ISU02 Series

DC-DC Converter

XP Power

2 Watt

- Regulated single & dual output
- Wide 4:1 input range
- Compact SMD package
- 1500VDC isolation
- Operating temperature -40°C to +95°C
- ITE safety approvals
- Remote on/off
- Tape & reel package available
- Optional water washable versions
- 3 year warranty

Dimensions:

ISU02:
0.75 x 0.67 x 0.34" (19.0 x 17.0 x 8.7 mm)

The ISU02 series offers a compact surface mount DC-DC module suitable for industrial applications with an operating temperature of 70°C at full load. Features include remote on/off, short circuit protection, overload protection and under voltage protection.

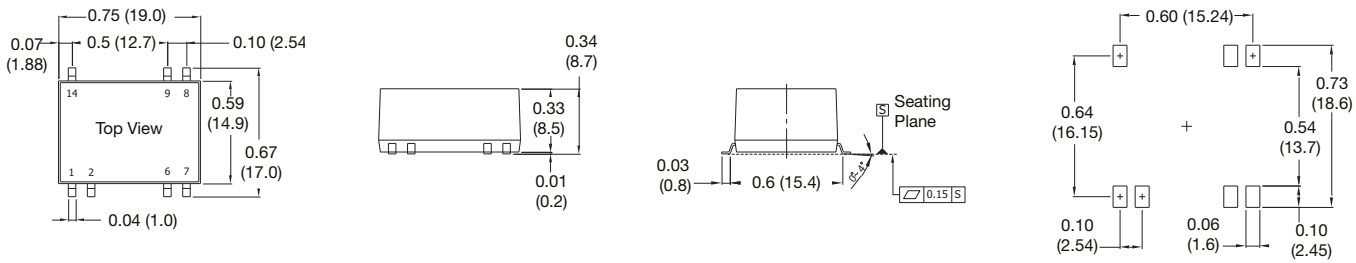
Models & Ratings

Input voltage	Output voltage	Output current	Input current[1,2]		Maximum capacitive load[3]	Efficiency	Model number[4]
			No load	Full load			
5V (4.5-12V)	5V	400mA	40mA	505mA	1680µF	79%	ISU0205S05
	12V	167mA		500mA	820µF	80%	ISU0205S12
	15V	134mA		495mA	680µF	81%	ISU0205S15
	24V	83mA		490mA	390µF	81%	ISU0205S24
	±12V	±83mA		490mA	±470µF	81%	ISU0205D12
	±15V	±67mA		495mA	±330µF	81%	ISU0205D15
24V (9-36V)	5V	400mA	20mA	105mA	1680µF	79%	ISU0224S05
	12V	167mA		105mA	820µF	80%	ISU0224S12
	15V	134mA		100mA	680µF	82%	ISU0224S15
	24V	83mA		105mA	390µF	80%	ISU0224S24
	±12V	±83mA		105mA	±470µF	80%	ISU0224D12
	±15V	±67mA		105mA	±330µF	81%	ISU0224D15
48V (18-75V)	5V	400mA	10mA	53mA	1680µF	78%	ISU0248S05
	12V	167mA		52mA	820µF	81%	ISU0248S12
	15V	134mA		51mA	680µF	82%	ISU0248S15
	24V	83mA		51mA	390µF	81%	ISU0248S24
	±12V	±83mA		51mA	±470µF	81%	ISU0248D12
	±15V	±67mA		52mA	±330µF	81%	ISU0248D15

Notes

1. Input currents measured at nominal input voltage.
2. Input current is typically 2.5 mA at nominal input voltage when output is remotely turned off.
3. Maximum capacitive load is per output.
4. For optional water washable version, add suffix '-P' e.g. ISU0224S12-P.

Mechanical Details



Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	4.5		12	VDC	5 V nominal.
	9.0		36		24 V nominal.
	18.0		75		48 V nominal.
Input Filter	Internal Pi type filter				
Input Surge			15	VDC for 1 s	5 V nominal.
			50		24 V models.
			100		48 V models.
Remote On/Off	ON: open circuit. OFF: 2-4mA via 1kΩ resistor into pin 2 with respect to pin 1.				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5		30	VDC	See Models and Ratings table.
Initial Set Accuracy			±1.0	%	At full load.
Output Voltage Balance			±2.0	%	For dual output with balanced loads.
Minimum Load					No minimum load required.
Line Regulation			±0.5	%	From minimum to maximum input at full load.
Load Regulation			±1.0	%	From 0 to full load.
Cross Regulation			±5.0	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%.
Transient Response		3	5	% deviation	Recovery within 1% in less than 250 µs for a 25% load change.
Ripple & Noise			50	mV pk-pk	20 MHz bandwidth. Measured using 0.47 µF 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		81		%	See models and ratings table.
Isolation: Input to Output	1500/1800			VDC	60s/1s, functional insulation.
Isolation Resistance	10^9			Ω	At 500VDC.
Isolation Capacitance		500		pF	
Switching Frequency		100		kHz	
Power Density			11.7	W/in³	
Mean Time Between Failure		6.4		MHrs	MIL-HDBK-217F, +25 °C GB.
Weight		0.01 (4.5)		lb (g)	
Solder Profile			260	°C	10s max, 1.5mm from case. IPC/JEDEC J-STD-020D.1
Case Material	Non conducted black plastic, UL94V-0 rated.				
Pin Material	Tinned copper.				
Water Wash	Options available on request.				
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	-55		+125	°C	
Case Temperature			+95	°C	
Humidity			95	%RH	Non-condensing.
Cooling	Natural convection.				
Case Flammability	Non conductive black plastic, UL 94V-0 rated.				
Lead-Free Reflow Solder Process	IPC/JEDEC J-STD-020D.1				

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
CB	IEC62368-1	ITE
UL	UL/cUL62368-1	ITE

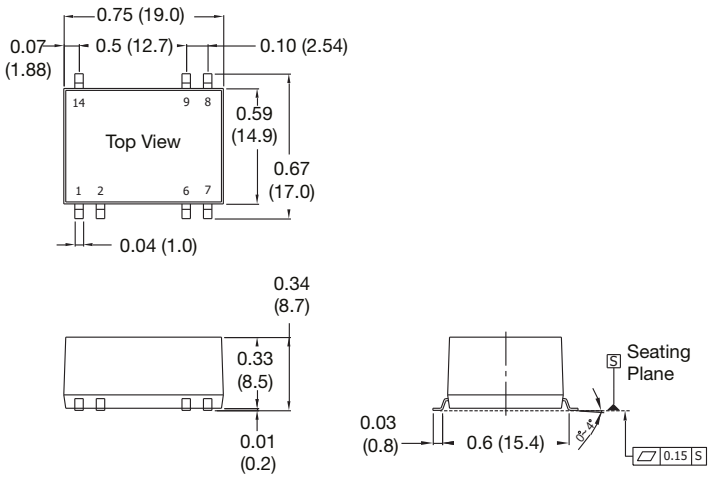
EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class A	

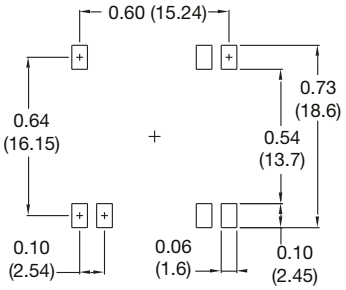
EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±8kV air discharge, ±6kV contact	A	
Radiated	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	±2kV	A	With external input capacitor, suggested part is CHEMI-CON KY 220µF/100V.
Surge	EN61000-4-5	±1kV	A	With external input capacitor, suggested part is CHEMI-CON KY 220µF/100V.
Conducted	EN61000-4-6	10Vrms	A	

Mechanical Details



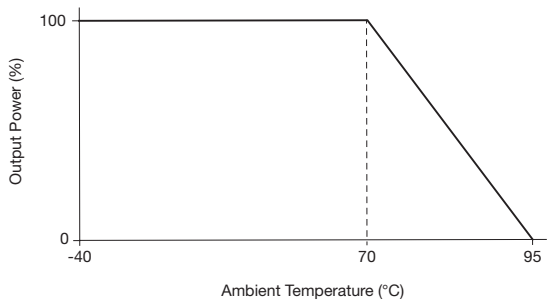
Connecting Pin Pattern



Pin Connections		
Pin	Single	Dual
1	-Vin	-Vin
2	Remote On/Off	Remote On/Off
6	No Connection	Common
7	No Connection	-Vout
8	+Vout	+Vout
9	-Vout	Common
14	+Vin	+Vin

Application Notes

Derating Curve



Notes

1. All dimensions are in inches (mm)
2. Weight: 0.01 lbs (4.5 g) approx.
3. Tolerance: X.XX±0.01 (X.X±0.25)
   X.XXX±0.005 (X.XX±0.13)
4. Pin Tolerance: ±0.002 (±0.05)