

### 1 Watt

- World Wide Medical Approvals
- Single and Dual Outputs
- 2  $\mu$ A Patient Leakage Current
- SIP7 Package
- -20 °C to +100 °C Operation
- Full Load at 60 °C Ambient
- 1500 VAC Isolation, 1 MOPP
- MTBF 1 Mhrs
- 3 Year Warranty



#### Dimensions:

##### IMM01:

0.76 x 0.36 x 0.44" (19.5 x 9.2 x 11.1 mm)

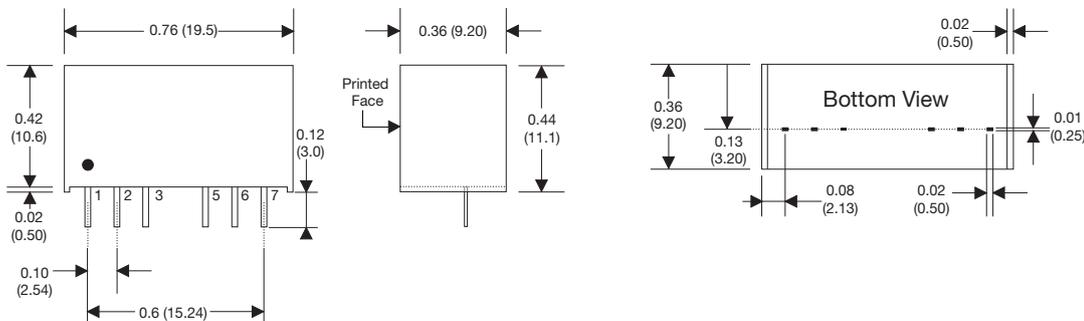
### Models & Ratings

Input Voltage	Output Voltage	Output Current	Input current		Maximum capacitive load	Model Number
			No Load	Full Load		
4.5-9.0 V	3V3	303 mA	75 mA	337 mA	2200 $\mu$ F	IMM0105S3V3
	5 V	200 mA	75 mA	337 mA	2200 $\mu$ F	IMM0105S05
	12 V	83 mA	75 mA	327 mA	470 $\mu$ F	IMM0105S12
	15 V	67 mA	75 mA	327 mA	470 $\mu$ F	IMM0105S15
	$\pm$ 3.3 V	$\pm$ 150 mA	55 mA	337 mA	$\pm$ 1000 $\mu$ F	IMM0105D03
	$\pm$ 5 V	$\pm$ 100 mA	55 mA	337 mA	$\pm$ 1000 $\mu$ F	IMM0105D05
	$\pm$ 12 V	$\pm$ 42 mA	75 mA	327 mA	$\pm$ 220 $\mu$ F	IMM0105D12
	$\pm$ 15 V	$\pm$ 33 mA	75 mA	327 mA	$\pm$ 220 $\mu$ F	IMM0105D15
9.0-18.0 V	3V3	303 mA	25 mA	163 mA	2200 $\mu$ F	IMM0112S3V3
	5 V	200 mA	25 mA	163 mA	2200 $\mu$ F	IMM0112S05
	12 V	83 mA	25 mA	150 mA	470 $\mu$ F	IMM0112S12
	15 V	67 mA	25 mA	150 mA	470 $\mu$ F	IMM0112S15
	$\pm$ 3.3 V	$\pm$ 150 mA	55 mA	163 mA	$\pm$ 1000 $\mu$ F	IMM0112D03
	$\pm$ 5 V	$\pm$ 100 mA	55 mA	163 mA	$\pm$ 1000 $\mu$ F	IMM0112D05
	$\pm$ 12 V	$\pm$ 42 mA	30 mA	150 mA	$\pm$ 220 $\mu$ F	IMM0112D12
	$\pm$ 15 V	$\pm$ 33 mA	30 mA	150 mA	$\pm$ 220 $\mu$ F	IMM0112D15

### Notes

Input currents measured at low input voltage.

### Mechanical Details



### Pin Connections

Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	+Vout	+Vout
6	-Vout	Common
7	No Pin	-Vout

### Notes

1. All dimensions are in inches (mm)
2. Weight: 0.008 lbs (3.6 g) approx.
3. Pin diameter: 0.02 $\pm$ 0.002 (0.5 $\pm$ 0.05)
4. Pin pitch tolerance:  $\pm$ 0.014 ( $\pm$ 0.35)
5. Case tolerance:  $\pm$ 0.02 ( $\pm$ 0.5)

### Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	4.5		9	VDC	5 V nominal
	9		18	VDC	12 V nominal
Inrush Current			0.05	A <sup>2</sup> s	
Input Reflected Ripple Current		30		mA pk-pk	Through 12 $\mu$ H inductor and 47 $\mu$ F capacitor
Input Surge			16	VDC for 100 ms	5 V models
			25	VDC for 100 ms	12 V models

### Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		30	VDC	See Models and Ratings table
Patient Leakage Current			2	$\mu$ A	
Initial Set Accuracy			$\pm 2$	%	3.3 V & 5.0 V at full load
			$\pm 1$		12.0 V & 15.0 V at full load
Minimum Load	0			%	No minimum load required
Line Regulation			$\pm 0.5$	%	From minimum to maximum input
Load Regulation			2.0	%	From 10% to full load (2% from 0% to 10% load)
Cross Regulation			$\pm 5$	%	On dual output models, when one output is at 25% load and other is varied from 10% load to full load
Ripple & Noise			1/2	% pk-pk	For 12 V & 15 V/ 3.3 V & 5 V models. 20 MHz bandwidth. Measured using 0.1 $\mu$ F ceramic capacitor
Short Circuit Protection					Continuous fold-back mode, with auto recovery
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient			0.03	%/ $^{\circ}$ C	
Overload Protection	190	250	310	%	Of nominal output current at nominal input voltage
Remote On/Off	Output is on if remote on/off (pin 3) is open Output turns off if 2-4 mA is applied to remote on/off (pin 3)				

### General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	64	78	81	%	Typical value is for IMM0112S12
Isolation: Input to Output	1500			VAC	At 250 VAC working voltage, 1 MOPP
Switching Frequency	175		1000	kHz	May enter burst mode frequency of 12-28 kHz at light load
Isolation Resistance	10 <sup>9</sup>			$\Omega$	
Isolation Capacitance			27	pF	
Power Density			8.31	W/in <sup>3</sup>	
Mean Time Between Failure	1			MHrs	MIL-HDBK-217F, +25 $^{\circ}$ C GB
Weight		0.008 (3.6)		lb (g)	

### Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Altitude			3048	M	
Transport Altitude			10,000		
Operating Temperature	-20		+100	$^{\circ}$ C	Derate linearly from 100% load at +60 $^{\circ}$ C to 0% at +100 $^{\circ}$ C
Storage Temperature	-40		+125	$^{\circ}$ C	
Case Temperature			+105	$^{\circ}$ 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	

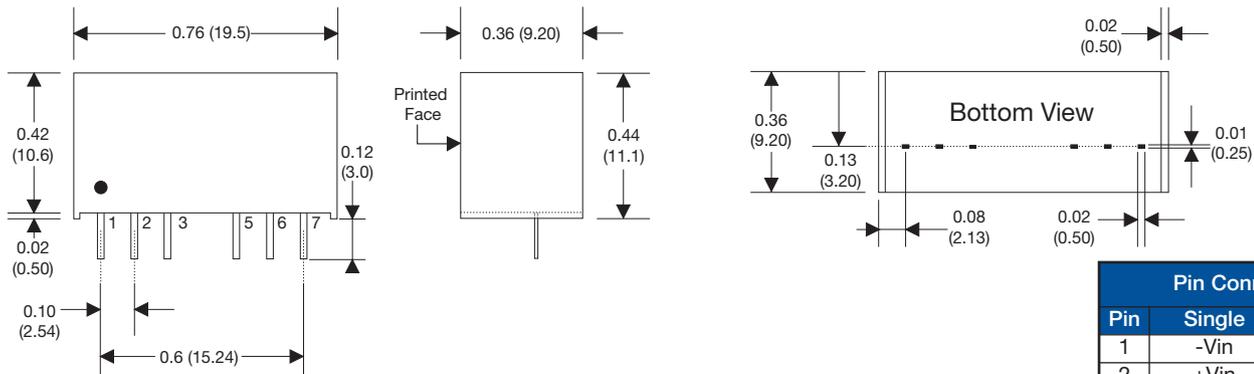
### EMC: Immunity

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

### Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	ANSI/AMMI ES60601-1	
CSA	CSA C22.2 No. 60601-1	
TUV	EN60601-1	
CB	IEC60601-1	

### Mechanical Details



#### Notes

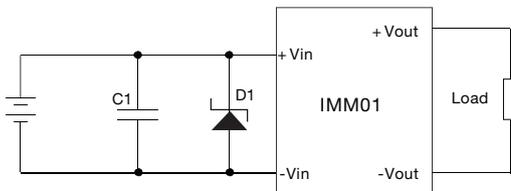
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- Case tolerance: ±0.02 (±0.5)

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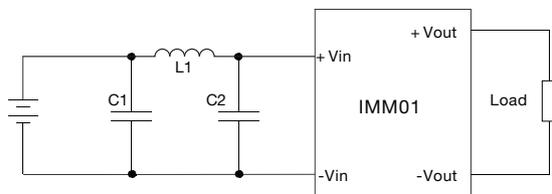
### Application Note

#### External Filter for Surge and EFT



C1 is 220  $\mu$ F, 100 V electrolytic capacitor  
 D1 is 18 V, 3 kW TVS for 5 V input or 28 V, 3 kW TVS for 12 V input

#### EMI Filter Conducted Emissions



C1 & C2 are 10  $\mu$ F, 35 V multilayer ceramic chip capacitors, placed as close as possible to the input pins  
 L1 is 12  $\mu$ H inductor

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9