



## 1S8W4\_2RP series

1W - Dual/Single Output - Wide Input - Isolated & Regulated DC-DC Converter

## DC-DC Converter 1 Watt

- ⊕ Ultra Wide 4:1 Input Voltage Range
- ⊕ High Efficiency up to 81%
- ⊕ 1W Single and Dual outputs
- ⊕ I/O Isolation 2kVDC
- ⊕ Operating Temperature Range: -40°C to +100°C
- ⊕ Continuous Short Circuit Protection (SCP)
- ⊕ Remote ON/OFF Control



Common specifications	
Input filter:	Capacitor
Short circuit protection:	Continuous
Temperature rise at full load:	15°C TYP
Cooling:	Free air convection
Operation temperature range:	-40°C~+100°C
Storage temperature range:	-55°C ~+125°C
Storage humidity range:	< 95%
Lead temperature range:	300°C MAX, 1.5mm from case for 10 sec
No-load power consumption:	50mW TYP / 150mW MAX
Temperature coefficient:	-40°C to +85°C ambient 0.015 %/°C MAX
Operating Frequency:	150kHz MIN
Case material:	Non-conductive black plastic [UL94-V0]
Potting material:	Epoxy [UL94-V0]
MTBF (MIL-HDBK 217F):	+25°C: 3000x10 <sup>3</sup> hours +85°C: 600x10 <sup>3</sup> hours
Weight:	4.7g

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 second	2000			VDC
Isolation resistance	500VDC, input to output	15			GΩ
Isolation capacitance	100KHz		30		pF

**Note:**

- All specifications measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
- In this datasheet, all the test methods of indications are based on corporate standards.

The 1S8W4\_2RP series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- Where the voltage of the input power supply is wide range (voltage range ≤4:1)
- Where isolation is necessary between input and output (isolation voltage ≤2000VDC)
- Where the regulation of the output voltage and the output ripple noise are demanded

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Output accuracy	Nominal Vin and full load		±2		%	
Line regulation	Vin=min to max,full load		±0.5		%	
Load regulation	20% to 100% full load		±0.5		%	
Minimum load			0		%	
Temperature drift (Vout)	Refer to recommended circuit			±0.03	%/°C	
Output Ripple & Noise	20MHz Bandwidth			60	mVp-p	
Remote Power OFF (leave open if not used) (15 VDC max.)	Device ON				open or <0.8 VDC	
	Device OFF Device OFF (Stand by input current)				CTRL>1.5VDC 0.5mA max.	

**Example:**

**1S8W4\_0505S2RP**

1 = 1Watt; S8 = SIP8; W4 = Wide input range (4:1); 18-75Vin;  
05 = 05Vin; 05 = 5Vout; S = Single Output; 2 = 2000VDC isolation;  
R = Regulated Output; P = Short Circuit Protection

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Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
1S8W4_1203S2RP	4.5-18	3.3	200	70-72	470
1S8W4_1205S2RP	4.5-18	5	200	76-79	470
1S8W4_1209S2RP	4.5-18	9	111	77-80	330
1S8W4_1212S2RP	4.5-18	12	83	78-81	220
1S8W4_1215S2RP	4.5-18	15	66	78-81	220

Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
1S8W4_2403S2RP	9-36	3.3	200	70-72	470
1S8W4_2405S2RP	9-36	5	200	76-79	470
1S8W4_2409S2RP	9-36	9	111	77-80	330
1S8W4_2412S2RP	9-36	12	83	78-81	220
1S8W4_2415S2RP	9-36	15	66	78-81	220

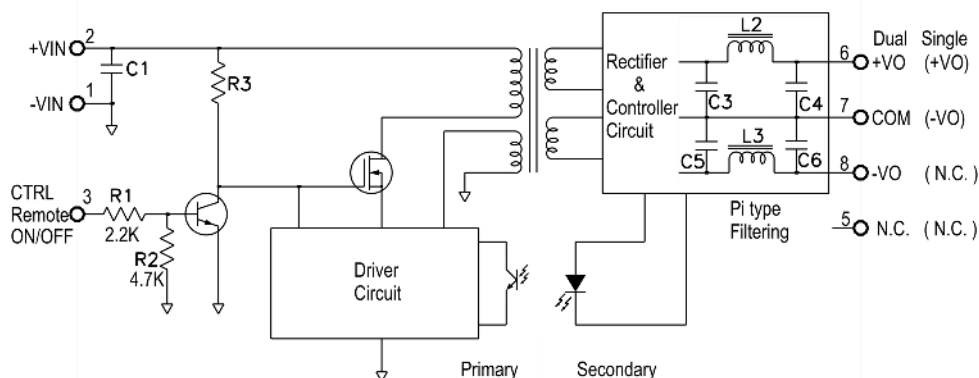
Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
1S8W4_4803S2RP	18-75	3.3	200	70-72	470
1S8W4_4805S2RP	18-75	5	200	76-79	470
1S8W4_4809S2RP	18-75	9	111	77-80	330
1S8W4_4812S2RP	18-75	12	83	78-81	220
1S8W4_4815S2RP	18-75	15	66	78-81	220

Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
1S8W4_1203D2RP	4.5-18	$\pm$ 3.3	$\pm$ 100	70-72	$\pm$ 220
1S8W4_1205D2RP	4.5-18	$\pm$ 5	$\pm$ 100	76-79	$\pm$ 220
1S8W4_1209D2RP	4.5-18	$\pm$ 9	$\pm$ 55	77-80	$\pm$ 150
1S8W4_1212D2RP	4.5-18	$\pm$ 12	$\pm$ 42	78-81	$\pm$ 100
1S8W4_1215D2RP	4.5-18	$\pm$ 15	$\pm$ 33	78-81	$\pm$ 100

Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
1S8W4_2403D2RP	9-36	$\pm$ 3.3	$\pm$ 100	70-72	$\pm$ 220
1S8W4_2405D2RP	9-36	$\pm$ 5	$\pm$ 100	76-79	$\pm$ 220
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1S8W4_2412D2RP	9-36	$\pm$ 12	$\pm$ 42	78-81	$\pm$ 100
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Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
1S8W4_4803D2RP	18-75	$\pm$ 3.3	$\pm$ 100	70-72	$\pm$ 220
1S8W4_4805D2RP	18-75	$\pm$ 5	$\pm$ 100	76-79	$\pm$ 220
1S8W4_4809D2RP	18-75	$\pm$ 9	$\pm$ 55	77-80	$\pm$ 150
1S8W4_4812D2RP	18-75	$\pm$ 12	$\pm$ 42	78-81	$\pm$ 100
1S8W4_4815D2RP	18-75	$\pm$ 15	$\pm$ 33	78-81	$\pm$ 100

## Functional block diagram

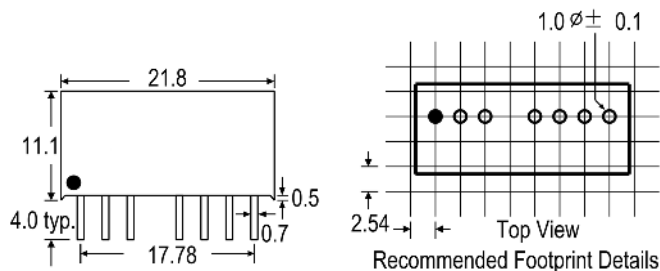


Input Voltage	C1 Values
4.5~18VDC	1 $\mu$ F/25V
9~36VDC	1 $\mu$ F/50V
18~75VDC	1 $\mu$ F/100V

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## Mechanical dimensions and footprint

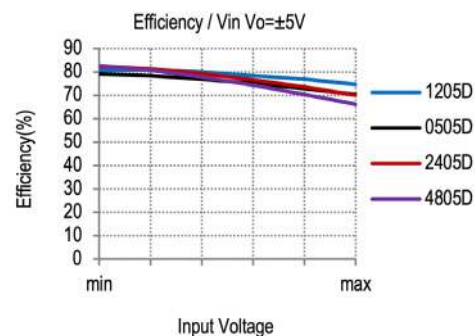
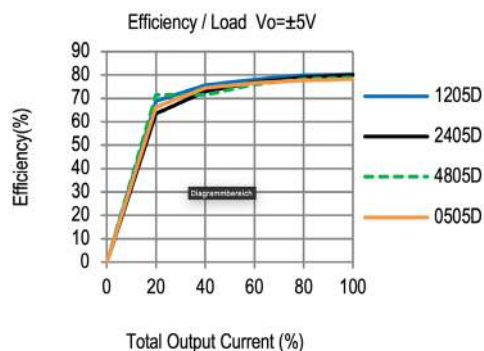
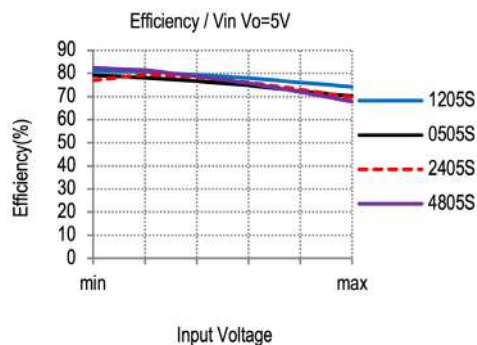
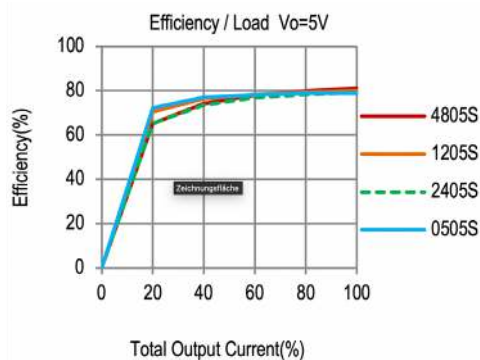
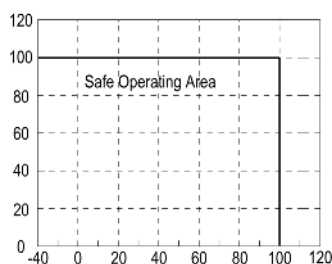


### Pin Connections

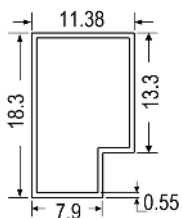
Pin#	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	CTRL	CTRL
5	NC	NC
6	+Vout	+Vout
7	-Vout	COM
8	NC	-Vout

NC=No Connection  
CTRL=Remote ON/OFF Control

## Typical characteristics



## Tube outline



Note:  
Unit: mm[inch]  
General tolerances:  $\pm 0.50$ mm

L=520mm  
Tube quantity: 23pcs