ITV series

XP Power

1W

DC-DC converters

The ITV series of unregulated DC-DC modules provides single and dual outputs with a high operating temperature range, while remaining cost effective.

Features include continuous short circuit protection and a compact robust encapsulated SIP7 package.

Features

- Unregulated single & dual outputs
- ±10% input range
- Single outputs 5.0 to 15VDC
- Dual outputs ±5.0 to ±15VDC
- SIP7 package
- 3.0kVDC functional isolation
- Class B radiated emissions
- -40°C to +105°C operating temperature
- Full power to +95°C
- 3 year warranty

Applications

Robotics

Instrumentation

Technology

IndustrITV05I

Process control

Dimensions

19.5 x 6.0 x 10.0mm (0.76” x 0.24” x 0.39”)

More resources

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xppower.com

Models & ratings

Model number	Input voltage	Output voltage	Output current	Input current[1]		Maximum Capacitive Load[2]	Efficiency[3]
				No load	Full load		
ITV0505SA	5VDC	5VDC	200mA	30mA	253mA	220µF	80%
ITV0512SA		12VDC	83.3mA		253mA	100µF	80%
ITV0515SA		15VDC	66.7mA		253mA	100µF	80%
ITV0505S		±5VDC	±100mA		253mA	±100µF	80%
ITV0512S		±12VDC	±41.6mA		250mA	±47µF	81%
ITV0515S		±15VDC	±33.3mA		250mA	±47µF	81%

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Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Measured at nominal input voltage and full load.

ITV series

Models & ratings

Model number	Input voltage	Output voltage	Output current	Input current[1]		Maximum Capacitive Load[2]	Efficiency[3]
				No load	Full load		
ITV1205SA	12VDC	5VDC	200mA	15mA	106mA	220µF	80%
ITV1212SA		12VDC	83.3mA		106mA	100µF	80%
ITV1215SA		15VDC	66.7mA		104mA	100µF	81%
ITV1205S		±5VDC	±100mA		106mA	±100µF	80%
ITV1212S		±12VDC	±41.6mA		106mA	±47µF	80%
ITV1215S		±15VDC	±33.3mA		104mA	±47µF	81%
ITV2405SA	24VDC	5VDC	200mA	7mA	53mA	220µF	80%
ITV2412SA		12VDC	83.3mA		53mA	100µF	80%
ITV2415SA		15VDC	66.7mA		53mA	100µF	80%
ITV2405S		±5VDC	±100mA		53mA	±100µF	80%
ITV2412S		±12VDC	±41.6mA		53mA	±47µF	80%
ITV2415S		±15VDC	±33.3mA		53mA	±47µF	80%

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Measured at nominal input voltage and full load.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		5.5	VDC	5V nominal
	10.8		13.2		12V nominal
	21.6		26.4		24V nominal
Input filter	Capacitor				
Input reflected ripple			15	mA pk-pk	Through 12µH inductor and 47µF capacitor
Input surge			9	VDC for 1000ms	5V models
			18		12V models
			30		24V models

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	5		15	VDC	See models and ratings table
Initial set accuracy			±5	%	At 70% load
Minimum load	10			%	Minimum load required to meet specification, operation at no load will not cause damage.
Line regulation			±1.2	%/1%Vin	
Load regulation			+5, -2.5	%	From 10% to full load from 70% load point
Cross regulation			±5	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%
Ripple & noise			60	mV pk-pk	20MHz bandwidth, measured using 0.1µF ceramic capacitor
Short circuit protection					Continuous, with auto recovery
Maximum capacitive load	See models and ratings table				
Temperature coefficient			0.02	%/°C	

ITV series

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		80		%	See model and ratings table
Isolation: input to output	1500			VDC	60s qualification. Functional insulation.
Working voltage			100		
Switching frequency	40/50		50/70	kHz	5V/12-24V input
Isolation resistance	10^9			Ω	
Isolation capacitance		50		pF	
Power density			0.85 (14)	W/cm³ (W/in³)	
Mean time between failure	3.6			Mhrs	MIL-HDBK-217F, +25 °C GB
Pin type	Solder coated phospher bronze				C5191R-H
Case material	Non conductive black plastic				UL94V-0 rated
Potting material	Epoxy				UL94V-0 rated
Solder profile	260°C maximum				1.5mm from case, up to 10s max
Weight		2.4 (0.0053)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+105	°C	Derate from 100% load at +95°C to 90% at +105°C
Storage temperature	-55		+125	°C	
Case temperature			+115	°C	
Humidity			95	%RH	Non-condensing
Cooling	Natural convection				

Safety approvals

Certification	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

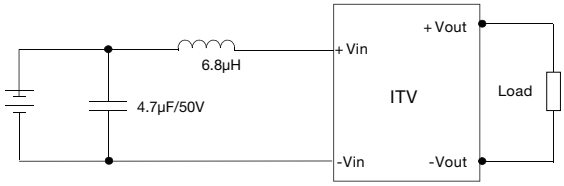
Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class B	See application note
Radiated	EN55022	Class B	

Immunity - EMC

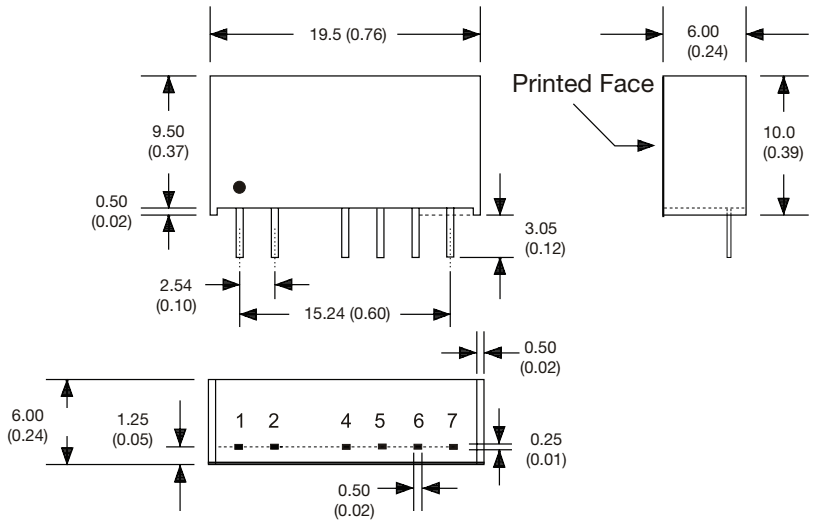
Phenomenon	Standard	Test level	CriterITV05	Notes & conditions
ESD immunity	EN61000-4-2	3	A	
RadITV05ted immunity	EN61000-4-3	10 Vrms	A	
EFT/Burst	EN61000-4-4	3	A	External input capacitor required 330µF/100V
Surge	EN61000-4-5	1	A	External input capacitor required 330µF/100V
Conducted immunity	EN61000-4-6	3 V rms	A	
Magnetic fields	EN61000-4-8	1 A/m	A	

Application notes



1206 Chip Capacitor, placed as close as possible to the input pins

Mechanical details



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

Notes:

1. All dimensions in mm (inches).
2. Weight: 2.4g (0.0053lbs)
3. Pin diameter: 0.5±0.05 (0.02±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)