ITZ09 series

9W

DC-DC converters

The ITZ09 series is housed in a SIP8 plastic case. Featuring a 4:1 input voltage range of 9 to 36VDC or 18 to 75VDC with both single and dual outputs, singles have 3.3, 5, 9, 12, 15 or 24VDC with duals having ±5, ±12 & ±15VDC.

The ITZ09 provides 1.6kVDC functional isolation between input and output, the output has overload. over voltage and short circuit protection, remote On/Off is standard.

The operating temperature range is from -40°C to +85°C, with derating above +50°C.

Features

- Regulated single & dual outputs
- 4:1 input range
- Single outputs 3.3 to 24VDC
- Dual outputs ±5.0 to ±15VDC
- SIP8 package
- 1.5kVDC isolation
- Remote On/Off
- No minimum load
- -40°C to +85°C operating temperature
- Full power to +50°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Dimensions

21.9 x 9.6 x 11.2mm (0.86" x 0.38" x 0.44")

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[1]		Maximum capacitive load[2]
					No load	Full load	
ITZ0924S3V3	9-36VDC	3.3VDC	2000mA	82%	9mA	335mA	2600µF
ITZ0924S05		5.0VDC	1600mA	85%		390mA	1300µF
ITZ0924S09		9.0VDC	1000mA	86%		425mA	800µF
ITZ0924S12		12.0VDC	750mA	88%		425mA	560µF
ITZ0924S15		15.0VDC	600mA	89%		420mA	560µF
ITZ0924S24		24.0VDC	375mA	89%		420mA	200µF
ITZ0924D05		±5.0VDC	±800mA	85%		390mA	±800µF
ITZ0924D12		±12.0VDC	±375mA	88%		425mA	±390µF
ITZ0924D15		±15.0VDC	±300mA	88%		430mA	±200µF

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Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Standard tube quantity = 20

ITZ09 series

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load[2]
					No load	Full load	
ITZ0948S3V3	18-75VDC	3.3VDC	2000mA	82%	5mA	170mA	2600µF
ITZ0948S05		5.0VDC	1600mA	85%		195mA	1300µF
ITZ0948S09		9.0VDC	1000mA	86%		215mA	800µF
ITZ0948S12		12.0VDC	750mA	89%		212mA	560µF
ITZ0948S15		15.0VDC	600mA	88%		210mA	560µF
ITZ0948S24		24.0VDC	375mA	88%		210mA	200µF
ITZ0948D05		±5.0VDC	±800mA	85%		195mA	±800µF
ITZ0948D12		±12.0VDC	±375mA	87%		215mA	±390µF
ITZ0948D15		±15.0VDC	±300mA	87%		215mA	±200µF

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Standard tube quantity = 20

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input filter	Capacitor				
Input reflected ripple			20/40	mA pk-pk	24/48V input. Through 12µH inductor and 47µF capacitor
Input surge			50	VDC for 100ms	24VDC models
			100		48VDC models VDC for 100ms

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Minimum load	0			%	No minimum load required
Initial set accuracy			±1	%	At full load
Line regulation			±0.2	%	From minimum to maximum input at full load
Load regulation			±0.5	%	Single output from 0 to full load
			±1		3V3 and dual output from 0 to full load
Cross regulation			±5	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%
Transient response			±5	%	For 3V3 output models
			±3		All other models, recovery within 2% in less than 2ms for a 25% load change
Ripple & noise			75	mV pk-pk	20MHz bandwidth, measured using 0.1µF ceramic capacitor
Short circuit protection	Continuous trip & restart (Hiccup mode), with auto recovery				
Temperature coefficient			0.02	%/˚C	
Overvoltage protection		130		%	
Overload protection		180		%	
Maximum capacitive load	See models and ratings table				
Remote on/off	Output is on if remote on/off (pin 3) is open circuit. Output is off if 2-4mA current is applied to remote on/off (pin 3) via 1kΩ resistor. Maxiumum pin voltage is 5V and maximum current into pin 3 is 4mA. Note: Output may be affected with current into the pin as low as 10µA.				

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		88		%	See models and ratings table
Isolation: input to output	1600			VDC	For 60s, insulation: functional
Isolation: input to case	1000				
Continuous Working Voltage: Input to Output			500	VDC	200Vrms
Isolation resistance	10^9			Ω	
Isolation capacitance		50		pF	
Switching frequency		400/500		kHz	12 & 24Vin/48Vin
Power density		3.9 (65.0)		W/cm^3 (W/in^3)	
Mean time between failure	900			khrs	MIL-HDBK-217F, +25°C GB
Case material	Copper				
Potting material	Epoxy UL94V-0				
Pin material	Solder coated phosphor bronze C519R-H				
Solder profile	260°C max, 1.5mm from case 10s max				
Water wash	Use deionized water, do not soak. Dry thoroughly.				
Weight		7.3 (0.016)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+85	°C	Derate from 100% load at +60°C to no load at +85°C. Derate from 100% load at +50°C to no load at +85°C for 3V3 output models.
Storage temperature	-55		+125	°C	
Case temperature			+100	°C	
Cooling	Natural convection				
Operating humidity			95	%	RH, non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
UL	UL/cUL60950-1, 62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

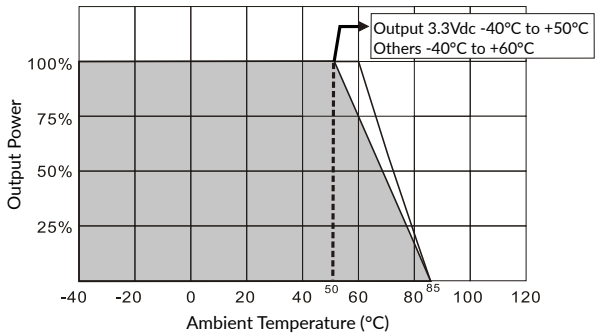
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	See application notes
Radiated	EN55032	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD Immunity	EN61000-4-2	±6kV	A	Contact
		±8kV		Air
Radiated immunity	EN61000-4-3	20V/m	A	
EFT/Burst	EN61000-4-4	±2kV	A	See application notes
Surge	EN61000-4-5	±2kV	A	See application notes
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	100A/m	A	

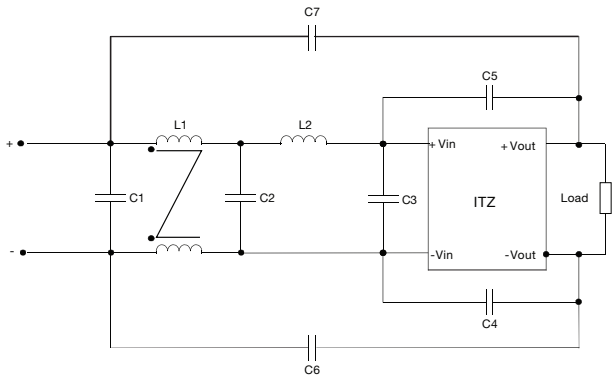
Application notes

Derating curve



EMI filter

Single output models

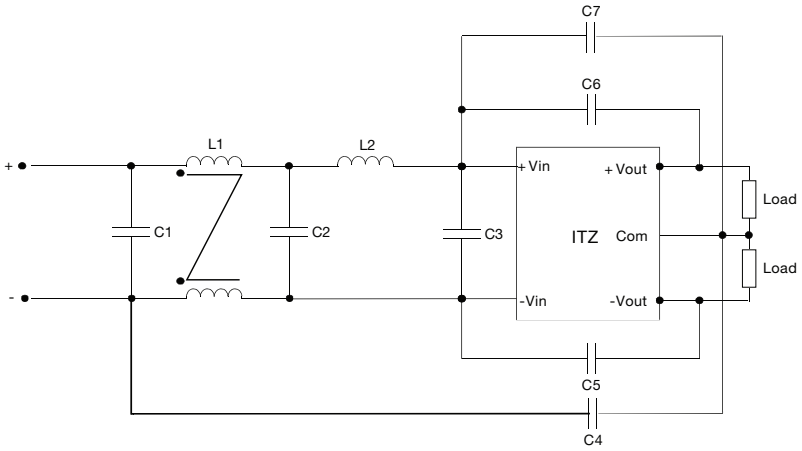


Model	C1, C2, C3	C4, C5, C6, C7	L1	L2
12Vin	1210, 10µF/35V	1808, 220pF/3kV	20µH	20µH
24Vin & 48Vin	1210, 4.7µF /100V	1808, 1000pF/3kV	2x 133µH	10µH

Application notes

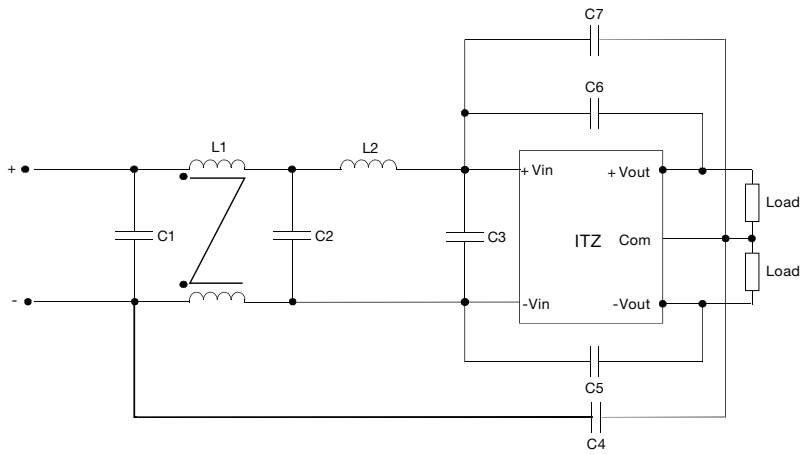
EMT filter - Dual outputs

24V version



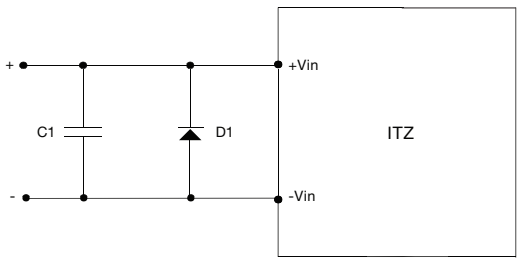
Model	C1, C2, C3	C4, C5, C6	C7	L1	L2
24Vin	1210, 10µF/35V	1808, 220pF/3kV	1808, 1000pF/3kV	2 x 20µH	20µH

48V version



Model	C1, C2, C3	C5, C6	C4, C7	L1	L2
48Vin	1210, 4.7µF/100V	1808, 1000pF/3kV	1808, 220pF/3kV	2 x 133µH	10µH

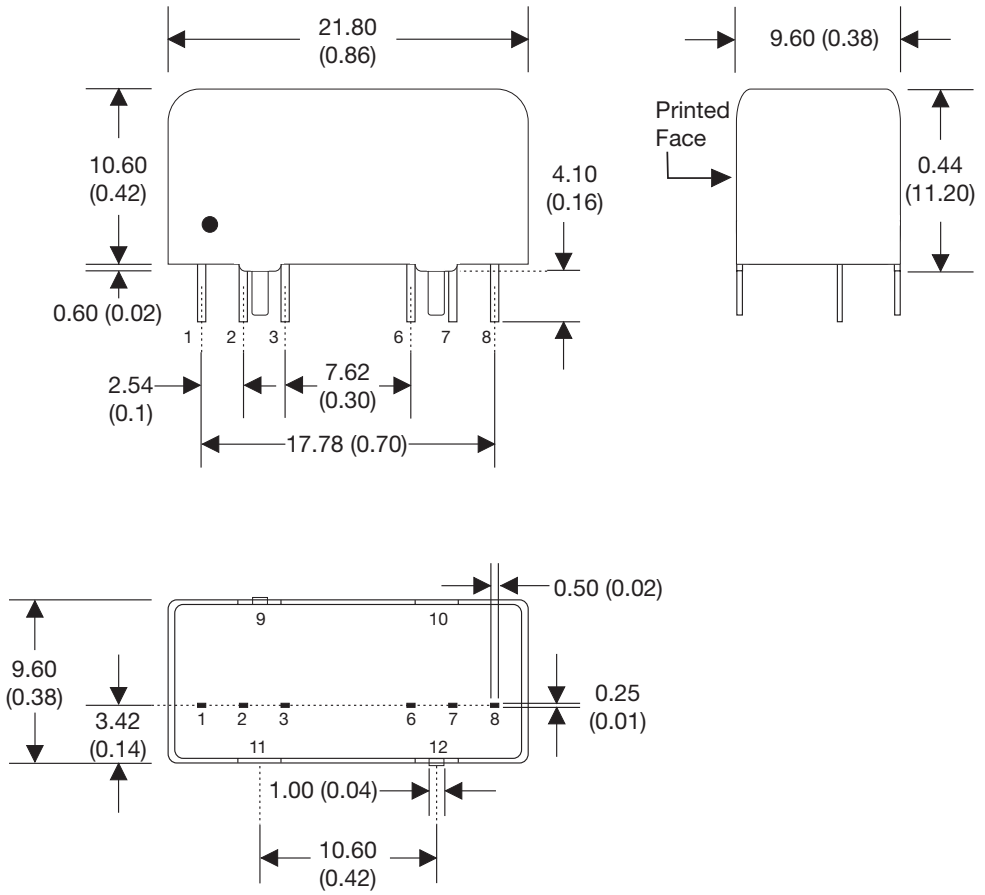
EFT/Surge Filter



Model	C1	D1
24Vin	330µF, 100V	TVS, 3kW, 70V
48Vin	330µF, 100V	TVS, 3kW, 120V

C1 suggested series Nippon Chemicon KY

Mechanical details



Pin connections		
Pin	**Single**	**Dual**
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
6	+Vout	+Vout
7	-Vout	Common
8	No Connection	-Vout
9	Case	Case
10	Stand Off	Stand Off
11	Stand Off	Stand Off
12	Case	Case

Notes:

1. All dimensions are in mm (inches)
2. Weight: 5.9 (0.013) 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)