

# 1 Watts

## IW Series



- Regulated Single & Dual Output
- Wide 2:1 Input Range
- SIP or DIP Package
- 1000 VDC Isolation
- Optional 3000 VDC Isolation
- Continuous Short Circuit Protection
- MTBF >2.7 MHrs

### Specification

#### Input

Input Voltage Range	<ul style="list-style-type: none"> <li>• 5 V models: 4.5 - 9.0 V</li> <li>• 12 V models: 9.0 - 18.0 V</li> <li>• 24 V models: 18.0 - 36.0 V</li> <li>• 48 V models: 36.0 - 72.0 V</li> </ul>
Input Reflected Ripple	<ul style="list-style-type: none"> <li>• 35 mA pk-pk through 12 <math>\mu</math>H inductor</li> <li>• 5 Hz to 20 MHz</li> </ul>
Input Current	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Input Filter	<ul style="list-style-type: none"> <li>• Capacitor</li> </ul>

#### Output

Output Voltage	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 1.0\%</math> max from 25-100% load</li> </ul>
Setpoint Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 2\%</math> max</li> </ul>
Start Up Rise Time	<ul style="list-style-type: none"> <li>• 100 ms typical</li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• 80 mV pk-pk max 20 MHz BW. See note 6</li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• 0.02%/°C</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• Continuous with auto recovery</li> </ul>
Current Limiting	<ul style="list-style-type: none"> <li>• Typically 110% of max Iout</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 5\%</math></li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• <math>\pm 3\%</math> deviation recovering to &lt;1% within 300 <math>\mu</math>s for 25% load change</li> </ul>
Maximum Capacitive Load	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Remote On/Off	<ul style="list-style-type: none"> <li>• Optional on SIP package models applying 5 V via 1 k<math>\Omega</math> current limiting resistor &amp; diode turns output off (see note 4)</li> </ul>

#### General

Efficiency	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Isolation Voltage	<ul style="list-style-type: none"> <li>• 1000 VDC, optional 3000 VDC (see note 2)</li> </ul>
Isolation Resistance	<ul style="list-style-type: none"> <li>• <math>10^9 \Omega</math></li> </ul>
Isolation Capacitance	<ul style="list-style-type: none"> <li>• 60 pF typical</li> </ul>
Switching Frequency	<ul style="list-style-type: none"> <li>• 100-650 kHz typical</li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• &gt;2.7 MHrs to MIL-STD-217F</li> </ul>

#### Physical

Case Material	<ul style="list-style-type: none"> <li>• Non-conductive black plastic (UL94V-0 rated). Optional metal: nickel coated copper</li> </ul>
Pin Material	<ul style="list-style-type: none"> <li>• SIP case: Alloy 42 solder coated</li> <li>• DIP case: <math>\varnothing 0.5</math> mm brass solder coated</li> </ul>
Potting Material	<ul style="list-style-type: none"> <li>• Epoxy (UL94V-0 rated)</li> </ul>
Lead Soldering Temperature	<ul style="list-style-type: none"> <li>• 260 °C 1.5 mm from case for 10 s</li> </ul>

#### Environmental

Operating Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +85 °C, derate from 100% load at 85 °C to 0% load at 100 °C</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +125 °C</li> </ul>
Case Temperature	<ul style="list-style-type: none"> <li>• 100 °C max</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Convection-cooled</li> </ul>
Humidity	<ul style="list-style-type: none"> <li>• 95% RH, non condensing</li> </ul>

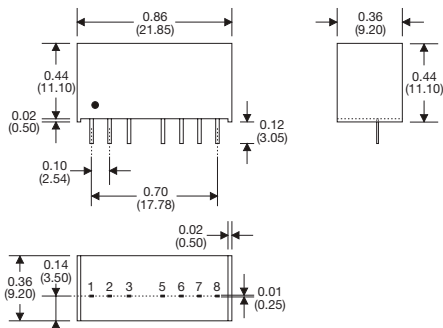
Input Voltage	No Load Input Current	Full Load Input Current	Output Voltage	Output Current	Efficiency	Max Capacitive load		Model Number <sup>(1-6)</sup>
						Single Output	Dual Output	
4.5-9.0 V	15 mA	298 mA	3.3 V	303 mA	67%	3300 µF	±1000 µF	IW0503SA
	15 mA	298 mA	5.0 V	200 mA	67%	3300 µF	±1000 µF	IW0505SA
	40 mA	285 mA	9.0 V	111 mA	70%	470 µF	±220 µF	IW0509SA
	55 mA	285 mA	12.0 V	83 mA	70%	470 µF	±220 µF	IW0512SA
	55 mA	285 mA	15.0 V	67 mA	70%	470 µF	±220 µF	IW0515SA
9.0-18.0 V	15 mA	119 mA	3.3 V	303 mA	70%	3300 µF	±1000 µF	IW1203SA
	15 mA	115 mA	5.0 V	200 mA	72%	3300 µF	±1000 µF	IW1205SA
	15 mA	115 mA	9.0 V	111 mA	77%	470 µF	±220 µF	IW1209SA
	15 mA	108 mA	12.0 V	83 mA	77%	470 µF	±220 µF	IW1212SA
	15 mA	108 mA	15.0 V	67 mA	77%	470 µF	±220 µF	IW1215SA
18.0-36.0 V	15 mA	114 mA	24.0 V	42 mA	73%	220 µF	±100 µF	IW1224SA
	8 mA	59 mA	3.3 V	303 mA	70%	3300 µF	±1000 µF	IW2403SA
	8 mA	57 mA	5.0 V	200 mA	72%	3300 µF	±1000 µF	IW2405SA
	8 mA	55 mA	9.0 V	111 mA	75%	470 µF	±220 µF	IW2409SA
	8 mA	55 mA	12.0 V	83 mA	75%	470 µF	±220 µF	IW2412SA
	8 mA	55 mA	15.0 V	67 mA	75%	470 µF	±220 µF	IW2415SA
36.0-72.0 V	8 mA	55 mA	24.0 V	42 mA	75%	220 µF	±100 µF	IW2424SA
	6 mA	31 mA	3.3 V	303 mA	66%	3300 µF	±1000 µF	IW4803SA
	6 mA	30 mA	5.0 V	200 mA	68%	3300 µF	±1000 µF	IW4805SA
	6 mA	29 mA	9.0 V	111 mA	70%	470 µF	±220 µF	IW4809SA
	6 mA	29 mA	12.0 V	83 mA	70%	470 µF	±220 µF	IW4812SA
	6 mA	29 mA	15.0 V	67 mA	70%	470 µF	±220 µF	IW4815SA
6 mA	30 mA	24.0 V	42 mA	68%	220 µF	±100 µF	IW4824SA	

**Notes**

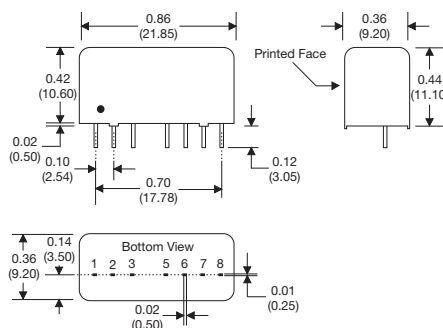
- For dual inline package replace 'S' in model number with 'D'.
- For optional 3 kV isolation add suffix '-H' to the model number.
- For dual output delete suffix 'A' & split output currents equally between rails.
- For optional Remote On/Off on SIP models, add suffix '-R' to model number.
- For optional metal case, add suffix '-M' to model number.
- Output capacitor of 100 µF required to meet quoted ripple & noise.
- Minimum load of 25% required to meet quoted specifications.

**Mechanical Details**

SIP Package - Non-conductive Plastic Case



SIP Package - Nickel Coated Copper Case



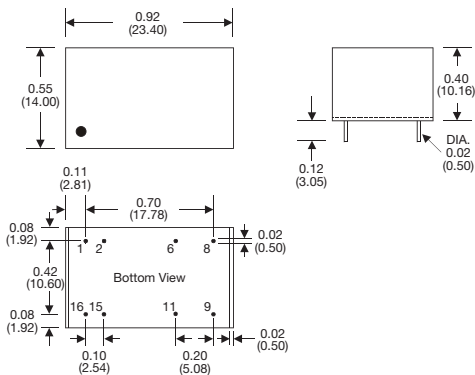
Dimensions are in inches (mm)  
Weight: Plastic case = 4.5 g  
Metal case = 6.5 g

PIN CONNECTIONS		
Pin	Single	Dual
1	-V Input	-V Input
2	+V Input	+V Input
3	Opt. ROF*	Opt. ROF**
5	N.P. / N.C.	N.C.
6	+V Output	+V Output
7	-V Output	-V Output
8	NC	Common

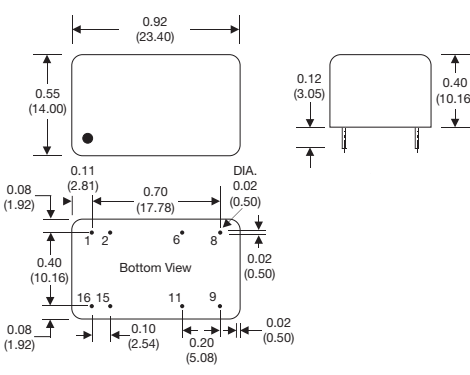
\*When optional ROF is present pin 5 is No Connection. When not present pin 3 & 5 are No Pin.

\*\*When optional ROF is present pin 5 is No Connection. When not present pin 3 & 5 are No Connection.

DIP Package - Non-conductive Plastic Case



DIP Package - Nickel Coated Copper Case



Dimensions are in inches (mm)  
Weight: Plastic case = 6.0 g  
Metal case = 8.0 g

PIN CONNECTIONS		
Pin	Single	Dual
1	-V Input	-V Input
2	-V Input	-V Input
6	NC	Common
8	NC	-V Output
9	+V Output	+V Output
11	-V Output	Common
15	+V Input	+V Input
16	+V Input	+V Input