

1S8W4_2RP series

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



- ⊕ 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

DC-DC Converter

1 Watt

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:

- 1) Where the voltage of the input power supply is wide range (voltage range $\leq 4:1$)
- 2) Where isolation is necessary between input and output (isolation voltage $\leq 2000\text{VDC}$)
- 3) Where the regulation of the output voltage and the output ripple noise are demanded



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 ³ hours +85°C: 600x10 ³ 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:

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

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. Capacative Load [μF]
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. Capacative Load [μF]
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

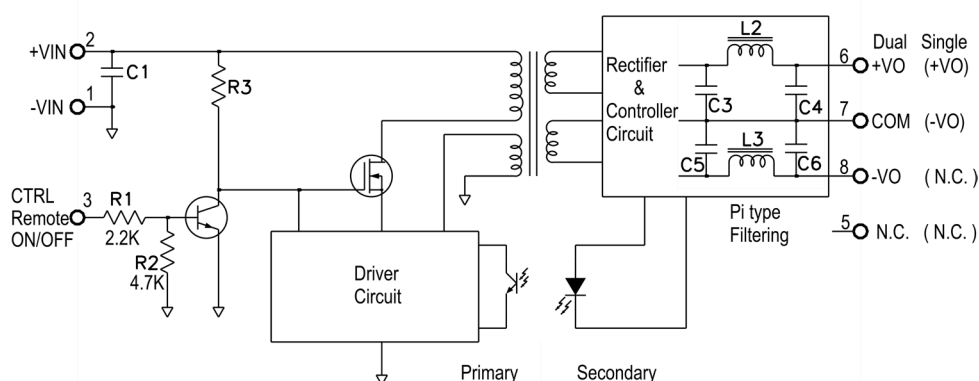
Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacative Load [μF]
1S8W4_4803S2RP	18-75	3.3	200	70-72	470
1S8W4_4805S2RP	18-75	5	200	76-79	470
1S8W4_4809S2RP	18-75	9	111	77-80	330
1S8W4_4812S2RP	18-75	12	83	78-81	220
1S8W4_4815S2RP	18-75	15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

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

Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacative Load [μF]
1S8W4_2403D2RP	9-36	±3.3	±100	70-72	±220
1S8W4_2405D2RP	9-36	±5	±100	76-79	±220
1S8W4_2409D2RP	9-36	±9	±55	77-80	±150
1S8W4_2412D2RP	9-36	±12	±42	78-81	±100
1S8W4_2415D2RP	9-36	±15	±33	78-81	±100

Part Number	Input Voltage [V] range	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacative Load [μF]
1S8W4_4803D2RP	18-75	±3.3	±100	70-72	±220
1S8W4_4805D2RP	18-75	±5	±100	76-79	±220
1S8W4_4809D2RP	18-75	±9	±55	77-80	±150
1S8W4_4812D2RP	18-75	±12	±42	78-81	±100
1S8W4_4815D2RP	18-75	±15	±33	78-81	±100

Functional block diagram

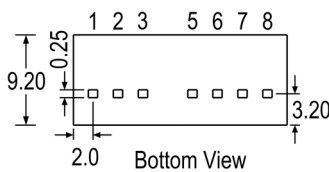
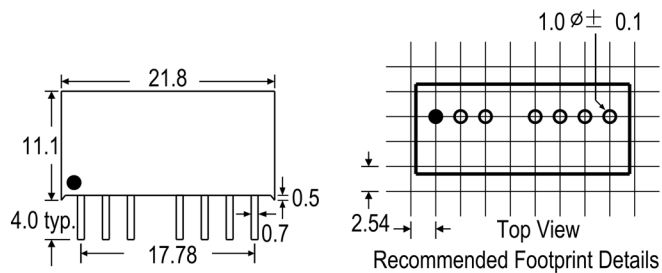


Input Voltage	C1 Values
4.5~18VDC	1uF/25V
9~36VDC	1uF/50V
18~75VDC	1uF/100V

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Mechanical dimensions and footprint

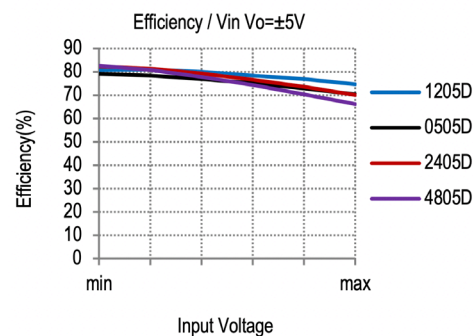
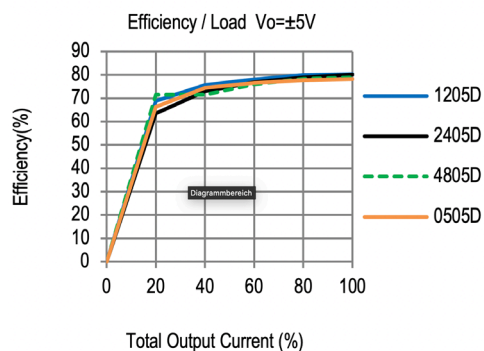
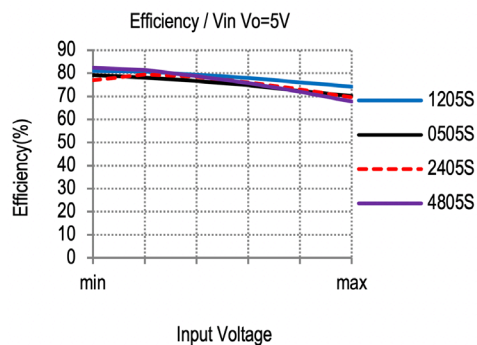
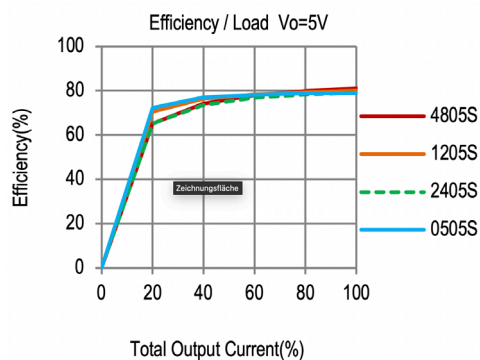
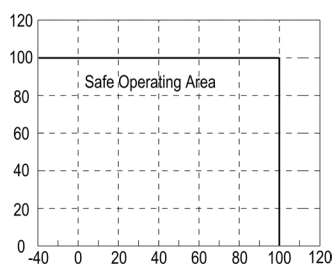


Pin Connections

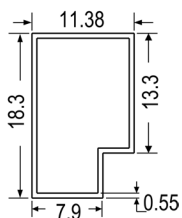
Pin#	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	CTRL	CTRL
5	NC	NC
6	+Vout	+Vout
7	-Vout	COM
8	NC	-Vout

NC=No Connection
CTRL=Remote ON/OFF Control

Typical characteristics



Tube outline



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

L=520mm
Tube quantity: 23pcs