

V1P-1W Series

1W Unregulated Single & Dual output

Features

- 7 Pin SIL / 14 Pin DIP Package
- 1000 VDC Isolation
- Up to 6000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 76%
- -40 ~ 85°C Operation Temperature Range
- Non-Conductive Black Plastic Case
- Continuous Short Circuit Protection



The V1P series is a family of cost effective 1W single & dual output DC-DC converters. These converters achieve low cost and ultra-miniature SIP 7 pin or DIP 14 pin size. Devices are encapsulated using flame retardant resin. The models operate from input voltage of 5, 12, 24 Vdc with output voltage of 5, 7.2, 9, 12, 18, 24, ± 5 , ± 7.2 , ± 9 , ± 12 , ± 15 Vdc. High performance features include 1000Vdc~6000Vdc input/output isolation, high efficiency operation and output voltage accuracy of $\pm 3\%$ maximum. Standard features include an input range of $\pm 10\%$ tolerance and low output noise and ripple.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS		PHYSICAL SPECIFICATIONS	
Voltage accuracy	$\pm 3\%$	Case Material	Non-conductive Black Plastic(UL94V-0 rated)
Line regulation	$\pm 1.2\%$ / Per 1% Vin Change	Pin Material	0.5mm Alloy42 Solder-coated
Load regulation	(From 20% to 100% Load) $\pm 10\%$	Potting Material	Epoxy (UL94V-0 rated)
Ripple & noise (20 MHz bandwidth)(1)	75mV pk-pk	Weight	(SIP/2.3g) (DIP/2.7g)
Short Circuit Protection	Continuous	Dimensions	SIP Case 0.76"x0.24"x0.39" DIP Case 0.80"x0.40"x0.27"
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$	ENVIRONMENT SPECIFICATIONS	
Capacitor load(2)	See table	Operating Temperature	-40°C~85°C
INPUT SPECIFICATIONS		Maximum Case Temperature	100°C
Voltage Range	$\pm 10\%$	Storage Temperature	-40°C~125°C
Max. Input Current	See table	Cooling	Nature Convection
No-Load Input Current	See table	GENERAL SPECIFICATIONS	
Input Filter	Capacitors	Efficiency	See table
Input Reflected Ripple Current(3)	20mA pk-pk	I/O Isolation Voltage(60sec) Input/Output	1000~6000Vdc
ABSOLUTE MAXIMUM RATINGS(4)		I/O Isolation Capacitance	10 pF Typ.
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.		I/O Isolation Resistance	1000M Ohm
Input Surge Voltage(100mS)		Switching Frequency	Variable 80kHz
5 Models	7 Vdc ,max.	Humidity	95% rel H
12 Models	15 Vdc ,max.	Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
24 Models	28 Vdc ,max.	Safety Standard : (designed to meet)	IEC 60950-1
Soldering Temperature (1.5mm from case 10sec max.)	260°C ,max.		

NOTE

1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Do not operate the unit(s) exceeding the absolute maximum rating, over rating causes damage to the units.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

V1P - 1W Unregulated Single & Dual output

PART NUMBER STRUCTURE

V1P - 12 05 SS H6

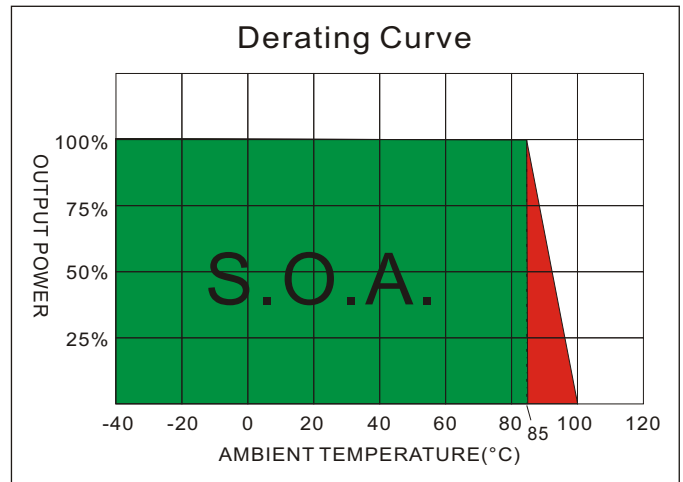
Series Name

Input Voltage
05 - 5V
12 - 12V
24 - 24V

Output Voltage
05 - 5V
7R2 - 7.2V
09 - 9V
12 - 12V
15 - 15V
18 - 18V(SS/DS)
24 - 24V(SS/DS)

Case & Output Type
S - SIP Case, Dual Output
D - DIP Case, Dual Output
SS - SIP Case, Single Output
DS - DIP Case, Single Output

High Isolation
Optional, if no suffix "H"
mean 1 KVDC Isolation
H - 3KVdc Isolation
H2 - 2KVdc Isolation
H4 - 4KVdc Isolation
H5 - 5.2KVdc Isolation
H6 - 6KVdc Isolation



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full Load (mA)		
V1P-0505S	5	55	308	±5	±100	65	±100
V1P-057R2S	5	60	285	±7.2	±69.44	70	±100
V1P-0509S	5	60	281	±9	±55.55	71	±100
V1P-0512S	5	60	281	±12	±41.67	71	±100
V1P-0515S	5	60	281	±15	±33.33	71	±100
V1P-1205S	12	30	114	±5	±100	73	±100
V1P-127R2S	12	30	114	±7.2	±69.44	73	±100
V1P-1209S	12	30	114	±9	±55.55	73	±100
V1P-1212S	12	20	109	±12	±41.67	76	±100
V1P-1215S	12	30	109	±15	±33.33	76	±100
V1P-2405S	24	13	59	±5	±100	71	±100
V1P-247R2S	24	10	57	±7.2	±69.44	72	±100
V1P-2409S	24	10	57	±9	±55.55	73	±100
V1P-2412S	24	17	58	±12	±41.67	72	±100
V1P-2415S	24	10	54	±15	±33.33	76	±100
V1P-0505D	5	60	285	±5	±100	70	±100
V1P-057R2D	5	60	285	±7.2	±69.44	70	±100
V1P-0509D	5	60	281	±9	±55.55	71	±100
V1P-0512D	5	60	281	±12	±41.67	71	±100
V1P-0515D	5	60	281	±15	±33.33	71	±100
V1P-1205D	12	30	114	±5	±100	73	±100
V1P-127R2D	12	30	114	±7.2	±69.44	73	±100
V1P-1209D	12	30	114	±9	±55.55	73	±100
V1P-1212D	12	30	109	±12	±41.67	76	±100
V1P-1215D	12	30	109	±15	±33.33	76	±100
V1P-2405D	24	10	57	±5	±100	72	±100
V1P-247R2D	24	10	57	±7.2	±69.44	72	±100
V1P-2409D	24	10	57	±9	±55.55	73	±100
V1P-2412D	24	10	56	±12	±41.67	74	±100
V1P-2415D	24	10	54	±15	±33.33	76	±100

Suffix "H" means 3 KVdc isolation
Suffix "H5" means 5.2 KVdc isolation

Suffix "H2" means 2 KVdc isolation
Suffix "H6" means 6 KVdc isolation

Suffix "H4" means 4 KVdc isolation

V1P - 1W Unregulated Single & Dual output

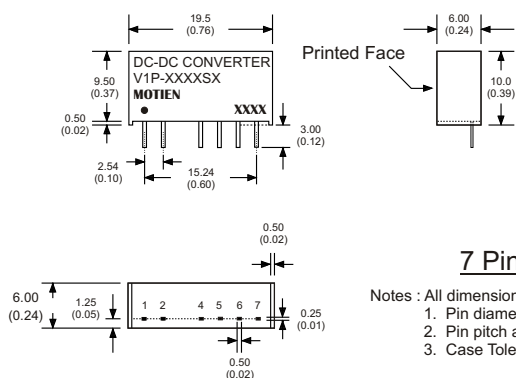
MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full Load (mA)			
V1P-0505SS	5	60	278	5	200	72		220
V1P-057R2SS	5	60	277	7.2	138.9	72		220
V1P-0509SS	5	60	277	9	111.1	72		220
V1P-0512SS	5	53	274	12	83.3	73		220
V1P-0515SS	5	60	270	15	66.7	74		220
V1P-0518SS	5	60	270	18	55.6	74		220
V1P-0524SS	5	60	266	24	41.7	75		220
V1P-1205SS	12	20	113	5	200	74		220
V1P-127R2SS	12	30	115	7.2	138.9	72		220
V1P-1209SS	12	30	114	9	111.1	73		220
V1P-1212SS	12	25	110	12	83.3	76		220
V1P-1215SS	12	30	111	15	66.7	75		220
V1P-1218SS	12	30	111	18	55.6	75		220
V1P-1224SS	12	30	111	24	41.7	75		220
V1P-2405SS	24	15	57	5	200	73		220
V1P-247R2SS	24	10	57	7.2	138.9	73		220
V1P-2409SS	24	10	55	9	111.1	75		220
V1P-2412SS	24	15	62	12	83.3	67		220
V1P-2415SS	24	10	55	15	66.7	75		220
V1P-2418SS	24	10	54	18	55.6	76		220
V1P-2424SS	24	10	54	24	41.7	76		220
V1P-0505DS	5	60	281	5	200	71		220
V1P-057R2DS	5	60	277	7.2	138.9	72		220
V1P-0509DS	5	60	277	9	111.1	72		220
V1P-0512DS	5	60	270	12	83.3	74		220
V1P-0515DS	5	60	270	15	66.7	74		220
V1P-0518DS	5	60	270	18	55.6	74		220
V1P-0524DS	5	60	266	24	41.7	75		220
V1P-1205DS	12	30	115	5	200	72		220
V1P-127R2DS	12	30	115	7.2	138.9	72		220
V1P-1209DS	12	30	114	9	111.1	73		220
V1P-1212DS	12	30	112	12	83.3	74		220
V1P-1215DS	12	30	111	15	66.7	75		220
V1P-1218DS	12	30	111	18	55.6	75		220
V1P-1224DS	12	30	111	24	41.7	75		220
V1P-2405DS	24	10	57	5	200	73		220
V1P-247R2DS	24	10	57	7.2	138.9	73		220
V1P-2409DS	24	10	55	9	111.1	75		220
V1P-2412DS	24	10	55	12	83.3	75		220
V1P-2415DS	24	10	55	15	66.7	75		220
V1P-2418DS	24	10	54	18	55.6	76		220
V1P-2424DS	24	10	54	24	41.7	76		220

Suffix "H" means 3 KVdc isolation
 Suffix "H5" means 5.2 KVdc isolation

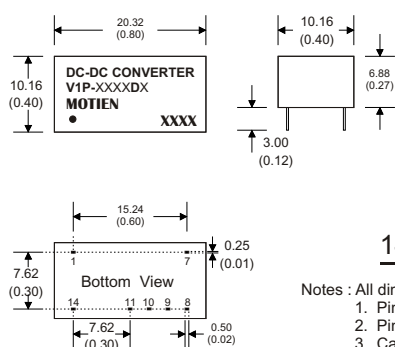
Suffix "H2" means 2 KVdc isolation
 Suffix "H6" means 6 KVdc isolation

Suffix "H4" means 4 KVdc isolation

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