	194
B4812XS	48	12	83	26	80	76	164
B4815XS	48	15	66	26	80	75	140

1. Calculated using MIL-HDBK-217F with nominal input voltage at full load.

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

Input Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	Continuous operation, 5V input	4.5	5	5.5	VDC
	Continuous operation, 12V input	10.8	12	13.2	VDC
	Continuous operation, 15V input	13.5	15	16.5	VDC
	Continuous operation, 24V input	21.6	24	26.4	VDC
	Continuous operation, 48V input	43.2	48	52.8	VDC
Reflected ripple current			20	40	mA p-p

Absolute Maximum Ratings

Parameter	Conditions
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	700mW
Input voltage V _i , B05 types	7V
Input voltage V _i , B12 types	15V
Input voltage V _i , B15 types	18V
Input voltage V _i , B24 types	28V
Input voltage V _i , B48 types	54V

Output Specifications					
Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA= -40°C to 120°C			1.0	W
Rated Power(B24、 B48)	TA=0°C to 70°C			1.0	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.0	1.2	%%
Line regulation(B24、 B48)	High VIN to low VIN			1.2	%%
Load regulation(B24、 B48)	10% load to rated load, 5V output types			15	%
	10% load to rated load, all other output types			10	%
Load regulation(5Vinput、 12Vinput)	10% load to rated load, 5V output types		10	12.5	%
	10% load to rated load, 9V output types		9	10	%
	10% load to rated load, 12V output types		6.5	7.5	%
	10% load to rated load, 15V output types		6	7.0	%
Load regulation(15V input)	10% load to rated load, 5V output types		5.5	10	%
	10% load to rated load, 12V output types		2.6	3.0	%
	10% load to rated load, 15V output types		2.3	3.0	%
Ripple & Noise(A24、 A48)	BW=DC to 20MHz, all input types			150	mV p-p
Ripple & Noise	BW=DC to 20MHz, 5V output types		10	20	mV p-p
	BW=DC to 20MHz, 9V output types		7	15	mV p-p
	BW=DC to 20MHz, 12V output types		7.5	15	mV p-p
	BW=DC to 20MHz, 15V output types		8	15	mV p-p

Temperature Characteristics					
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	B05、 B12、 B15	-40		85	°C
Specification	B24、 B48	0		70	°C
Storage	B05、 B12、 B15	-50		130	°C
Storage	B24、 B48	-55		150	°C

Technical notes

ISOLATION VOLTAGE

"Hi Pot Test", "Flash Tested", "Withstand Voltage", "Dielectric Withstand Voltage" & " Isolation Test Voltage" are all terms that relate to the same thing, a test voltage.

Applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

Professional Power Module B series of DC/DC converters are all 100% production tested at their stated isolation voltage. This is 1KVDC for 1 second.

A question commonly asked is, "What is the continuous voltage that can be applied across the part in normal a a c

OUTLINE DIMENSIONS & FOOTPRINT DETAILS

MECHANICAL DIMENSIONS		FOOTPRINT DETAILS			
DIP Package	SIP Package	-8 PIN DIP		-4 PIN SIP	
		Pin	Function	Pin	Function
		1	-Vin	1	-Vin
		4	+Vin	2	+Vin
		5	+Vout	3	-Vout
		7	-Vout	4	+Vout

All dimensions in inches ± 0.01 (mm ± 0.25 mm). All pins on a 0.1 (2.54) pitch and within ± 0.01 (0.25) of true position.
Weight: 1.48g (DIP) 1.30g (SIP)

Specifications can be changed any time without notice.
No parallel connection or plug and play.
Note:
1. The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
2. Operation under 10% load will not damage the converter; However, they may not meet all specification listed.
3. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on corporate standards.

Recommended footprint details

8 PIN DIP