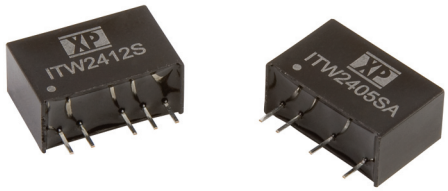
1 Watt

- 2:1 Input Range
- Operating Temperature -40 °C to +105 °C
- ITE safety approval
- Single & Dual Outputs
- 1500 VDC Isolation
- Fully Regulated Output
- No Minimum Load Required
- 3 Year Warranty



Dimensions:

ITW:
0.67 x 0.43 x 0.30" (17.0 x 11.0 x 7.6 mm)

Models & Ratings

Input Voltage	Output Voltage	Output Current	Input Current[1]		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
4.5-9 V	5.0 V	200 mA	35 mA	263 mA	1680 µF	76%	ITW0505SA
	12.0 V	83 mA	35 mA	259 mA	820 µF	79%	ITW0512SA
	15.0 V	67 mA	35 mA	254 mA	680 µF	80%	ITW0515SA
	24.0 V	42 mA	35 mA	265 mA	470 µF	80%	ITW0524SA
	±12.0 V	±42 mA	35 mA	259 mA	±470 µF	77%	ITW0512S
	±15.0 V	±33 mA	35 mA	254 mA	±330 µF	79%	ITW0515S
9-18 V	5.0 V	200 mA	20 mA	108 mA	1680 µF	78%	ITW1205SA
	12.0 V	83 mA	20 mA	108 mA	820 µF	80%	ITW1212SA
	15.0 V	67 mA	20 mA	105 mA	680 µF	81%	ITW1215SA
	24.0 V	42 mA	20 mA	109 mA	470 µF	80%	ITW1224SA
	±12.0 V	±42 mA	20 mA	108 mA	±470 µF	79%	ITW1212S
	±15.0 V	±33 mA	20 mA	105 mA	±330 µF	80%	ITW1215S
18-36 V	5.0 V	200 mA	10 mA	54 mA	1680 µF	78%	ITW2405SA
	12.0 V	83 mA	10 mA	52 mA	820 µF	80%	ITW2412SA
	15.0 V	67 mA	10 mA	52 mA	680 µF	80%	ITW2415SA
	24.0 V	42 mA	10 mA	55 mA	470 µF	81%	ITW2424SA
	±12.0 V	±42 mA	10 mA	52 mA	±470 µF	80%	ITW2412S
	±15.0 V	±33 mA	10 mA	52 mA	±330 µF	79%	ITW2415S
36-75 V	5.0 V	200 mA	7 mA	27 mA	1680 µF	76%	ITW4805SA
	12.0 V	83 mA	7 mA	27 mA	820 µF	78%	ITW4812SA
	15.0 V	67 mA	7 mA	27 mA	680 µF	78%	ITW4815SA
	24.0 V	42 mA	7 mA	28 mA	470 µF	77%	ITW4824SA
	±12.0 V	±42 mA	7 mA	27 mA	±470 µF	77%	ITW4812S
	±15.0 V	±33 mA	7 mA	27 mA	±330 µF	77%	ITW4815S

Notes

1. Input currents measured at nominal input voltage.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	4.5		9	VDC	5 V nominal
	9		18	VDC	12 V nominal
	18		36	VDC	24 V nominal
	36		75	VDC	48 V nominal
Input Filter	Capacitor				
Input Reflected Ripple			35	mA pk-pk	Through 12 µH inductor and 47 µF capacitor
Input Surge			15	VDC for 1000 ms	5 V models
			25	VDC for 1000 ms	12 V models
			50	VDC for 1000 ms	24 V models
			100	VDC for 1000 ms	48 V models

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage					See Models and Ratings table
Initial Set Accuracy			±2	%	
Minimum Load	0			A	No minimum load required
Line Regulation			±0.2	%	
Load Regulation			±1	%	Single output
			±1 (±2)	%	Dual output 5%-100% (0%-100%)
Cross Regulation			±5	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%
Transient Response			3	% deviation	Recovery within 2% in less than 2 ms for a 25% load change
Ripple & Noise			50	mV pk-pk	20 MHz bandwidth. Measured using 1 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					See Models and Ratings table
Isolation: Input to Output			1500	VDC	
Switching Frequency	150		550	kHz	Variable
Isolation Resistance	10^9			Ω	
Isolation Capacitance		70		pF	
Power Density			11.5	Win^3	
Mean Time Between Failure	2.8			MHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.0067 (3.0)		lb (g)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+105	°C	Derate from 100% load at +85 °C to no load at +105 °C
Storage Temperature	-55		+125	°C	
Case Temperature			+105	°C	
Humidity			95	%RH	Non-condensing
Cooling					Natural convection

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55022	Class A	See Application Note
Radiated	EN55022	Class A	See Application Note

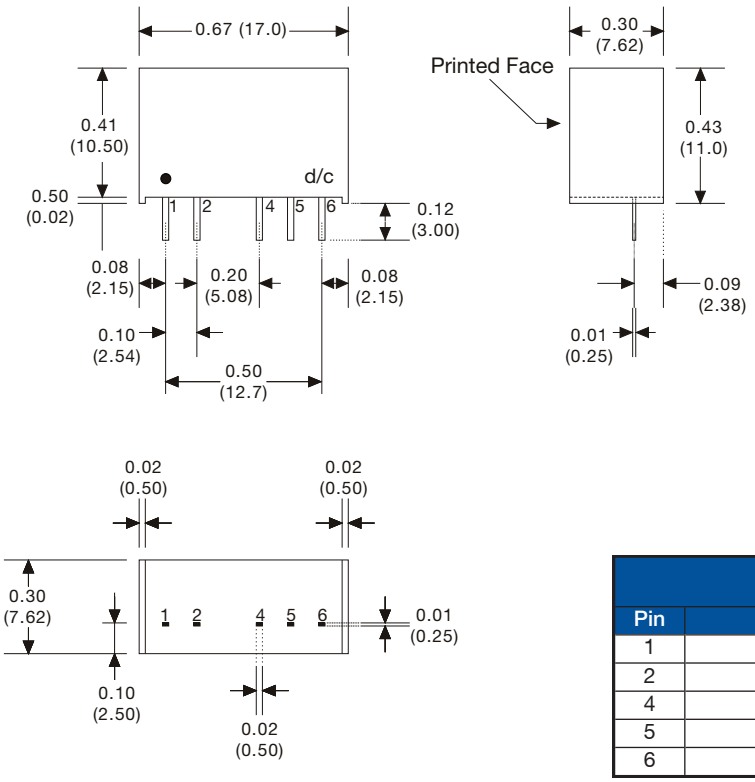
EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	A	
Radiated Immunity	EN61000-4-3	20 Vrms	A	
EFT/Burst	EN61000-4-4	3	A	External input capacitor required 330 µF/100 V
Surges	EN61000-4-5	Installation class 2	A	External input capacitor required 330 µF/100 V
Conducted Immunity	EN61000-4-6	3 V rms	A	
Magnetic Fields	EN61000-4-8	1 A/m	A	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL60950-1, UL62368-1	Information Technology
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Mechanical Details



Pin Connections		
Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
4	+Vout	+Vout
5	N.P.	Common
6	-Vout	-Vout

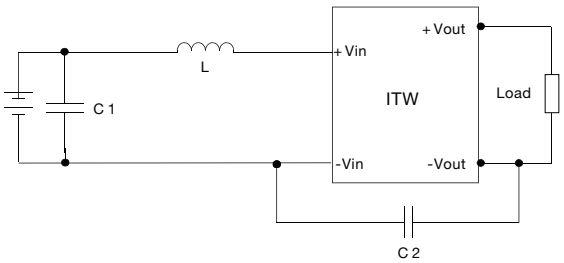
Notes

1. All dimensions are in inches (mm)
2. Weight: 0.0067 lbs (3.0 g) approx.
3. Pin diameter: 0.02±0.002 (0.5±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

Application Note

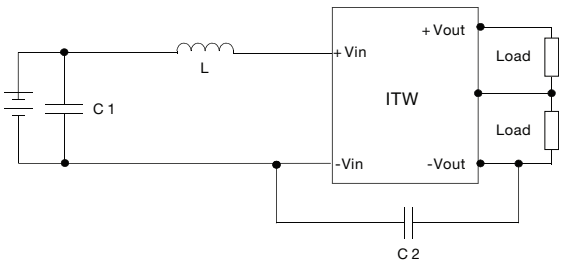
EMI Filter

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



	C1*	C2*	L
ITWxx05SA	4.7 µF/50 V	220 pF/3 kV	4.7 µH
ITWxx12SA	4.7 µF/50 V	220 pF/3 kV	4.7 µH
ITWxx15SA	4.7 µF/50 V	220 pF/3 kV	18 µH
ITWxx24SA	4.7 µF/50 V	220 pF/3 kV	18 µH

* C1 & C2 are multilayer ceramic capacitors.



	C1*	C2*	L
ITWxx12S	4.7 µF/50 V	220 pF/3 kV	4.7 µH
ITWxx15S	4.7 µF/50 V	220 pF/3 kV	4.7 µH

* C1 & C2 are multilayer ceramic capacitors.