



## 9S8W4E\_1.6RP series

9W - Single Output - Wide Input - Isolated & Regulated DC-DC Converter

### DC-DC Converter 9 Watt

- ⊕ Wide input voltage range (4:1)  
High efficiency up to 89%
- ⊕ Isolation voltage: 1.6kVDC
- ⊕ Short circuit protection (SCP)
- ⊕ International standard pin-out
- ⊕ Operating temperature range:  
-40°C to +100°C
- ⊕ Meets UL62368, EN62368 standards
- ⊕ Internal SMD construction

The 9S8W4E\_1.6RP series offers an excellent performance and high power density design. Wide 4:1 input voltage ranges: 9V-36V, 18-75V.

It features efficiency up to 89%, 1600VDC isolation, operating temperature of -40°C to +100°C, short circuit protection and industry standard pinout, which make it widely applied in medical care, industrial control, electric power, instruments and communication fields.



Common specifications	
Short circuit protection:	Continuous, automatic recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+100°C, with derating
Operation case temperature:	+110°C MAX
Storage temperature range:	-55°C ~+125°C
Storage humidity range:	95% MAX, without condensing
Pin welding resistance temperature:	300°C MAX, 1.5mm from case for 10 sec
Vibration:	10-150Hz, 5G, 0.75mm. along X, Y and Z
Switching Frequency:	Single: 400kHz TYP Dual: 500kHz TYP
Case material:	Flame-retardant, heat-resistant black plastic [UL94-V0]
MTBF (MIL-HDBK 217F @25°C):	2696 x 10 <sup>6</sup> hours
Weight:	4.8g
Dimensions:	21.8*9.2*11.1 mm

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Input current (no load)	• 24V output		9		mA
	• 48V output		4		mA
Input filter	Capacitance filter				

#### 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	
Voltage accuracy	5%-100% load		±1	±2	%	
Line regulation		-0.5		+0.5	%	
Load regulation	5% to 100% full load					
	• Single output	-1.0		+1.0	%	
	• Dual output	-5.0		+5.0	%	
Transient response setting time	25% load step change		250		µs	
Temperature coefficient	full load			±0.03	%/°C	
Ripple & Noise	20MHz Bandwidth					
	• output: 3-10V types			100	mVp-p	
	• output: >10V types			1% of Vout	mVp-p	

Isolation specifications						
Item	Test condition	Min	Typ	Max	Units	
Isolation voltage			1600		VDC	
Isolation resistance	500VDC	1000			MΩ	

#### Example:

##### 9S8W4E\_2405S1.6RP

9 = 9Watt; S8 = SIP8; W4 = wide input 4:1; 9-36Vin; E = Eco Series; 24 = 24 Vin; 05 = 5Vout; S = Single Output; 1.6 = 1600VDC isolation; R = Regulated Output; P = Short Circuit Protection

## 9S8W4E\_1.6RP Series

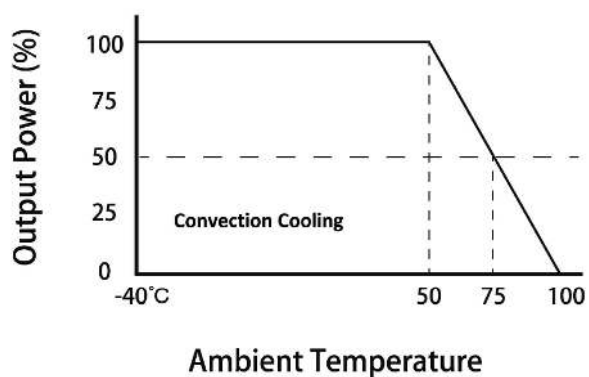
9W - Single Output - Wide Input - Isolated & Regulated  
DC-DC Converter

## Product Selection Guide

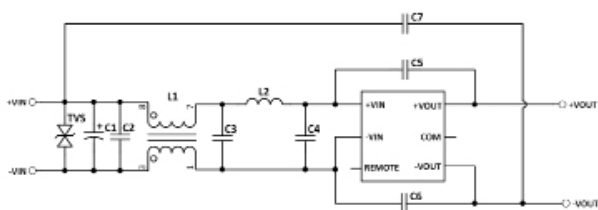
Part Number	Nominal	Input Voltage [VDC]		Output Voltage [VDC]	Output Current [mA, max.]	Efficiency [%, typ.]
		Range	Max			
9S8W4E_2403S1.6RP	24	9-36	40	3.3	2000	82
9S8W4E_2405S1.6RP	24	9-36	40	5	1600	85
9S8W4E_2409S1.6RP	24	9-36	40	9	1000	88
9S8W4E_2412S1.6RP	24	9-36	40	12	750	88
9S8W4E_2415S1.6RP	24	9-36	40	15	600	89
9S8W4E_2424S1.6RP	24	9-36	40	24	375	89
9S8W4E_4803S1.6RP	48	18-75	80	3.3	2000	82
9S8W4E_4805S1.6RP	48	18-75	80	5	1600	85
9S8W4E_4809S1.6RP	48	18-75	80	9	1000	89
9S8W4E_4812S1.6RP	48	18-75	80	12	750	89
9S8W4E_4815S1.6RP	48	18-75	80	15	600	89
9S8W4E_4824S1.6RP	48	18-75	80	24	375	89

Part Number	Nominal	Input Voltage [VDC]		Output Voltage [VDC]	Output Current [mA, max.]	Efficiency [%, typ.]
		Range	Max			
9S8W4E_2405D1.6RP	24	9-36	40	±5	±800	86
9S8W4E_2412D1.6RP	24	9-36	40	±12	±375	88
9S8W4E_2415D1.6RP	24	9-36	40	±15	±300	88
9S8W4E_4805D1.6RP	48	18-75	80	±5	±800	85
9S8W4E_4812D1.6RP	48	18-75	80	±12	±375	88
9S8W4E_4815D1.6RP	48	18-75	80	±15	±300	87

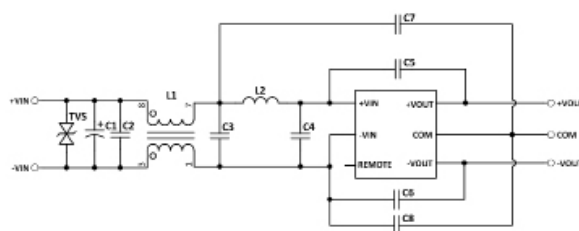
## Typical characteristics



## Recommended circuit



Single Output



Dual Output

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### EMC recommended circuit (single and dual)

Component	Value	Voltage / Current	Reference
TVS	-----	58V (24Vin) / 85V (48Vin)	3.0SMCJ58AG
C1	220μF	100V	Electrolytic capacitor
C2, C3, C4	4.7μF	100V	1210 MLCC
C5, C6	1000μF	2KV	DIP MLCC
C7	100μH	2KV	DIP MLCC
L1	500Ω	3.1A	PLT5BPH5013R1SNL
L2	10μH	2.3A	SMD Power Choke Coil

Single Output

Component	Value	Voltage / Current	Reference
TVS	-----	58V (24Vin) / 85V (48Vin)	3.0SMCJ58AG
C1	220μF	100V	Electrolytic capacitor
C2, C3, C4	4.7μF	100V	1210 MLCC
C5, C6	1000μF	2KV	DIP MLCC
C7	220μH	2KV	DIP MLCC
C8	220μH	2KV	DIP MLCC
L1	500Ω	3.1A	PLT5BPH5013R1SNL
L2	10μH	2.3A	SMD Power Choke Coil

Dual Output

### Mechanical dimensions

