

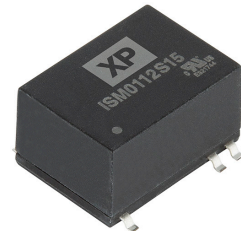
1W

DC-DC
converters 

The 1W ISM01 series is designed for medical applications with 2 x MOPP @ 250VAC, 4kVAC reinforced isolation and 2μA patient leakage current, it is housed in a SMD14 surface mount package.

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

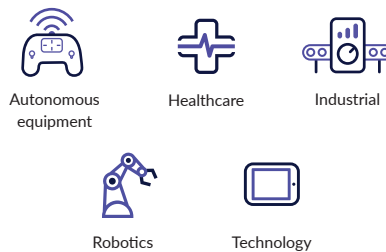
Short circuit protection is standard. Operating temperature range is from -20°C to +105°C, with derating from +85°C.



Features

- ▶ Unregulated single & dual outputs
- ▶ ±10% input range
- ▶ Single outputs 5.0 to 15VDC
- ▶ Dual outputs ±12.0 & ±15VDC
- ▶ SMD14 package
- ▶ International medical safety approvals
- ▶ 4.0kVAC reinforced isolation
- ▶ 2 x MOPP at 250VAC
- ▶ 2μA patient leakage current
- ▶ Tape & reel option
- ▶ Water washable option
- ▶ Operating temperature -40°C to +105°C
- ▶ Full power to +85°C
- ▶ 3 year warranty

Applications



Dimensions

18.9 x 17.2 x 10.5mm (0.74" x 0.68" x 0.41")

Documentation

For further information click the link or scan the code

→ xppower.com



Models & ratings

Model number ^(3,4,5)	Input voltage	Output voltage	Output current		Input current ⁽¹⁾		Maximum capacitive load ⁽²⁾	Reflected ripple current	Efficiency
			Minimum	Maximum	No load	Full load			
ISM0105S05	5VDC (4.5-5.5VDC)	5.0VDC	4.00mA	200mA	50mA	265mA	220μF	80mA	76%
ISM0105S12		12.0VDC	1.68mA	84mA		250mA	220μF		80%
ISM0105S15		15.0VDC	1.36mA	68mA		245mA	220μF		83%
ISM0105D12		±12.0VDC	±0.84mA	±42mA		250mA	±100μF		80%
ISM0105D15		±15.0VDC	±0.66mA	±33mA		235mA	±100μF		84%

Continued on page 2

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. For optional water washable version, add suffix '-P' e.g. ISM0112S05-P.
4. Add suffix '-TR' for tape and reel. MOQ 200 pcs.
5. Standard tube quantity 10 pcs.

Models & ratings

Model number ^(3,4,5)	Input voltage	Output voltage	Output current		Input current ⁽¹⁾		Maximum capacitive load ⁽²⁾	Reflected ripple current	Efficiency ⁽³⁾
			Minimum	Maximum	No load	Full load			
ISM0112S05	12VDC (10.8-13.2VDC)	5.0VDC	4.00mA	200mA	35mA	110mA	220µF	40mA	76%
ISM0112S12		12.0VDC	1.68mA	84mA		105mA	220µF		79%
ISM0112S15		15.0VDC	1.36mA	68mA		105mA	220µF		80%
ISM0112D12		±12.0VDC	±0.84mA	±42mA		105mA	±100µF		79%
ISM0112D15		±15.0VDC	±0.66mA	±33mA		105mA	±100µF		80%
ISM0124S05		5.0VDC	4.00mA	200mA	20mA	55mA	220µF	30mA	76%
ISM0124S12	24VDC (21.6-26.4VDC)	12.0VDC	1.68mA	84mA		55mA	220µF		80%
ISM0124S15		15.0VDC	1.36mA	68mA		55mA	220µF		80%
ISM0124D12		±12.0VDC	±0.84mA	±42mA		55mA	±100µF		80%
ISM0124D15		±15.0VDC	±0.66mA	±33mA		50mA	±100µF		80%

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. For optional water washable version, add suffix '-P' e.g. ISM0112S05-P.
4. Add suffix '-TR' for tape and reel. MOQ 200 pcs.
5. Standard tube quantity 10 pcs.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		5.5	VDC	5VDC nominal
	10.8		13.2		12VDC nominal
	21.6		26.4		24VDC nominal
Input filter	Internal capacitor				
Input surge			9	VDC for 1s	5VDC models
			18		12VDC models
			30		24VDC models

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	5		30	VDC	See models and ratings table
Initial set accuracy		±1.0	±3.0	%	
Output voltage balance		±0.1	±1.0	%	For dual output with balanced loads
Minimum load	2			%	See models and ratings table
Line regulation		±1.2	±1.5	%/1%	Output changes by max of 1.5% for each 1% change in input voltage
Load regulation			10	%	10% to 100%
Ripple & noise			100	mV pk-pk	20MHz bandwidth. Measured using 0.47µF ceramic capacitor.
Short circuit protection	Continuous, with auto recovery				
Maximum capacitive load	See models and ratings table				
Temperature coefficient			0.02	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		80		%	See models and ratings table
Isolation: input to output	4000			VAC	Reinforced, 2 x MOPP at 250VAC working voltage
Leakage current			2	μA	
Isolation resistance	10 ⁹			Ω	At 500VDC
Isolation capacitance		20		pF	
Switching frequency		55		kHz	
Power density			0.2 (4.8)	W/cm ³ (W/in ³)	
Mean time between failure	4.7			Mhrs	MIL-HDBK-217F, +25°C GB
Lead-Free reflow solder process	IPC/JEDEC J-STD-020D.1				
Case material	Non conductive black plastic. UL94V-0 rated. Not suitable for water washing.				
Pin material	Solder-coated phosphor bronze				
Weight		4.2 (0.01)		g (lb)	
Moisture sensitivity level	Level 2, IPC/JEDEC J-STD-020D.1				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+95	°C	See derating curve
Storage temperature	-50		+125	°C	
Case temperature	-40		+105	°C	
Humidity			95	%RH	Non-condensing
Cooling	Natural convection				

Safety approvals

Safety agency	Standard	Notes & conditions
UL	ANSI/AAMI ES60601-1	Medical
CB	IEC60601-1	Medical
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

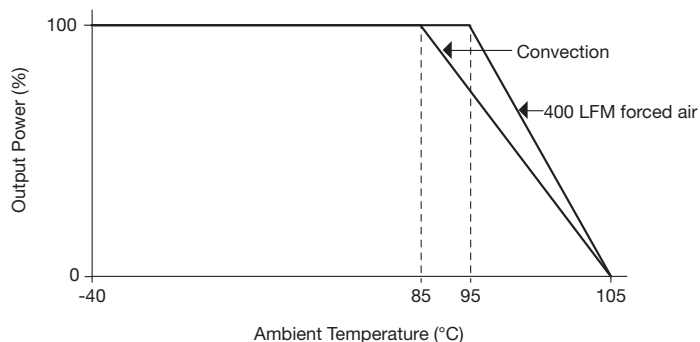
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55011	Class A	See application note

Immunity - EMC

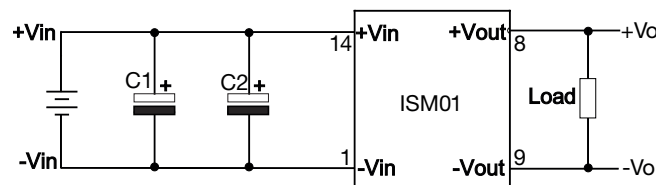
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	±15kV/±8kV	A	Air discharge/contact
Radiated immunity	EN61000-4-3	10Vrms	A	
EFT/Burst	EN61000-4-4	±2kV	A	
Surge	EN61000-4-5	±1kV	A	
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	30A/m	A	

Application notes

Derating curve

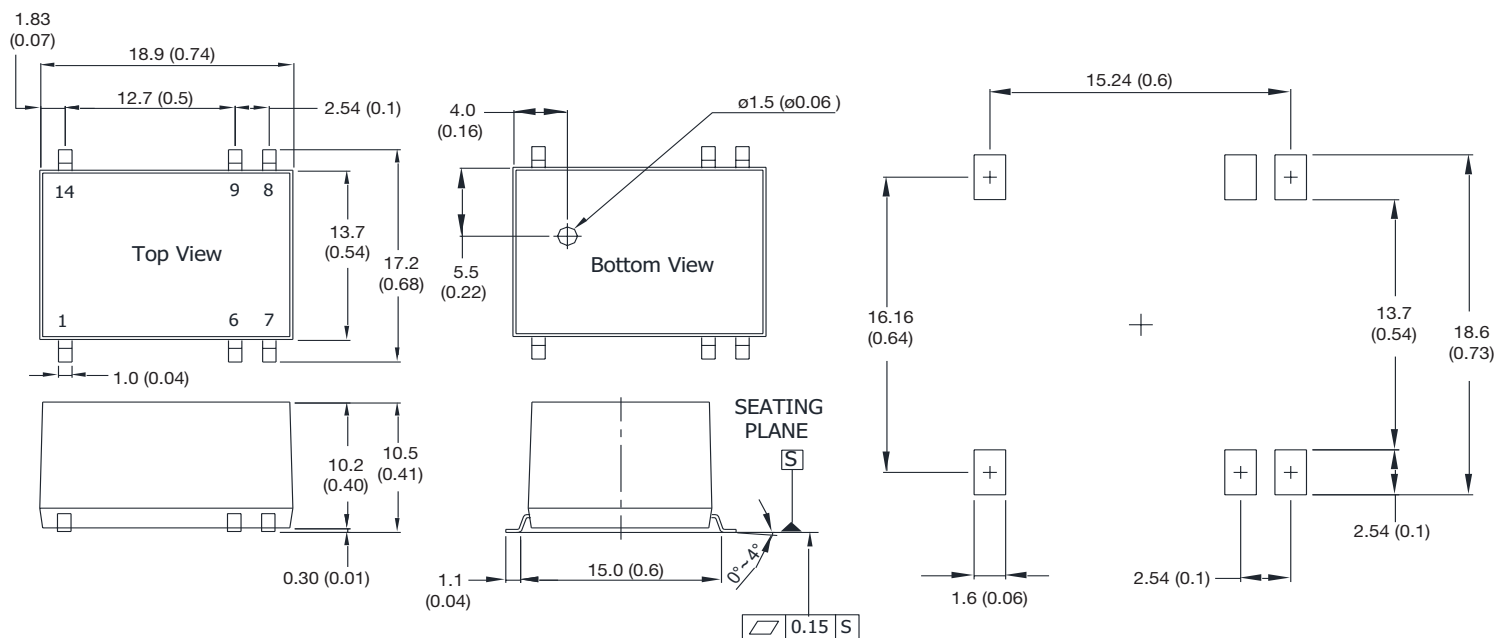


EMC circuit for Class A



Model	C1	C2
5VDC	68μF/10VDC	
12VDC	47μF/25VDC	47μF/25VDC
24VDC	22μF/35VDC	22μF/35VDC

Mechanical details



Pin connections

Pin	Single	Dual
1	-Vin	-Vin
6	No Connection	Common
7	No Connection	-Vout
8	+Vout	+Vout
9	-Vout	Common
14	+Vin	+Vin

Notes:

- All dimensions are in mm (inches)
- Weight: 4.2 (0.01) g (lb) approx.
- Pin tolerance: x.x ±0.25 (x.xx ±0.01), x.xx ±0.13 (x.xxx ±0.005)
- Pin tolerance: ±0.05 (±0.002)