



V1-1W Series DC-DC Converter

Key Features

- Output Power: 1W (Unregulated)
- Output Configuration: Single & Dual Output Options
- Package Types: 7 Pin SIL / 14 Pin DIL
- Isolation Voltage: 1000 VDC (Up to 6000 VDC Optional)
- High Efficiency: Up to 86%
- Wide Operating Temperature Range: -40 ~ 85°C
- Case Material: Non-Conductive Black Plastic (UL94V-0 Rated)
- EMI Compliance: EN55022 Class B
- Safety Approvals: UL/cUL 60950-1, IEC/EN 60950-1
- 3-Year Warranty

General Specifications

Characteristic	Details
Input Voltage Range	3.3V, 5V, 12V, 15V, 24V, 48V ($\pm 10\%$ tolerance)
Output Voltage Options	3.3, 5, 7.2, 9, 12, 15, 18, 24, ± 3.3 , ± 5 , ± 7.2 , ± 9 , ± 12 , ± 15 , ± 18 , ± 24 Vdc
Voltage Accuracy	$\pm 3\%$ (max.)
Line Regulation	$\pm 1.2\%$ /Per 1% Vin Change
Load Regulation	$\pm 10\%$ (3.3V Output Model), $\pm 20\%$ (Other Models) (20%~100% Load)
Ripple & Noise (20MHz Bandwidth)	75mV pk-pk
Temperature Coefficient	$\pm 0.02\%/^{\circ}\text{C}$

I/O Isolation Voltage (60sec)	1000~6000Vdc
I/O Isolation Capacitance	60 pF (Typ.)
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Variable 80 kHz
MTBF (MIL-HDBK-217F)	>1.121 Mhrs
Humidity Resistance	95% rel H (Non-condensing)

Input Specifications

Characteristic	Details
Voltage Range Tolerance	±10%
Max. Input Current	See Model Selection Guide
No-Load Input Current	See Model Selection Guide
Input Filter	Capacitors
Input Reflected Ripple Current	20mA pk-pk (simulated source inductance 12uH)
Input Surge Voltage (100ms, Max.)	3.3V Models: 6Vdc; 5V Models:7Vdc; 12V Models:15Vdc; 15V Models:18Vdc; 24V Models:28Vdc; 48V Models:54Vdc

Output Specifications

Characteristic	Details
Capacitor Load	See Model Selection Guide (220μF or ±100μF based on model)
Output Current	See Model Selection Guide (Full Load)

Environmental Specifications

Characteristic	Range
Operating Temperature	-40°C ~ 85°C (See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C ~ 125°C
Cooling Method	Natural Convection
Soldering Temperature (Max.)	260°C (1.5mm from case, 10sec max.)

EMC Specifications

Category	Phenomenon	Standard	Performance
Emissions	Radiated Emissions	EN55022	CLASS B
	Conducted Emissions	EN55022	CLASS B
Immunity	ESD	IEC 61000-4-2	Perf. Criteria A
	RS (Radiated Immunity)	IEC 61000-4-3	Perf. Criteria A
	EFT (Electrical Fast Transient)	IEC 61000-4-4	Perf. Criteria A
	Surge	IEC 61000-4-5	Perf. Criteria A
	CS (Conducted Immunity)	IEC 61000-4-6	Perf. Criteria A
	PEMF (Power Frequency Magnetic Field)	IEC 61000-4-8	Perf. Criteria A

Physical Specifications

Characteristic	Details
Case Material	Non-conductive Black Plastic (UL94V-0 rated)
Pin Material	0.5mm Alloy42 Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	SIP Package: 2.3g; DIP Package: 2.6g
Dimensions	SIP Case: 0.76"×0.24"×0.39"; DIP Case: 0.80"×0.40"×0.27" (48V Input Model Thickness: 7.20mm/0.28")

Absolute Maximum Ratings

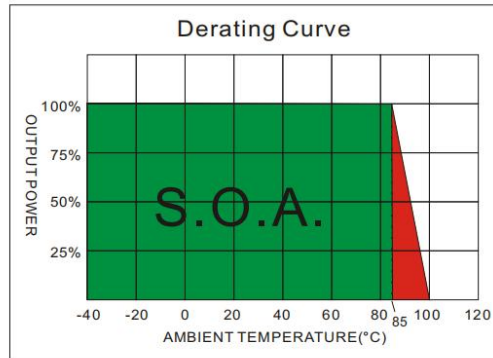
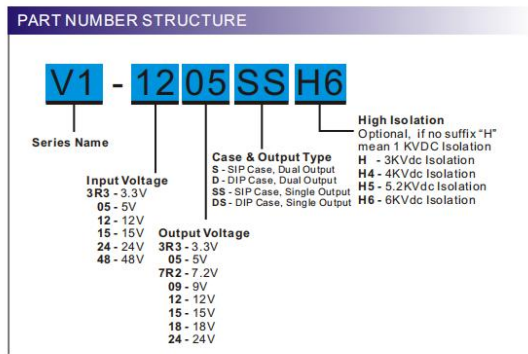
Characteristic	Limit
Input Surge Voltage (100ms)	3.3V Models:6Vdc; 5V Models:7Vdc; 12V Models:15Vdc; 15V Models:18Vdc; 24V Models:28Vdc; 48V Models:54Vdc
Soldering Temperature	260°C (max.)

Part Number Structure

V1 - [Input Voltage Code] - [Output Voltage Code] - [Package Code] - [Isolation Code]

- Series Name: V1
- Input Voltage Code: 3R3 (3.3V), 05 (5V), 12 (12V), 15 (15V), 24 (24V), 48 (48V)
- Output Voltage Code: 3R3 (3.3V), 05 (5V), 7R2 (7.2V), 09 (9V), 12 (12V), 15 (15V), 18 (18V), 24 (24V)
- Package Code: SS (Single Output, SIL), S (Single Output, DIL), DS (Dual Output, SIL), D (Dual Output, DIL)
- Isolation Code: H (3KVdc), H4 (4KVdc), H5 (5.2KVdc), H6 (6KVdc)

Derating Curve



Model Selection Guide

Single Output (SIL Package: Suffix "SS")

Model Number	Input Voltage Range (Vdc)	Input Current (mA) No-Load	Full Load	Output Voltage (Vdc)	Output Current (Full Load, mA)	Efficiency @FL (%)	Capacitance or Load (μF)
V1-3R33R3SS	2.97-3.3-3.63	28	399	3.3	303	76	220
V1-3R305SS	2.97-3.3-3.63	22	389	5	200	78	220
V1-3R309SS	2.97-3.3-3.63	35	379	9	111	80	220
V1-3R315SS	2.97-3.3-3.63	30	389	15	67	78	220
V1-3R318SS	2.97-3.3-3.63	30	415	18	56	73	220
V1-3R324SS	2.97-3.3-3.63	30	415	24	42	73	220
V1-053R3SS	4.5-5-5.5	15	256	3.3	303	78	220
V1-0505SS	4.5-5-5.5	17	247	5	200	81	220
V1-057R2SS	4.5-5-5.5	16	247	7.2	139	81	220
V1-0509SS	4.5-5-5.5	15	244	9	111	82	220

V1-0512SS	4.5-5-5.5	17	253	12	83	79	220
V1-0515SS	4.5-5-5.5	17	233	15	67	86	220
V1-0518SS	4.5-5-5.5	16	241	18	56	83	220
V1-0524SS	4.5-5-5.5	20	244	24	42	82	220
V1-123R3SS	10.8-12-13.2	12	111	3.3	303	75	220
V1-1205SS	10.8-12-13.2	14	105	5	200	79	220
V1-127R2SS	10.8-12-13.2	14	111	7.2	139	75	220
V1-1209SS	10.8-12-13.2	9	104	9	111	80	220
V1-1212SS	10.8-12-13.2	13	105	12	83	79	220
V1-1215SS	10.8-12-13.2	10	102	15	67	82	220
V1-1218SS	10.8-12-13.2	11	103	18	56	81	220
V1-1224SS	10.8-12-13.2	20	110	24	42	76	220
V1-153R3SS	13.5-15-16.5	10	83	3.3	303	80	220
V1-1505SS	13.5-15-16.5	7	82	5	200	81	220
V1-157R2SS	13.5-15-16.5	10	85	7.2	139	78	220
V1-1509SS	13.5-15-16.5	10	85	9	111	78	220
V1-1512SS	13.5-15-16.5	8	83	12	83	80	220
V1-1515SS	13.5-15-16.5	12	84	15	67	79	220
V1-1518SS	13.5-15-16.5	10	83	18	56	80	220
V1-1524SS	13.5-15-16.5	5	80	24	42	83	220
V1-243R3SS	21.6-24-26.4	8	56	3.3	303	74	220

V1-2405SS	21.6-24-26.4	6	54	5	200	77	220
V1-247R2SS	21.6-24-26.4	6	57	7.2	139	73	220
V1-2409SS	21.6-24-26.4	6	55	9	111	76	220
V1-2412SS	21.6-24-26.4	6	53	12	83	78	220
V1-2415SS	21.6-24-26.4	5	52	15	67	80	220
V1-2418SS	21.6-24-26.4	5	51	18	56	82	220
V1-2424SS	21.6-24-26.4	8	52	24	42	80	220
V1-483R3SS	43.2-48-52.8	5	29	3.3	303	73	220
V1-4805SS	43.2-48-52.8	5	29	5	200	73	220
V1-487R2SS	43.2-48-52.8	5	28	7.2	139	75	220
V1-4809SS	43.2-48-52.8	5	27	9	111	76	220
V1-4812SS	43.2-48-52.8	5	27	12	83	76	220
V1-4815SS	43.2-48-52.8	5	27	15	67	77	220
V1-4818SS	43.2-48-52.8	5	28	18	56	75	220
V1-4824SS	43.2-48-52.8	6	27	24	42	76	220

Dual Output (DIL Package: Suffix "S")

Model Number	Input Voltage Range (Vdc)	Input Current (mA)No -Load	Full Load	Output Voltage (Vdc)	Output Current (Full Load, mA)	Efficiency @FL (%)	Capacitor Load (μF)
V1-3R33R3S	2.97-3.3-3.63	30	459	±3.3	±152	66	±100
V1-3R305S	2.97-3.3-3.63	30	433	±5.0	±100	70	±100

V1-3R37R2S	2.97-3.3-3.63	30	421	±7.2	±69	72	±100
V1-3R309S	2.97-3.3-3.63	26	404	±9.0	±56	75	±100
V1-3R312S	2.97-3.3-3.63	30	394	±12	±42	77	±100
V1-3R315S	2.97-3.3-3.63	25	389	±15	±33	78	±100
V1-3R318S	2.97-3.3-3.63	25	404	±18	±28	75	±100
V1-3R324S	2.97-3.3-3.63	25	404	±24	±21	75	±100
V1-053R3S	4.5-5-5.5	20	299	±3.3	±152	67	±100
V1-0505S	4.5-5-5.5	20	270	±5.0	±100	74	±100
V1-057R2S	4.5-5-5.5	15	253	±7.2	±69	79	±100
V1-0509S	4.5-5-5.5	15	247	±9.0	±56	81	±100
V1-0512S	4.5-5-5.5	20	250	±12	±42	80	±100
V1-0515S	4.5-5-5.5	20	244	±15	±33	82	±100
V1-0518S	4.5-5-5.5	22	247	±18	±28	81	±100
V1-0524S	4.5-5-5.5	22	247	±24	±21	81	±100
V1-123R3S	10.8-12-13.2	13	123	±3.3	±152	68	±100
V1-1205S	10.8-12-13.2	10	123	±5.0	±100	74	±100
V1-127R2S	10.8-12-13.2	10	110	±7.2	±69	76	±100
V1-1209S	10.8-12-13.2	13	110	±9.0	±56	78	±100
V1-1212S	10.8-12-13.2	10	102	±12	±42	82	±100
V1-1215S	10.8-12-13.2	10	102	±15	±33	82	±100
V1-1218S	10.8-12-13.2	10	102	±18	±28	82	±100

V1-1224S	10.8-12-13.2	20	111	±24	±21	75	±100
V1-153R3S	13.5-15-16.5	20	89	±3.3	±152	75	±100
V1-1505S	13.5-15-16.5	20	89	±5.0	±100	75	±100
V1-157R2S	13.5-15-16.5	18	89	±7.2	±69	75	±100
V1-1509S	13.5-15-16.5	18	87	±9.0	±56	77	±100
V1-1512S	13.5-15-16.5	20	87	±12	±42	77	±100
V1-1515S	13.5-15-16.5	20	87	±15	±33	77	±100
V1-1518S	13.5-15-16.5	15	89	±18	±28	75	±100
V1-1524S	13.5-15-16.5	15	89	±24	±21	75	±100
V1-243R3S	21.6-24-26.4	7	62	±3.3	±152	67	±100
V1-2405S	21.6-24-26.4	6	56	±5.0	±100	74	±100
V1-247R2S	21.6-24-26.4	7	56	±7.2	±69	78	±100
V1-2409S	21.6-24-26.4	7	56	±9.0	±56	78	±100
V1-2412S	21.6-24-26.4	6	52	±12	±42	80	±100
V1-2415S	21.6-24-26.4	8	52	±15	±33	80	±100
V1-2418S	21.6-24-26.4	6	51	±18	±28	81	±100
V1-2424S	21.6-24-26.4	8	51	±24	±21	82	±100
V1-483R3S	43.2-48-52.8	6	34	±3.3	±152	62	±100
V1-4805S	43.2-48-52.8	5	31	±5.0	±100	68	±100
V1-487R2S	43.2-48-52.8	5	29	±7.2	±69	72	±100
V1-4809S	43.2-48-52.8	5	29	±9.0	±56	73	±100

V1-4812S	43.2-48-52.8	6	28	±12	±42	74	±100
V1-4815S	43.2-48-52.8	5	27	±15	±33	77	±100
V1-4818S	43.2-48-52.8	5	28	±18	±28	75	±100
V1-4824S	43.2-48-52.8	6	28	±24	±21	74	±100

Model Number	Input Voltage Range (Vdc)	Input Current (mA)	Full Load	Output Voltage (Vdc)	Output Current (Full Load, mA)	Efficiency @FL (%)	Capacitor Load (µF)
V1-3R33R3DS	2.97-3.3-3.63	35	427	3.3	303	71	220
V1-3R305DS	2.97-3.3-3.63	35	404	5	200	75	220
V1-3R309DS	2.97-3.3-3.63	30	394	9	111	77	220
V1-3R315DS	2.97-3.3-3.63	30	399	15	67	76	220
V1-3R318DS	2.97-3.3-3.63	35	415	18	56	73	220
V1-3R324DS	2.97-3.3-3.63	35	415	24	42	73	220
V1-053R3DS	4.5-5-5.5	20	260	3.3	303	77	220
V1-0505DS	4.5-5-5.5	20	244	5	200	82	220
V1-057R2DS	4.5-5-5.5	20	244	7.2	139	82	220
V1-0509DS	4.5-5-5.5	20	250	9	111	80	220
V1-0512DS	4.5-5-5.5	16	247	12	83	81	220
V1-0515DS	4.5-5-5.5	20	250	15	67	80	220
V1-0518DS	4.5-5-5.5	25	250	18	56	80	220

V1-0524DS	4.5-5-5.5	22	244	24	42	82	220
V1-123R3DS	10.8-12-13.2	20	111	3.3	303	75	220
V1-1205DS	10.8-12-13.2	14	104	5	200	80	220
V1-127R2DS	10.8-12-13.2	15	110	7.2	139	76	220
V1-1209DS	10.8-12-13.2	10	104	9	111	80	220
V1-1212DS	10.8-12-13.2	13	108	12	83	77	220
V1-1215DS	10.8-12-13.2	15	110	15	67	76	220
V1-1218DS	10.8-12-13.2	20	114	18	56	73	220
V1-1224DS	10.8-12-13.2	25	114	24	42	73	220
V1-153R3DS	13.5-15-16.5	10	89	3.3	303	75	220
V1-1505DS	13.5-15-16.5	7	82	5	200	81	220
V1-157R2DS	13.5-15-16.5	10	89	7.2	139	75	220
V1-1509DS	13.5-15-16.5	10	89	9	111	75	220
V1-1512DS	13.5-15-16.5	10	83	12	83	80	220
V1-1515DS	13.5-15-16.5	10	84	15	67	79	220
V1-1518DS	13.5-15-16.5	10	83	18	56	80	220
V1-1524DS	13.5-15-16.5	10	83	24	42	80	220
V1-243R3DS	21.6-24-26.4	7	55	3.3	303	76	220
V1-2405DS	21.6-24-26.4	7	52	5	200	80	220
V1-247R2DS	21.6-24-26.4	8	57	7.2	139	73	220
V1-2409DS	21.6-24-26.4	7	56	9	111	75	220

V1-2412DS	21.6-24-26.4	6	53	12	83	78	220
V1-2415DS	21.6-24-26.4	6	52	15	67	80	220
V1-2418DS	21.6-24-26.4	5	52	18	56	80	220
V1-2424DS	21.6-24-26.4	5	51	24	42	81	220
V1-483R3DS	43.2-48-52.8	10	30	3.3	303	70	220
V1-4805DS	43.2-48-52.8	6	29	5	200	73	220
V1-487R2DS	43.2-48-52.8	6	28	7.2	139	74	220
V1-4809DS	43.2-48-52.8	6	28	9	111	75	220
V1-4812DS	43.2-48-52.8	5	27	12	83	76	220
V1-4815DS	43.2-48-52.8	4	26	15	67	79	220
V1-4818DS	43.2-48-52.8	5	28	18	56	75	220
V1-4824DS	43.2-48-52.8	6	29	24	42	72	220

Dual Output (SIL Package: Suffix "DS")

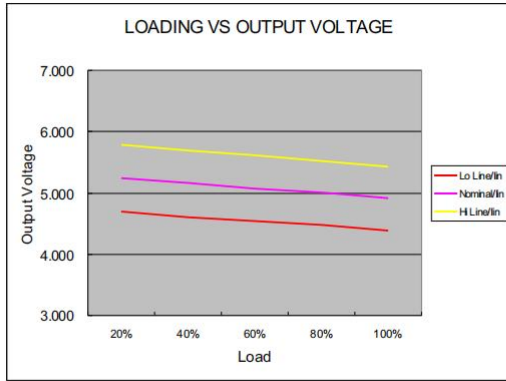
Dual Output (DIL Package: Suffix "D")

Model Number	Input Voltage Range (Vdc)	Input Current (mA)	Full Load	Output Voltage (Vdc)	Output Current (Full Load, mA)	Efficiency @F _L (%)	Capacitor Load (μF)
V1-3R33R3D	2.97-3.3-3.63	35	481	±3.3	±152	63	±100
V1-3R305D	2.97-3.3-3.63	25	452	±5.0	±100	67	±100
V1-3R37R2D	2.97-3.3-3.63	30	432	±7.2	±69	70	±100

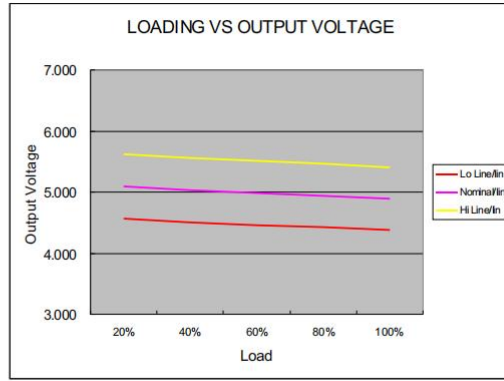
V1-3R309D	2.97-3.3-3.63	30	415	±9.0	±56	73	±100
V1-3R312D	2.97-3.3-3.63	30	415	±12	±42	73	±100
V1-3R315D	2.97-3.3-3.63	30	399	±15	±33	76	±100
V1-3R318D	2.97-3.3-3.63	30	404	±18	±28	75	±100
V1-3R324D	2.97-3.3-3.63	30	404	±24	±21	75	±100
V1-053R3D	4.5-5-5.5	20	308	±3.3	±152	65	±100
V1-0505D	4.5-5-5.5	20	259	±5.0	±100	70	±100
V1-057R2D	4.5-5-5.5	20	274	±7.2	±69	73	±100
V1-0509D	4.5-5-5.5	16	253	±9.0	±56	79	±100
V1-0512D	4.5-5-5.5	20	250	±12	±42	80	±100
V1-0515D	4.5-5-5.5	20	247	±15	±33	81	±100
V1-0518D	4.5-5-5.5	18	244	±18	±28	82	±100
V1-0524D	4.5-5-5.5	20	244	±24	±21	82	±100
V1-123R3D	10.8-12-13.2	15	128	±3.3	±152	65	±100
V1-1205D	10.8-12-13.2	7	113	±5.0	±100	74	±100
V1-127R2D	10.8-12-13.2	13	111	±7.2	±69	75	±100
V1-1209D	10.8-12-13.2	15	104	±9.0	±56	80	±100
V1-1212D	10.8-12-13.2	14	103	±12	±42	81	±100
V1-1215D	10.8-12-13.2	11	102	±15	±33	82	±100
V1-1218D	10.8-12-13.2	15	111	±18	±28	75	±100
V1-1224D	10.8-12-13.2	20	110	±24	±21	76	±100

V1-153R3D	13.5-15-16.5	20	89	±3.3	±152	75	±100
V1-1505D	13.5-15-16.5	20	89	±5.0	±100	75	±100
V1-157R2D	13.5-15-16.5	18	89	±7.2	±69	75	±100
V1-1509D	13.5-15-16.5	18	87	±9.0	±56	77	±100
V1-1512D	13.5-15-16.5	20	87	±12	±42	77	±100
V1-1515D	13.5-15-16.5	20	87	±15	±33	77	±100
V1-1518D	13.5-15-16.5	15	89	±18	±28	75	±100
V1-1524D	13.5-15-16.5	15	89	±24	±21	75	±100
V1-243R3D	21.6-24-26.4	10	65	±3.3	±152	64	±100
V1-2405D	21.6-24-26.4	5	56	±5.0	±100	75	±100
V1-247R2D	21.6-24-26.4	7	56	±7.2	±69	75	±100
V1-2409D	21.6-24-26.4	5	52	±9.0	±56	80	±100
V1-2412D	21.6-24-26.4	6	53	±12	±42	79	±100
V1-2415D	21.6-24-26.4	8	51	±15	±33	81	±100
V1-2418D	21.6-24-26.4	10	53	±18	±28	78	±100
V1-2424D	21.6-24-26.4	9	53	±24	±21	78	±100
V1-483R3D	43.2-48-52.8	8	32	±3.3	±152	65	±100
V1-4805D	43.2-48-52.8	6	32	±5.0	±100	65	±100
V1-487R2D	43.2-48-52.8	5	31	±7.2	±69	68	±100
V1-4809D	43.2-48-52.8	5	30	±9.0	±56	70	±100
V1-4812D	43.2-48-52.8	6	29	±12	±42	71	±100

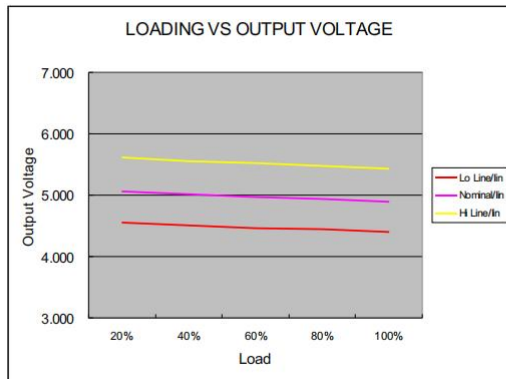
V1-4815D	43.2-48-52.8	6	29	±15	±33	72	±100
V1-4818D	43.2-48-52.8	8	30	±18	±28	70	±100
V1-4824D	43.2-48-52.8	8	29	±24	±21	72	±100



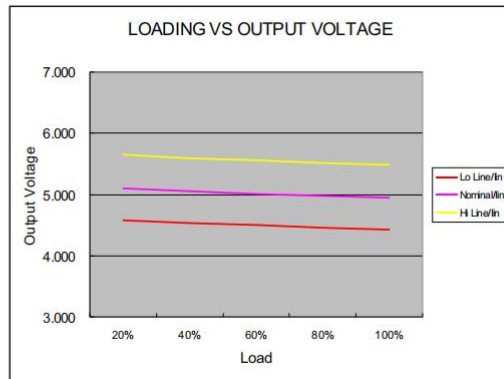
5 Models



12 Models



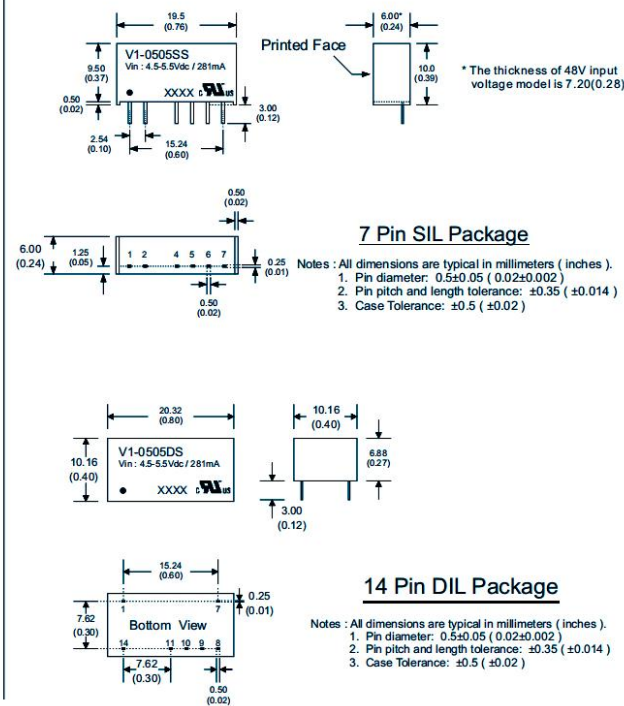
24 Models



48 Models

PIN CONNECTIONS

MECHANICAL SPECIFICATIONS



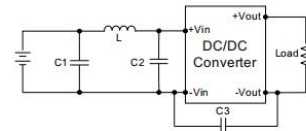
PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	+V Input	+V Input
2	-V Input	-V Input	-V Input	-V Input
4	-V Output	-V Output	N.P.	N.P.
5	N.P.	Common	-V Output	-V Output
6	+V Output	+V Output	N.P.	Common
7	N.P.	N.P.	+V Output	+V Output

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	-V Input	-V Input	-V Input	-V Input
7	N.C.	N.C.	N.C.	N.C.
8	N.P.	Common	+V Output	+V Output
9	+V Output	+V Output	N.P.	Common
10	N.P.	N.P.	-V Output	-V Output
11	-V Output	-V Output	N.P.	N.P.
14	+V Input	+V Input	+V Input	+V Input

Test Configurations: EMI Filter

EMI Filter

Input filter components (C1, L, C2, C3) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



	C1	L	C2	C3
V1-3R3XXXXX	1210, 2.2uF/100V	18uH		
V1-05XXXXXX	1210, 2.2uF/100V	18uH		
V1-12XXXXXX	1210, 2.2uF/100V	18uH		
V1-15XXXXXX	1210, 2.2uF/100V	18uH		
V1-24XXXXXX	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV
V1-48XXXXXX	Electrolytic capacitor, 10uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV

Recommended External Filter Capacitor

- For meeting IEC61000-4-4 and IEC61000-4-5: Nippon-chemi-con KY series, 470μF/100V
- For ISH2424A model only: Add Y-cap, 470μF/3KV

Fuse Recommendations

Input Voltage	Slow Burning Fuses
3.3V Vin	800mA

5V Vin	500mA
12V, 24V, 48V Vin	300mA

Notes

1. Ripple/Noise measured with 20MHz bandwidth.
2. All specifications are typical at Ta=25°C, nominal input voltage and full load unless otherwise specified.
3. Input reflected ripple current measured with a simulated source inductance of 12uH.
4. Input filter components are required to meet conducted emission Class B; refer to EMI Filter configuration.
5. Exceeding absolute ratings may damage the device and is not allowed for continuous operation.
6. No-load operation will not damage the device but may not meet all specifications.
7. All models should be externally fused at the front end for protection.
8. Isolation suffixes: "H" (3KVdc), "H4" (4KVdc), "H5" (5.2KVdc), "H6" (6KVdc).
9. The models listed are standard types; for custom specifications, contact sales@microdc.cn

Contact Information

- Brand: micro
- Tel: 86-13322986133
- Email: sales@microdc.cn
- Last Update: 31.DEC.2025
- Certifications: ISO 9001, ISO 14001, IECQ QC080000