



SJ-6(H) Series DC/DC-Converter

6W 4:1 Regulated Single & Dual output

Features

- Wide 4:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation, Up to 3500 VDC
- Continuous Short Circuit Protection
- Efficiency up to 83%
- -40 ~ 85°C Operation Temperature Range
- Metal Case Standard, Optional Plastic Case



The SJ series is a family of cost effective 6W single & dual output DC-DC converters. These converters are consisted with Nickel-coated copper in a 24-pin DIL package with high performance features such as 1500 VDC ~ 3500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 24 and 48 with output voltage of 3.3, 5, 9, 12, 15, 24, ± 3.3 , ± 5 , ± 9 , ± 12 , ± 15 and ± 24 Vdc. High performance features include high efficiency operation up to 83% and output voltage accuracy of $\pm 1\%$ maximum.

All specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS	
Voltage accuracy	$\pm 1\%$
Line regulation	$\pm 0.5\%$
Load regulation	$\pm 0.5\%$ (Output 3.3V / $\pm 3.3\text{V}$ Model) $\pm 1.5\%$
Ripple & noise (20 MHz bandwidth)(1)	60mV pk-pk
Short circuit protection	Indefinite(Automatic Recovery)
Temperature coefficient	$\pm 0.02\%/^\circ\text{C}$
Capacitor load(2)	See table
INPUT SPECIFICATIONS	
Voltage Range	See table
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	PI Type
Input Reflected Ripple Current(3)	35mA pk-pk
GENERAL SPECIFICATIONS	
Efficiency	See table, typ
I/O Isolation Voltage(3 sec)	
Input/Output	1500-3500Vdc
Metal Case/Input & Output	1000Vdc
I/O Isolation Capacitance	470 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Typical 266kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1:2001

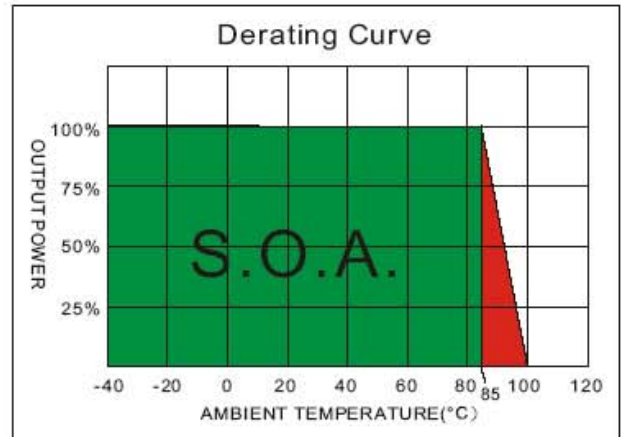
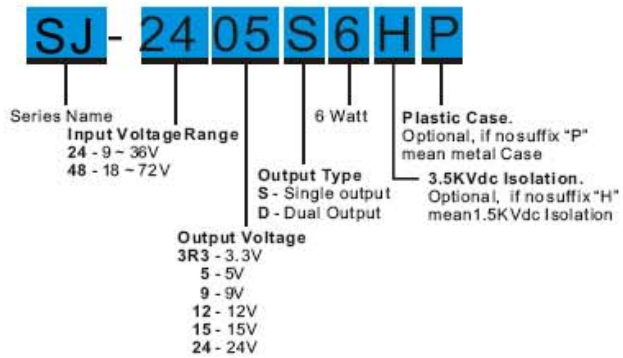
PHYSICAL SPECIFICATIONS	
Case Material	Nickel-coated Copper
Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	$\varnothing 0.5\text{mm}$ Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	17.0g(Metal Case)/13.5g(Plastic Case)

ENVIRONMENT SPECIFICATIONS	
Operating Temperature	$-40^\circ\text{C} \sim 85^\circ\text{C}$ (See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	$-40^\circ\text{C} \sim 125^\circ\text{C}$
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(4)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Voltage(100ms)	
24 Modes	$-0.7 \sim 40$ Vdc
48 Modes	$-0.7 \sim 80$ Vdc
Lead Soldering Temperature (1.5mm from case 10sec.)	260°C



PART NUMBER STRUCTURE



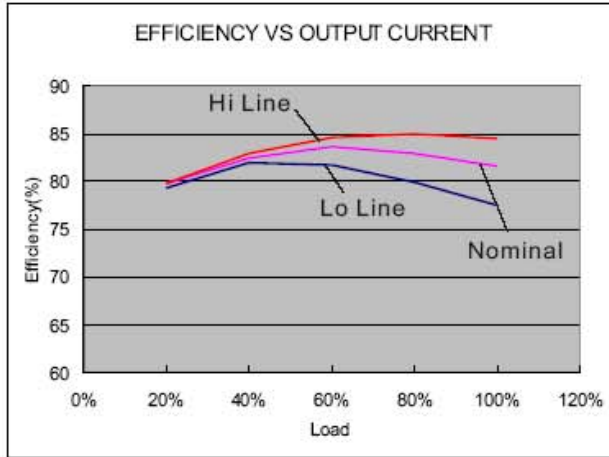
MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
SJ-243R3S6	9-36	18	260.13	3.3	0	1400	74	1000
SJ-2405S6	9-36	18	312.5	5	0	1200	80	680
SJ-2409S6	9-36	18	308.64	9	0	666.6	81	330
SJ-2412S6	9-36	18	304.87	12	0	500	82	100
SJ-2415S6	9-36	18	301.2	15	0	400	83	100
SJ-2424S6	9-36	18	308.64	24	0	250	81	68
SJ-243R3D6	9-36	18	333.3	±3.3	0	±909	75	±470
SJ-2405D6	9-36	18	312.5	±5	0	±600	80	±330
SJ-2409D6	9-36	18	308.64	±9	0	±333	81	±100
SJ-2412D6	9-36	18	304.87	±12	0	±250	82	±68
SJ-2415D6	9-36	18	301.2	±15	0	±200	83	±68
SJ-2424D6	9-36	18	308.64	±24	0	±125	81	±22
SJ-483R3S6	18-72	15	130.06	3.3	0	1400	74	1000
SJ-4805S6	18-72	15	156.25	5	0	1200	80	680
SJ-4809S6	18-72	15	154.32	9	0	666.6	81	330
SJ-4812S6	18-72	15	152.43	12	0	500	82	100
SJ-4815S6	18-72	15	150.6	15	0	400	83	100
SJ-4824S6	18-72	15	154.32	24	0	250	81	68
SJ-483R3D6	18-72	15	166.6	±3.3	0	±909	75	±470
SJ-4805D6	18-72	15	156.25	±5	0	±600	80	±330
SJ-4809D6	18-72	15	154.32	±9	0	±333	81	±100
SJ-4812D6	18-72	15	152.43	±12	0	±250	82	±68
SJ-4815D6	18-72	15	150.6	±15	0	±200	83	±68
SJ-4824D6	18-72	15	154.32	±24	0	±125	81	±22

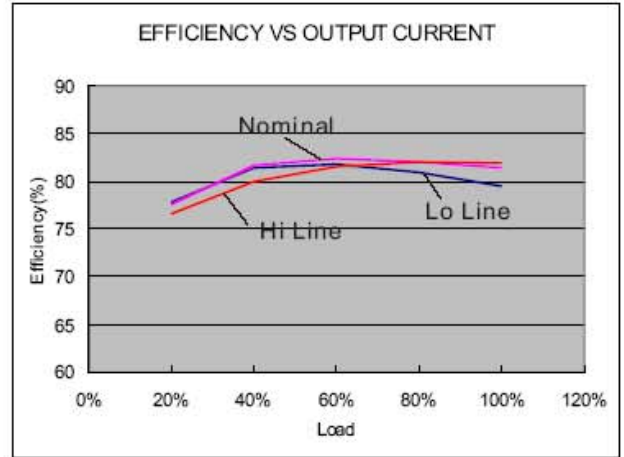
Suffix "H" means 3.5KVdc isolation
Suffix "P" means Plastic case instead of standard Metal Case

NOTE

1. Typical value at nominal input voltage and full load.
2. Test by nominal input voltage and constant resistor load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.

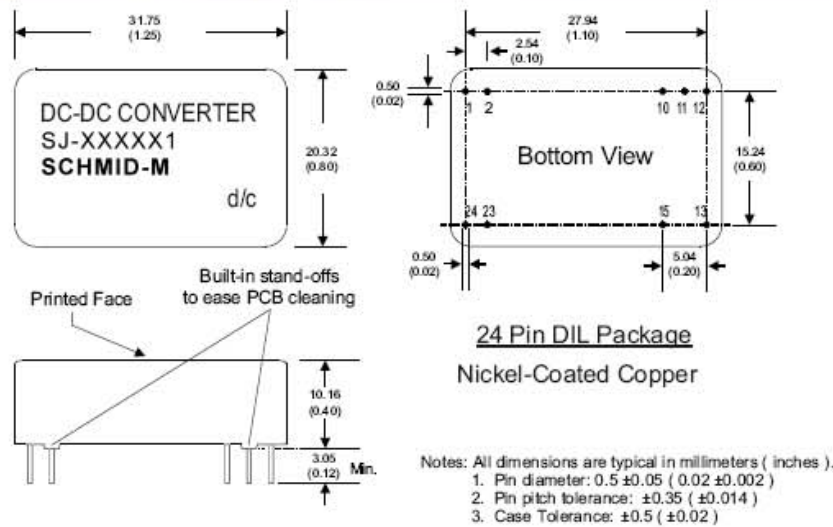


24 Models



48 Models

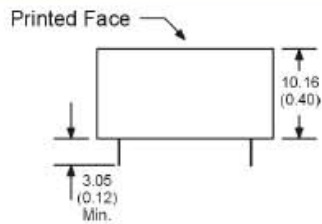
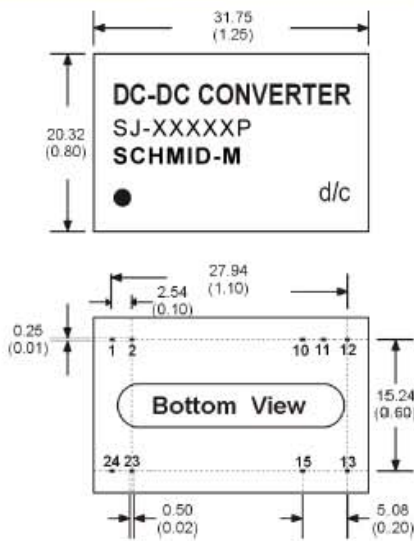
MECHANICAL SPECIFICATIONS



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+V Input	+V Input
2	+V Input	+V Input
10	N.C.	Common
11	N.C.	Common
12	-V Output	N.C.
13	+V Output	-V Output
15	N.C.	+V Output
23	-V Input	-V Input
24	-V Input	-V Input

(The Pin Connection of high isolation one is the same with normal one.)

MECHANICAL SPECIFICATIONS



For "P" Case

24 Pin DIL Package
Non-Conductive Plastic

- Notes: All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
 2. Pin pitch tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+V Input	+V Input
2	+V Input	+V Input
10	N.C.	Common
11	N.C.	Common
12	-V Output	N.C.
13	+V Output	-V Output
15	N.C.	+V Output
23	-V Input	-V Input
24	-V Input	-V Input

(The Pin Connection of high isolation one is the same with normal one.)