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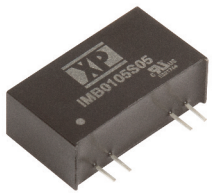
IMB01 Series

DC-DC Converter

XP Power

1 Watt

- Single unregulated output
- ±10% input range
- SIP7 package
- World wide medical approvals
- 4kVAC isolation reinforced
- 2 x MOPP at 300VAC
- 2µA patient leakage current
- -40°C to +105°C operation
- Full load at +85°C ambient
- MTBF 4.3MHrs
- 3 year warranty



Dimensions:

IMB01:
0.87 x 0.49 x 0.30" (22.0 x 12.5 x 7.5 mm)

Designed for medical applications, the IMB01 series offers a 2 x MOPP and IEC60601-1 compliant solution. Included in the compact SIP7 package is short circuit protection, low leakage current of 2µA and operation to +85°C.

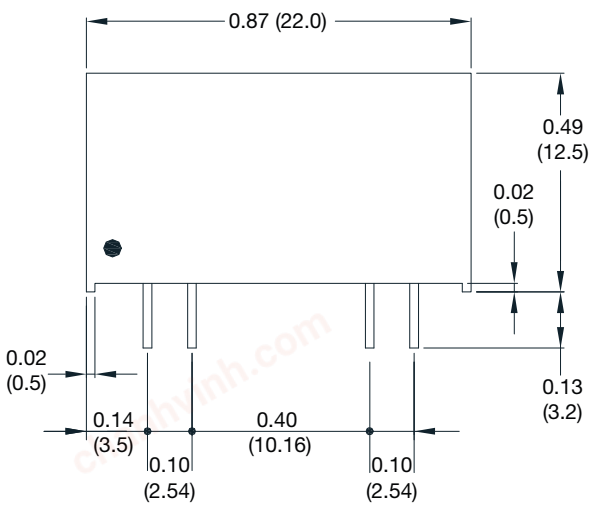
Models & Ratings

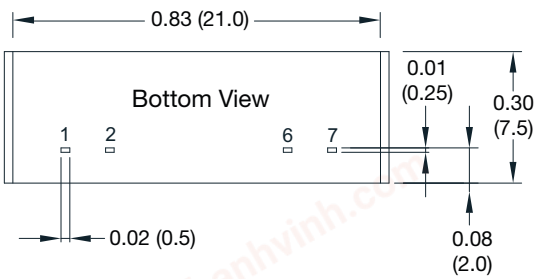
Input Voltage	Output Voltage	Output Current	Input Current		Maximum Capacitive Load µF	Efficiency	Model Number
			No Load	Full Load			
5V (4.5-5.5)	5 V	200 mA	50 mA	253 mA	220 µF	79%	IMB0105S05
	12 V	84 mA		252 mA		80%	IMB0105S12
	15 V	68 mA		252 mA		81%	IMB0105S15
12V (10.8-13.2)	5 V	200 mA	35 mA	105 mA	220 µF	79%	IMB0112S05
	12 V	84 mA		104 mA		81%	IMB0112S12
	15 V	68 mA		108 mA		79%	IMB0112S15
24V (21.6-26.4)	5 V	200 mA	20 mA	55 mA	220 µF	76%	IMB0124S05
	12 V	84 mA		53 mA		79%	IMB0124S12
	15 V	68 mA		54 mA		79%	IMB0124S15

Notes

Input currents measured at nominal input voltage.

Mechanical Details





Pin Connections	
Pin	Single
1	+Vin
2	-Vin
6	-Vout
7	+Vout

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.009 lbs (4.1 g) approx.
3. Pin diameter: 0.02±0.002 (0.5±0.05)
4. Pin pitch tolerance: ±0.014 (±0.25)
5. Case tolerance: ±0.02 (±0.5)

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IMB01 Series

DC-DC Converter

XP Power

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	4.5	5	5.5	VDC	5 V nominal
	10.8	12	13.2		12 V nominal
	21.6	24	26.4		24 V nominal
Input Surge	-0.7		9	VDC for 1s	5 V models
	-0.7		18	VDC for 1s	12 V nominal
	-0.7		30	VDC for 1s	24 V nominal
Input Filter	Internal Capacitor				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5		15	VDC	See Models and Ratings table
Patient Leakage Current			2	µA	
Initial Set Accuracy		±1	±3	%	% V nominal
Minimum Load	10			%	Minimum load required for regulation
Line Regulation		±1.2	±1.5	%	From minimum to maximum input
Load Regulation			±10	%	From 10% to full load
Ripple & Noise			75	mV pk-pk	20 MHz bandwidth. Measured using 0.1 µF ceramic capacitor
Short Circuit Protection					Continuous, with auto recovery
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient		±0.01	±0.02	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		80		%	
Isolation: Input to Output	4000			VAC	60s reinforced, 300 Vrms 2 x MOPP
Switching Frequency		60		kHz	May enter burst mode frequency of 12-28 kHz at light load
Isolation Resistance	10^9			Ω	500 VDC
Isolation Capacitance		20		pF	100 kHz, 1V
Power Density			7.80	W/in³	
Mean Time Between Failure	4.3			MHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.009 (4.1)		lb (g)	
Case Material	Non conductive black plastic, UL94V-0 rated				
Pin Material	Tinned Copper				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Altitude			5000	m	
Transport Altitude			10,000	m	
Operating Temperature	-40		+105	°C	Derate linearly from 100% load at +85 °C to 0% at +105 °C
Storage Temperature	-50		+125	°C	
Case Temperature			+105	°C	
Humidity			95	%RH	Non-condensing
Cooling					Natural convection

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55011	Class A	See Application Note
Radiated	EN55011	Class A	

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IMB01 Series

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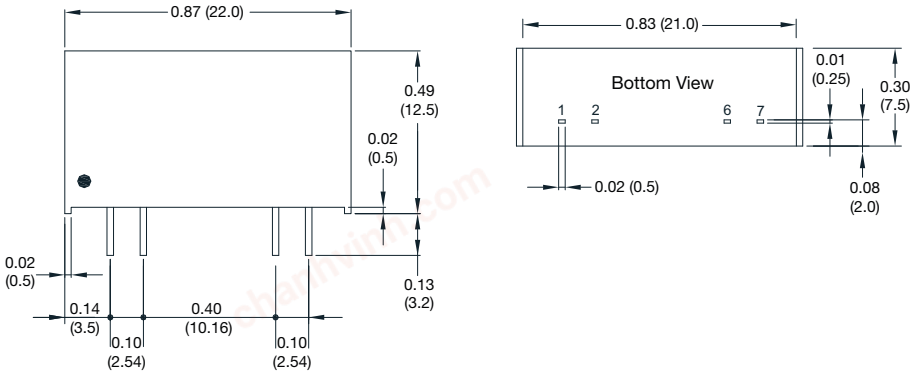
EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Medical Device EMC	IEC60601-1-2	Ed 4.0:2014	As below	
ESD Immunity	EN61000-4-2	Air ±15 kV/Contact ±8 kV	A	Air Discharge
Radiated Immunity	EN61000-4-3	10 V/m	A	80% mod, 80 MHz - 2.7 GHz plus discrete communcation proximity field frequencies
EFT/Burst	EN61000-4-4	2 kV	A	External input filter required, see application note
Surge	EN61000-4-5	2 kV	A	External input filter required, see application note
Conducted Immunity	EN61000-4-6	10 V rms	A	
Magnetic Fields	EN61000-4-8	30 A/m	A	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	ANSI/AMMI ES60601-1	2 x MOPP
CSA	CAN/CSA-C22.2 No.60601-1	
TUV	EN60601-1	
CB	IEC/EN60601-1	3rd edition

Mechanical Details



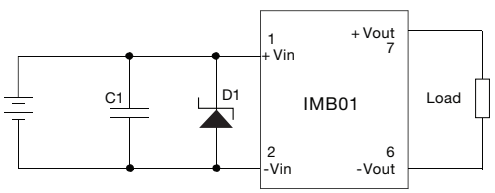
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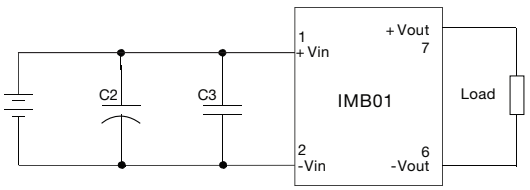
Application Note

External Filter for Surge and EFT



Part Number	C1	ZD1
IMB0105	330 µF/25 V, CHEMI-CON KY Series	1.5KE7.5CA (TVS Diode)
IMB0112	1800 µF/25 V, CHEMI-CON KY Series	
IMB0124	470 µF/50 V, CHEMI-CON KY Series	

EMI Filter Conducted Emissions



Part Number	C2	C3
IMB0105	47 µF/16V, 1210 X5R	
IMB0112	47 µF/25 V, 1210 X5R	
IMB0124	10 µF/50 V, 1210 X7R	10 µF/ 50 V, 1210 XZR

Operating Temperature

