

Isolated 1W Single Output MICRO SIP4 DC/DC Converters



FEATURES

- ◆Footprint from 0.69cm²
- ◆I/O isolation voltage 1000VDC
- ◆Operating Temperature: -40 85
- ◆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 15V and 24V 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 05 05 X M

Product Series Input Voltage
Output Voltage Fixed Input
Mini SIP Package

APPLICATIONS

The B-XM 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

Order code	Input Voltage (V)	Output Voltage (V)	Output Current (mA)	Input Current (Rated Load) (mA)	Efficiency (%)	Isolation Capacitance (PF)	MTTF ¹ (KHRS)
B0505XM	5	5	200	289	69	30	3415
B0509XM	5	9	111	260	77	37	3078
B0512XM	5	12	83	256	78	33	2205
B0515XM	5	15	66	250	80	40	1532
B0524XM	5	24	42	248	80	48	900
B1205XM	12	5	200	120	69	33	2493
B1209XM	12	9	111	116	74	48	2311
B1212XM	12	12	83	110	76	55	1780
B1215XM	12	15	66	111	75	52	1313
B1224XM	12	24	42	110	80	48	1002
B2405XM	24	5	200	60	70	40	201
B2409XM	24	9	111	55	75	59	185
B2412XM	24	12	83	52	80	78	163
B2415XM	24	15	66	52	80	79	136
B2424XM	24	24	42	52	80	79	125
B4805XM	48	5	200	30	70	32	213
B4809XM	48	9	111	28	75	50	194
B4812XM	48	12	83	26	80	76	164
B4815XM	48	15	66	26	80	75	140
B4824XM	48	24	42	25	80	75	138

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.

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

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

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso= 1000VDC		10		G
Resistance(B24, B48)					

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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 operation?"

For a part holding no specific agency approvals, such as the B series ,both input and output should normally be maintained within SELV limits i.e. less than 42.4V peak, or 60VDC. The isolation test voltage represents a measure of immunity to transient voltages and the part should never be used as an element of a safety isolation system. The part could be expected to function correctly with several hundred volts offset applied continuously across the isolation barrier, but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

REPEATED HIGH-VOLTAGE ISOLATION TESTING

It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials. Construction and environment. The B series has toroidal isolation transformers, with no additional insulation between primary and secondary windings of enameled wire. While parts can be expected to withstand several times the stated test voltage, the isolation capability does depend on the wire insulation. Any material, including this enamel (typically polyurethane) is susceptible to eventual chemical degradation when subject to very high applied voltages thus implying that the number of tests should be strictly limited. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

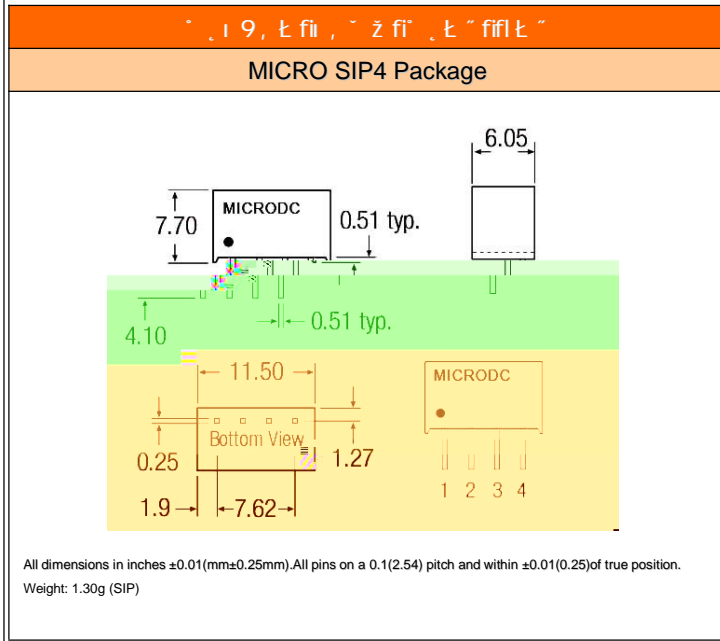
This consideration equally applies to agency recognized parts for better than functional isolation where the wire enamel insulation is always supplemented by a further insulation system of physical spacing or barriers.

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Output ripple reduction

By

7 Pin / 82 Pin / 2 Pin / Pin



7 Pin / 82 Pin / 2 Pin / Pin

-4 PIN SIP

Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

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.

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