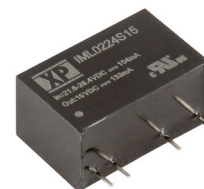


The 2W IML02 series is designed for medical applications with 2 x MOPP @125VAC, 4kVAC isolation and 2μA patient leakage current, it is housed in a SIP7 PCB mount plastic case.

Featuring a ±10% input voltage range for 5, 12, 15 & 24VDC nominal inputs, with regulated single outputs of 3.3, 5, 9, 12 & 15VDC, dual outputs ±3.3, ±5, ±9, ±12 & ±15VDC.

Short circuit protection is standard. Operating temperature range is from -20°C to +85°C, with no derating.



Features

- ▶ Unregulated single & dual outputs
- ▶ ±10% input range
- ▶ Single outputs 3.3 to 15VDC
- ▶ Dual outputs ±3.3 to ±15VDC
- ▶ SIP7 package
- ▶ International medical safety approvals
- ▶ 4.0kVAC isolation
- ▶ 1 x MOPP @ 250VAC
- ▶ 2 x MOPP @ 125VAC
- ▶ 2μA patient leakage current
- ▶ -40°C to +85°C operating temperature
- ▶ 3 year warranty

Applications



Dimensions

19.5 x 9.8 x 12.5mm (0.77" x 0.39" x 0.49")

Documentation

For further information click the link or scan the code

→ xppower.com



Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current		Maximum capacitive load
					No load	Full load	
IML0205S3V3	4.5-5.5VDC	3.3VDC	600mA	75%	50mA	533mA	1000μF
IML0205S05		5.0VDC	400mA	78%	60mA	533mA	470μF
IML0205S09		9.0VDC	222mA	80%	60mA	500mA	470μF
IML0205S12		12.0VDC	167mA	83%	60mA	482mA	220μF
IML0205S15		15.0VDC	133mA	82%	60mA	488mA	220μF
IML0205D03		±3.3VDC	±303mA	77%	50mA	519mA	±470μF
IML0205D05		±5.0VDC	±200mA	78%	60mA	513mA	±220μF
IML0205D09		±9.0VDC	±111mA	80%	60mA	500mA	±220μF
IML0205D12		±12.0VDC	±83mA	83%	60mA	482mA	±100μF
IML0205D15		±15.0VDC	±67mA	82%	60mA	488mA	±100μF

Continued on page 2

Notes:

Input currents measured at nominal input voltage.

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current		Maximum capacitive load
					No load	Full load	
IML0212S3V3	10.8-13.2VDC	3.3VDC	600mA	76%	25mA	217mA	1000μF
IML0212S05		5.0VDC	400mA	80%	30mA	208mA	470μF
IML0212S09		9.0VDC	222mA	80%	30mA	208mA	470μF
IML0212S12		12.0VDC	167mA	83%	30mA	200mA	220μF
IML0212S15		15.0VDC	133mA	82%	30mA	203mA	220μF
IML0212D03		±3.3VDC	±303mA	78%	25mA	214mA	±470μF
IML0212D05		±5.0VDC	±200mA	80%	30mA	208mA	±220μF
IML0212D09		±9.0 VDC	±111mA	80%	30mA	208mA	±220μF
IML0212D12		±12.0VDC	±83mA	83%	30mA	200mA	±100μF
IML0212D15		±15.0VDC	±67mA	82%	30mA	203mA	±100μF
IML0215S3V3	13.5-16.5VDC	3.3VDC	600mA	76%	25mA	174mA	1000μF
IML0215S05		5.0VDC	400mA	78%	30mA	170mA	470μF
IML0215S09		9.0VDC	222mA	80%	30mA	167mA	470μF
IML0215S12		12.0VDC	167mA	80%	30mA	167mA	220μF
IML0215S15		15.0VDC	133mA	80%	30mA	167mA	220μF
IML0215D03		±3.3VDC	±303mA	78%	25mA	170mA	±470μF
IML0215D05		±5.0VDC	±200mA	78%	30mA	170mA	±220μF
IML0215D09		±9.0 VDC	±111mA	80%	30mA	167mA	±220μF
IML0215D12		±12.0VDC	±83mA	80%	30mA	167mA	±100μF
IML0215D15		±15.0VDC	±67mA	80%	30mA	167mA	±100μF
IML0224S3V3	21.6-26.4VDC	3.3VDC	600mA	75%	20mA	111mA	1000μF
IML0224S05		5.0VDC	400mA	78%	20mA	106mA	470μF
IML0224S09		9.0VDC	222mA	80%	20mA	104mA	470μF
IML0224S12		12.0VDC	167mA	80%	20mA	104mA	220μF
IML0224S15		15.0VDC	133mA	80%	20mA	104mA	220μF
IML0224D03		±3.3VDC	±303mA	77%	20mA	107mA	±470μF
IML0224D05		±5.0VDC	±200mA	78%	20mA	106mA	±220μF
IML0224D09		±9.0 VDC	±111mA	80%	20mA	104mA	±220μF
IML0224D12		±12.0VDC	±83mA	80%	20mA	104mA	±100μF
IML0224D15		±15.0VDC	±67mA	80%	20mA	104mA	±100μF

Notes:

Input currents measured at nominal input voltage.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		5.5	VDC	5VDC nominal
	10.8		13.2		12VDC nominal
	13.5		16.5		15VDC nominal
	21.6		26.4		24VDC nominal
Input reflected ripple		20		mA pk-pk	Through 12μH inductor and 47μF capacitor
Input surge			5.5	VDC for 100ms	5VDC nominal
			13.2		12VDC nominal
			16.5		15VDC nominal
			26.4		24VDC nominal

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Initial set accuracy			±5	%	At full load
Minimum load	10			%	Minimum load required to meet specified regulation
Line regulation			±1.2	%/1%	Output changes by max of 1.2% for each 1% change in input voltage
Load regulation			10	%	From 10% to full load, see application note
Cross regulation		±4		%	On dual output models, when one output is at 25% load and other is varied from 10% load to full load
Ripple & noise			150	mV pk-pk	20MHz bandwidth. Measured using 10µF electrolytic in parallel with 0.1µF ceramic capacitor
Short circuit protection	Continuous				
Maximum capacitive load	See models and ratings table				
Temperature coefficient			0.03	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		80		%	
Isolation: input to output	4000			VDC	1 x MOPP at 250VAC rms working voltage, 2 x MOPP at 125VAC working voltage
Patient leakage current			2	VAC rms	
Isolation resistance	10 ⁹			Ω	
Isolation capacitance		10	20	pF	
Switching frequency	50		100	kHz	
Power density			0.82 (13.6)	W/cm ³ (W/in ³)	
Mean time between failure	2.5			Mhrs	MIL-HDBK-217F, +25°C GB
Weight		4.2 (0.009)	g (lb)		

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+85	°C	No derating
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Humidity	2.5		95	%RH	Non-condensing
Cooling	Natural convection				
Altitude			5000	m	

Safety approvals

Safety agency	Standard	Notes & conditions
UL	ANSI/AMMI ES60601-1	
CSA	CSA C22.2 No. 60601-1	
TUV	EN60601-1	
CB	IEC60601-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

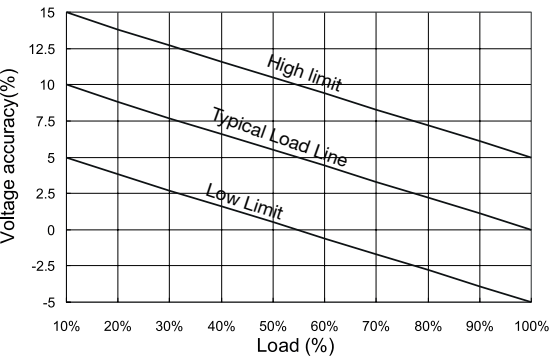
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55011	Class B	See application note
Radiated	EN55011	Class B	

Immunity - EMC

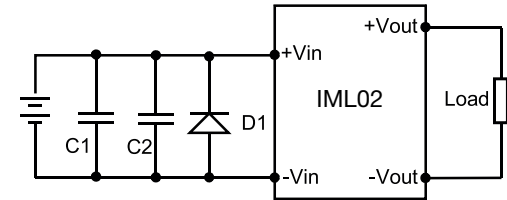
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	±15kV	A	Air Discharge
Radiated immunity	EN61000-4-3	10Vrms	A	
Surge	EN61000-4-4	2kV	A	External components required, see application notes
EFT/Burst	EN61000-4-5	2kV	A	External components required, see applications note
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	30A/m	A	

Application notes

Regulation



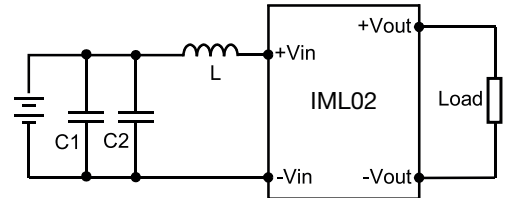
EFT & surge filter



Model	C1	C2	D1
IML0205XXXX	1000µF/35VDC	330µF/50VDC	SMDJ9.0A
IML0212XXXX	1000µF/35VDC	330µF/50VDC	SMDJ13A
IML0215XXXX	1000µF/35VDC	330µF/50VDC	SMDJ18A
IML0224XXXX	1000µF/35VDC	330µF/50VDC	SMDJ28A

Input components (C1, C2, D1) are used to help meet EFT and surge test requirements for the module.

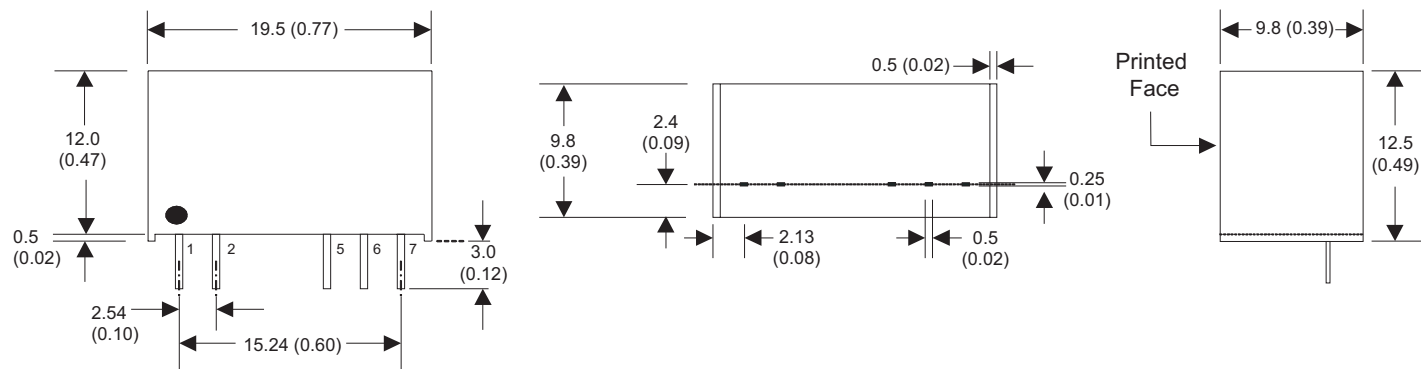
EMI filter



Model	C1	C2	L
IML0205XXXX	1206, 4.7µF/50VDC		6.8µH
IML0212XXXX	1206, 4.7µF/50VDC	1206, 4.7µF/50VDC	6.8µH
IML0215XXXX	1206, 4.7µF/50VDC	1206, 4.7µF/50VDC	6.8µH
IML0224XXXX	1206, 4.7µF/50VDC	1206, 4.7µF/50VDC	6.8µH

Input filter components (C1,C2 and L) are used to help meet conducted emissions requirements for the module. These components should be mounted as close as possible to the module, and all leads should be minimised to decrease radiated noise.

Mechanical details



Pin connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

Notes:

1. All dimensions are in mm (inches)
2. Weight: 4.2 (0.009) g (lb) approx.
3. Pin pitch tolerance: ± 0.35 (± 0.014)
4. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
5. Case tolerance: ± 0.5 (± 0.02)