

6S8W_1.6RP series

6W - Single Output - Wide Input - Isolated & Regulated
DC-DC Converter



DC-DC Converter

6 Watt

- ⊕ 2:1 input range
- ⊕ Short Circuit Protection, continuous and self-recovery
- ⊕ 1.6kV isolation
- ⊕ Operation temperature: -40°C~+105°C
- ⊕ Additional components not required
- ⊕ MTBF ≥2,000,000 hours
- ⊕ Industry standard pin-out
- ⊕ Case meets UL94-V0 requirements
- ⊕ SIP8 package

Introducing our latest compact DC-DC converter 6S8W_1.6RP series, built to deliver reliable performance and safety across a variety of applications. Featuring a 2:1 input range and robust Short Circuit Protection with continuous self-recovery, this converter ensures seamless operation even under challenging conditions. With a high isolation voltage of 1.6kV and an impressive operating temperature range of -40°C to +105°C, it is designed to perform in extreme environments. This solution requires no additional components, simplifying design integration, while its industry-standard SIP8 package ensures compatibility with existing systems. Built for durability and longevity, it meets UL94-V0 case requirements and offers an exceptional MTBF of ≥2,000,000 hours. Choose reliability, efficiency, and safety with this compact DC-DC converter, engineered to meet the demands of modern applications with ease.



Common specifications

Short circuit protection:	Continuous, self-recovery
Operating temperature range:	-40°C~+105°C (with derating)
Storage temperature range:	-55°C ~+125°C
Storage humidity range:	<95% (non condensing)
Case temperature rise:	+15°C typ.
Pin welding resistance temperature:	300°C max, 1.5mm from case for 10 sec
Case material:	Black plastic; flame-retardant and heat-resistant (UL94 V-0)
MTBF (MIL-HDBK 217F @25°C):	2,000,000 hours
Cooling:	Free air convection
Weight:	4.6g typ.
Dimensions:	22.00mm x 9.50mm x 12.00mm

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (full load/no load, nominal input series, nominal input voltage)	12VDC input				
	• 3.3V output		489/12	502/18	mA
	• others		625/12	641/18	mA
	24VDC input				
	• 3.3V output		238/5	245/12	mA
	• 5V output		305/5	313/12	mA
	• others		298/10	305/16	mA
Reflected ripple current			50		mA
Surge voltage (1 sec. max)	• 12VDC nominal input	-0.7		25	VDC
	• 24VDC nominal input	-0.7		50	VDC
Starting voltage	• 12VDC nominal input			9	VDC
	• 24VDC nominal input			18	VDC
Input under voltage protection	• 12VDC nominal input	5.5	6.5		VDC
	• 24VDC nominal input	12	15.5		VDC
Ctrl	None				
Hot plug	Unavailable				

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage accuracy	5%-100% load		±1	±2	%
Line regulation	Input voltage variation from low to high @full load		±0.1	±1	%
Load regulation	5% to 100% load		±0.5	±1.5	%
Ripple & noise	20MHz bandwidth, 5%-100% load		50	100	mVp-p
Temperature coefficient	full load			±0.03	%/°C
Switching frequency	Input voltage range		300		kHz

Example:

6S8W_1205S1.6RP

6 = 6Watt; S8 = SIP8; W = wide input; 12 = 9-18Vin; 05 = 5Vout;
S = Single Output; 1.6 = 1600VDC isolation; R = Regulated Output;
P = Short Circuit Protection

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input-output electric strength test for 60s with a leakage current of 1mA max.	1600			VDC
Isolation resistance	Input-output resistance 500VDC	1000			MΩ

Note:

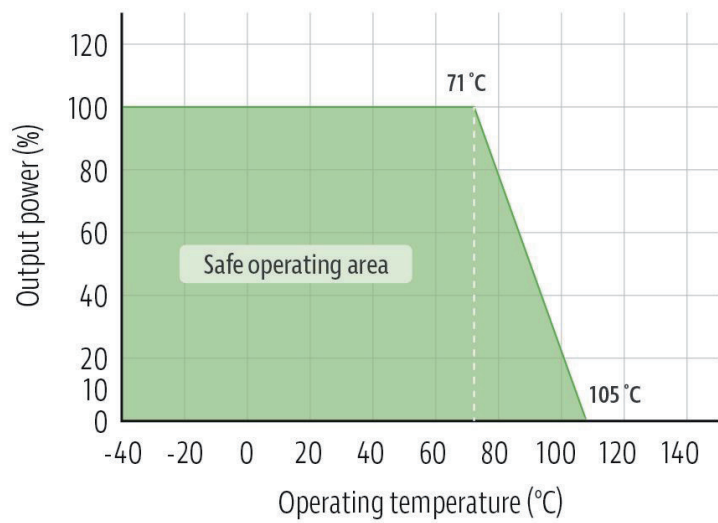
- Input current: Ensure that the output current of the power supply meets the instantaneous starting current of the power module (that is, twice the average input current of the power module).
- Output load requirements: Avoid no-load use. When the actual power consumption of the load is less than 10% of the rated output power of the module or no load occurs, connect an external resistance to the output end (the sum of the external resistance and the load power is greater than or equal to 10% of the rated load) or select a module with a smaller rated power.
- The external capacitance of the output end should not be too large; otherwise, the module may be overcurrent or poorly started. For details, see the external capacitance recommendation table.
- External LC filter circuit can be connected for occasions with high ripple noise requirements.

Product Selection Guide

Part Number	Input Voltage [VDC]		Output Voltage [VDC]	Output Current [mA, max.]	Efficiency [%, typ.]	Capacitive Load [max.]
	Nominal	Range				
6S8W_1203S1.6RP	12	9-18	3.3	1350	76	1800
6S8W_1205S1.6RP	12	9-18	5	1200	80	1000
6S8W_1209S1.6RP	12	9-18	9	667	82	470
6S8W_1212S1.6RP	12	9-18	12	500	84	470
6S8W_1215S1.6RP	12	9-18	15	400	84	220
6S8W_1224S1.6RP	12	9-18	24	250	84	100
6S8W_2403S1.6RP	24	18-36	3.3	1350	78	1800
6S8W_2405S1.6RP	24	18-36	5	1200	82	1000
6S8W_2409S1.6RP	24	18-36	9	667	84	470
6S8W_2412S1.6RP	24	18-36	12	500	86	470
6S8W_2415S1.6RP	24	18-36	15	400	87	220
6S8W_2424S1.6RP	24	18-36	24	250	85	100

Typical characteristics

Temperature derating graph



Recommended circuit



Recommended input and output capacitor values			
Cin		Vout	Cout
Vin: 12VDC	Vin: 24VDC		
100uF/50V	100uF/50V	3.3/5/9VDC	22uF/16V
		12/15VDC	22uF/25V
		24VDC	22uF/50V

6S8W_1.6RP series

6W - Single Output - Wide Input - Isolated & Regulated
DC-DC Converter

Mechanical dimensions

