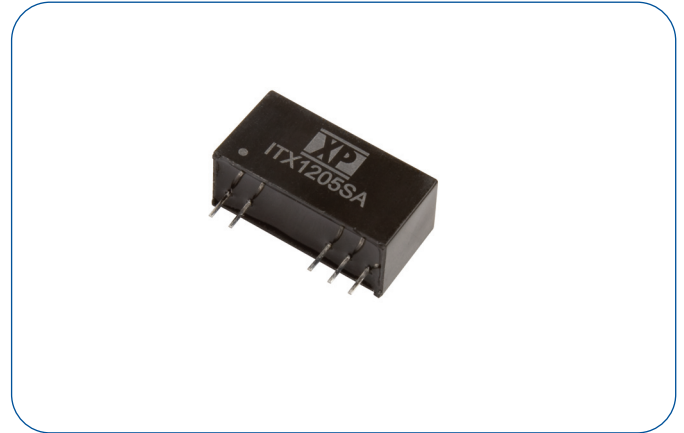


### 6 Watt

- 2:1 Input Range
- SIP-8 Plastic Case
- Operating Temperature -40 °C to +90 °C
- Single and Dual Outputs
- 1500 VDC Isolation, 3000 VDC Option
- Remote Control Option
- 3 Year Warranty



#### Dimensions:

ITX:  
0.86 x 0.44 x 0.36" (21.85 x 11.1 x 9.2 mm)

### Models & Ratings

Input Voltage	Output Voltage	Output Current	Input Current <sup>(3)</sup>		Maximum Capacitive Load	Efficiency	Model Number <sup>(1,2)</sup>
			No Load	Full Load			
4.5-9 V	3.3 V	1300 mA	105 mA	1114 mA	6600 µF	77%	ITX0503SA
	5.0 V	1200 mA	105 mA	1481 mA	3300 µF	81%	ITX0505SA
	9.0 V	666 mA	105 mA	1445 mA	2000 µF	83%	ITX0509SA
	12.0 V	500 mA	105 mA	1428 mA	1600 µF	84%	ITX0512SA
	15.0 V	400 mA	105 mA	1428 mA	1400 µF	84%	ITX0515SA
	24.0 V	250 mA	105 mA	1428 mA	680 µF	84%	ITX0524SA
	±5.0 V	±600 mA	105 mA	1481 mA	±2000 µF	81%	ITX0505S
	±12.0 V	±250 mA	105 mA	1428 mA	±900 µF	84%	ITX0512S
9-18 V	3.3 V	1300 mA	55 mA	458 mA	6600 µF	78%	ITX1203SA
	5.0 V	1200 mA	55 mA	602 mA	3300 µF	83%	ITX1205SA
	9.0 V	666 mA	55 mA	595 mA	2000 µF	84%	ITX1209SA
	12.0 V	500 mA	55 mA	588 mA	1600 µF	85%	ITX1212SA
	15.0 V	400 mA	55 mA	588 mA	1400 µF	85%	ITX1215SA
	24.0 V	250 mA	55 mA	595 mA	680 µF	84%	ITX1224SA
	±5.0 V	±600 mA	55 mA	609 mA	±2000 µF	82%	ITX1205S
	±12.0 V	±250 mA	55 mA	595 mA	±900 µF	84%	ITX1212S
18-36 V	3.3 V	1300 mA	30 mA	229 mA	6600 µF	78%	ITX2403SA
	5.0 V	1200 mA	30 mA	301 mA	3300 µF	83%	ITX2405SA
	9.0 V	666 mA	30 mA	294 mA	2000 µF	85%	ITX2409SA
	12.0 V	500 mA	30 mA	294 mA	1600 µF	85%	ITX2412SA
	15.0 V	400 mA	30 mA	290 mA	1400 µF	86%	ITX2415SA
	24.0 V	250 mA	30 mA	294 mA	680 µF	85%	ITX2424SA
	±5.0 V	±600 mA	30 mA	304 mA	±2000 µF	82%	ITX2405S
	±12.0 V	±250 mA	30 mA	297 mA	±900 µF	84%	ITX2412S
36-75 V	3.3 V	1300 mA	15 mA	114 mA	6600 µF	78%	ITX4803SA
	5.0 V	1200 mA	15 mA	152 mA	3300 µF	82%	ITX4805SA
	9.0 V	666 mA	15 mA	148 mA	2000 µF	84%	ITX4809SA
	12.0 V	500 mA	15 mA	147 mA	1600 µF	85%	ITX4812SA
	15.0 V	400 mA	15 mA	145 mA	1400 µF	86%	ITX4815SA
	24.0 V	250 mA	15 mA	148 mA	680 µF	84%	ITX4824SA
	±5.0 V	±600 mA	15 mA	152 mA	±2000 µF	82%	ITX4805S
	±12.0 V	±250 mA	15 mA	147 mA	±900 µF	85%	ITX4812S
±15.0 V	±200 mA	15 mA	147 mA	±660 µF	85%	ITX4815S	

#### Notes

1. For optional 3000 VDC isolation add suffix '-H' to end of part number e.g. ITX1205SA-H.
2. For optional remote control add suffix '-R' to end of part number e.g. ITX2412S-HR.
3. 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 Current					See Models and Ratings table
Input Reflected Ripple			30	mA pk-pk	Through 12 $\mu$ H inductor and 47 $\mu$ F capacitor
Input Surge			15	VDC for 100 ms	5 V models
			25	VDC for 100 ms	12 V models
			50	VDC for 100 ms	24 V models
			100	VDC for 100 ms	48 V models
Input Filter	Capacitor				

### Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage					See Models and Ratings table
Output Voltage Balance			$\pm 2$	%	Dual output models
Initial Set Accuracy			$\pm 1$	%	
Minimum Load	0			A	
Line Regulation			$\pm 0.2$	%	
Load Regulation			$\pm 1$	%	From 0-100%
Cross Regulation			$\pm 5.0$	%	Dual output models when one load is varied between 25% and 100% and the other is fixed at 100% load
Start Up Delay		30		ms	
Ripple and Noise			75	mV pk-pk	20 MHz bandwidth, measured using 0.1 $\mu$ F capacitor
Transient Response			3	% deviation	Recovery to within 1% in 500 $\mu$ s for a 25% load change (5% max. deviation for 3.3 & 5 V models)
Short Circuit Protection					Continuous, with auto recovery
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient			0.02	%/°C	
Remote On/Off	Optional by adding suffix -R to model number. Output off: 2-4 mA via 1K $\Omega$ resistor into pin 3 with respect to -Vin. Output on: Open or high impedance.				

### General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency					See Models and Ratings table
Isolation: Input to Output			1500	VDC	For optional high isolation versions, 3000 VDC input to output add suffix -H to model number
Switching Frequency	0.1		1.5	MHz	Variable
Isolation Resistance	10 <sup>9</sup>			$\Omega$	
Isolation Capacitance			50	pF	Input to output
Power Density			44	Win <sup>3</sup>	
Mean Time Between Failure	770			kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.011 (4.8)		lb (g)	

### Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+90	°C	Derate from 100% load at +65 °C to 20% load at 90 °C, for all models except 5 V and $\pm 5$ V models: derate from 100% load at 55 °C to 20% load at 90 °C)
Storage Temperature	-55		+125	°C	
Case Temperature			+105	°C	
Operating 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	

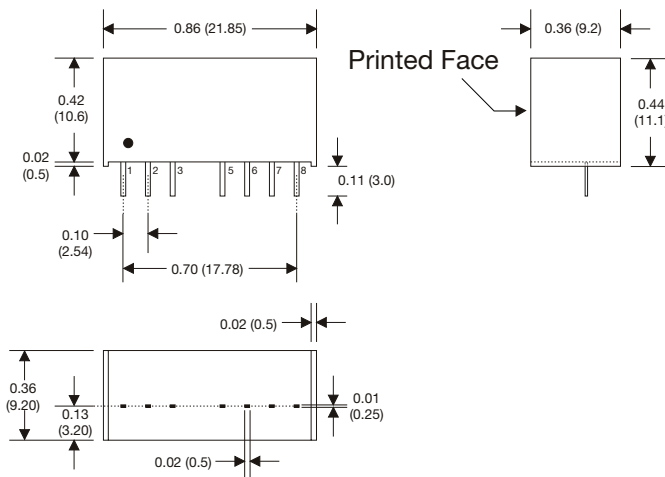
### EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	B	
Radiated Immunity	EN61000-4-3	20 V/m	A	
EFT/Burst	EN61000-4-4	3	B	External input capacitor required, 330 $\mu$ F/100 V
Surge	EN61000-4-5	2	B	External input capacitor required, 330 $\mu$ F/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	
CSA	CAN/CSA C22.2 No.60950-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

### Mechanical Details



PIN CONNECTIONS		
Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	N.P.	N.C.
5	N.P.	N.C.
6	+Vout	+Vout
7	-Vout	Common
8	N.C.	-Vout

PIN CONNECTIONS		
Pin	Single -R	Dual -R
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	N.C.	N.C.
6	+Vout	+Vout
7	-Vout	Common
8	N.C.	-Vout

### Notes

1. All dimensions are in inches (mm)
2. Weight: 0.011 lbs (4.8 g) typical.
3. Pin diameter:  $0.02 \pm 0.002$  ( $0.5 \pm 0.005$ )
4. Pin pitch and length tolerance:  $\pm 0.014$  ( $\pm 0.35$ )
5. Case tolerance:  $\pm 0.02$  ( $\pm 0.5$ )

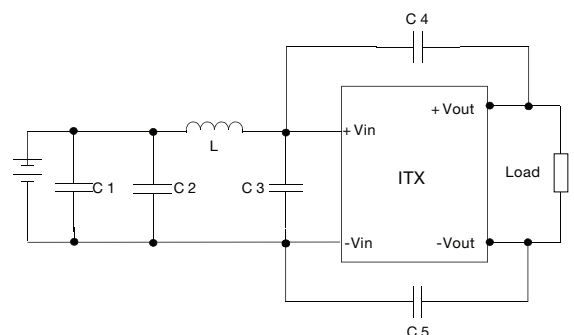
### Application Note

#### EMI Filter

Input filter components (C1,C2,C3,C4,C5, 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 & C3*	L	C4 & C5*
ITX05	220 $\mu$ F/100V	22 $\mu$ F/25 V	10 $\mu$ H	220 pF/3 kV
ITX12	-	10 $\mu$ F/50 V	10 $\mu$ H	220 pF/3 kV
ITX24	-	10 $\mu$ F/50 V	10 $\mu$ H	220 pF/3 kV
ITX48	-	2.2 $\mu$ F/100 V	15 $\mu$ H	220 pF/3 kV

\* C2, C3, C4 & C5 are multilayer ceramic capacitors.



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