

V3-S/D01(02)-2W Series

2W Unregulated Dual Separate output



electronic powersolutions

Features

- 7 Pin SIL / 14 Pin DIL Package
- 1000 VDC Isolation
- Up to 3000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 80%
- -40 ~ 85°C Operation Temperature Range
- Non-Conductive Black Plastic Case



The V3 series is a family of cost effective 2W dual separate 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 3.3, 5, 7.2, 9, 12, 15, 18, 24 Vdc. High performance features include 1000Vdc~3000Vdc 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 $T_a = 25^\circ\text{C}$, 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% V_{in} Change	Pin Material	0.5mm Alloy42 Solder-coated
Load regulation	(From 20% to 100% Load) $\pm 10\%$ (Output 3.3V Model) $\pm 20\%$	Potting Material	Epoxy (UL94V-0 rated)
Ripple & noise (20 MHz bandwidth)(1)	75mV pk-pk	Weight	(SIP/2.3g)(SIP/2.7g) (DIP/2.6g)
Temperature coefficient	$\pm 0.02\%/^\circ\text{C}$	Dimensions	SIP Case 0.76"x0.24"x0.39" SIP Case 0.76"x0.28"x0.39" DIP Case 0.80"x0.40"x0.27"
Capacitor load(2)	See table		
INPUT SPECIFICATIONS		ENVIRONMENT SPECIFICATIONS	
Voltage Range	$\pm 10\%$	Operating Temperature	$-40^\circ\text{C} \sim 85^\circ\text{C}$ (See Derating Curve)
Max. Input Current	See table	Maximum Case Temperature	100°C
No-Load Input Current	See table	Storage Temperature	$-40^\circ\text{C} \sim 125^\circ\text{C}$
Input Filter	Capacitors	Cooling	Nature Convection
Input Reflected Ripple Current(3)	20mA pk-pk		
ABSOLUTE MAXIMUM RATINGS(4)		GENERAL SPECIFICATIONS	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.		Efficiency	See table
Input Surge Voltage(100mS)		I/O Isolation Voltage(60sec)	
5 Models	7 Vdc ,max.	Input/Output1&Output2	1000~3000Vdc
12 Models	15 Vdc ,max.	Output1/Output2	1000Vdc
24 Models	28 Vdc ,max.	I/O Isolation Capacitance	60 pF Typ.
Soldering Temperature	260°C ,max.	I/O Isolation Resistance	1000M Ω m
(1.5mm from case 10 sec. max.)		Switching Frequency	Variable 80kHz
		Humidity	95% rel H
		Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
		Safety Standard (designed to meet)	IEC/EN 60950-1 , 62368-1 UL/cUL 60950-1 , 62368-1

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PART NUMBER STRUCTURE

V3 - 1205 D 01 H

Series Name

Input Voltage

05 - 5V
12 - 12V
24 - 24V

Case Type

S - SIP Case
D - DIP Case

3KVdc Isolation

Optional, if no suffix "H"
mean 1 KVdc Isolation

Dual Separate Output Voltage (1W)

3R3S/D01 - 5V,3.3V 3R3S/D02 - 3.3V,3.3V

7R2S/D01 - 5V,7.2V 7R2S/D02 - 7.2V,7.2V

09S/D01 - 5V,9V 09S/D02 - 9V,9V

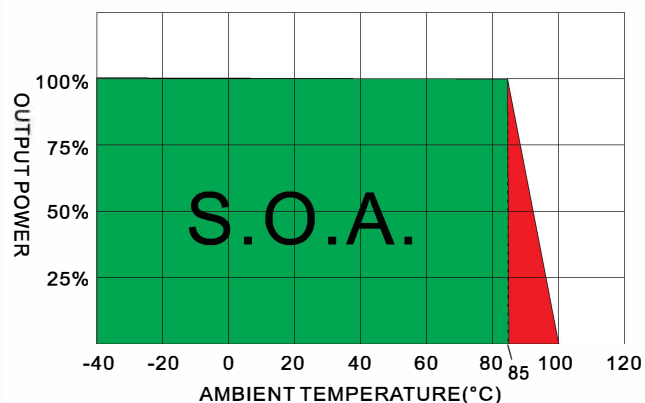
12S/D01 - 5V,12V 12S/D02 - 12V,12V

15S/D01 - 5V,15V 15S/D02 - 15V,15V

18S/D01 - 5V,18V 18S/D02 - 18V,18V

24S/D01 - 5V,24V 24S/D02 - 24V,24V

Derating Curve



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage(Vdc)		OUTPUT Current Full load(mA)		EFFICIENCY @FL (% , typ.)	Capacitor Load @FL (µF, max.)
		No-Load (mA, max.)	Full Load (mA, typ.)	Output1	Output2	Output1	Output2		
V3-053R3S/D01	5	35	519	5	3,3	200	303	77	220
V3-057R2S/D01	5	35	519	5	7,2	200	139	77	220
V3-0509S/D01	5	35	519	5	9	200	111	77	220
V3-0512S/D01	5	35	500	5	12	200	83	80	220
V3-0515S/D01	5	35	500	5	15	200	67	80	220
V3-0518S/D01	5	35	519	5	18	200	55	77	220
V3-0524S/D01	5	35	519	5	24	200	41	77	220
V3-123R3S/D01	12	25	216	5	3,3	200	303	77	220
V3-127R2S/D01	12	25	216	5	7,2	200	139	77	220
V3-1209S/D01	12	25	216	5	9	200	111	77	220
V3-1212S/D01	12	25	208	5	12	200	83	80	220
V3-1215S/D01	12	25	208	5	15	200	67	80	220
V3-1218S/D01	12	25	216	5	18	200	55	77	220
V3-1224S/D01	12	25	216	5	24	200	41	77	220
V3-243R3S/D01	24	12	108	5	3,3	200	303	77	220
V3-247R2S/D01	24	12	108	5	7,2	200	139	77	220
V3-2409S/D01	24	12	108	5	9	200	111	77	220
V3-2412S/D01	24	12	104	5	12	200	83	80	220
V3-2415S/D01	24	12	104	5	15	200	67	80	220
V3-2418S/D01	24	12	106	5	18	200	55	78	220
V3-2424S/D01	24	12	108	5	24	200	41	77	220

Suffix "H" means 3 KVdc isolation

V3 - 2W Unregulated Dual Separate output

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage(Vdc)		OUTPUT Current		EFFICIENCY @FL (% , typ.)	Capacitor Load @FL (µF, max.)
		No-Load (mA, max.)	Full Load (mA, typ.)	Output1	Output2	Full load(mA)	Output1		
V3-053R3S/D02	5	35	519	3.3 , 3.3	303 , 303	77	220		
V3-0505S/D02	5	35	512	5 , 5	200 , 200	78	220		
V3-057R2S/D02	5	35	512	7.2 , 7.2	139 , 139	78	220		
V3-0509S/D02	5	35	512	9 , 9	111 , 111	78	220		
V3-0512S/D02	5	35	512	12 , 12	83 , 83	78	220		
V3-0515S/D02	5	35	506	15 , 15	67 , 67	79	220		
V3-0518S/D02	5	35	500	18 , 18	55 , 55	80	220		
V3-0524S/D02	5	35	500	24 , 24	41 , 41	80	220		
V3-123R3S/D02	12	25	216	3.3 , 3.3	303 , 303	77	220		
V3-1205S/D02	12	25	216	5 , 5	200 , 200	77	220		
V3-127R2S/D02	12	25	216	7.2 , 7.2	139 , 139	77	220		
V3-1209S/D02	12	25	216	9 , 9	111 , 111	77	220		
V3-1212S/D02	12	25	213	12 , 12	83 , 83	78	220		
V3-1215S/D02	12	25	213	15 , 15	67 , 67	78	220		
V3-1218S/D02	12	25	208	18 , 18	55 , 55	80	220		
V3-1224S/D02	12	25	208	24 , 24	41 , 41	80	220		
V3-243R3S/D02	24	12	106	3.3 , 3.3	303 , 303	78	220		
V3-2405S/D02	24	12	106	5 , 5	200 , 200	78	220		
V3-247R2S/D02	24	12	106	7.2 , 7.2	139 , 139	78	220		
V3-2409S/D02	24	12	106	9 , 9	111 , 111	78	220		
V3-2412S/D02	24	12	104	12 , 12	83 , 83	80	220		
V3-2415S/D02	24	12	104	15 , 15	67 , 67	80	220		
V3-2418S/D02	24	12	104	18 , 18	55 , 55	80	220		
V3-2424S/D02	24	12	104	24 , 24	41 , 41	80	220		

Suffix "H" means 3 KVdc isolation

NOTE

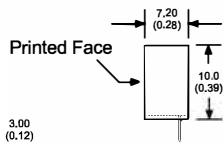
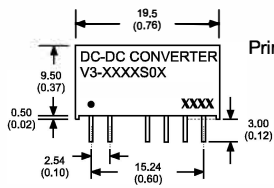
1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH and a source capacitor Cin(47µF, ESR<1.0Ω at 100KHz).
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
6. All other standard models are used SIP case of 0.76"x0.28"x0.39".

The following models are used the case of 0.76"x0.24"x0.39" .

V3-2412S01	V3-2412S01H	V3-0515S02	V3-0515S02H	V3-1205S02	V3-1205S02H	V3-1212S02	V3-1212S02H
V3-2405S02	V3-2405S02H	V3-247R2S02	V3-247R2S02H	V3-2409S02	V3-2409S02H	V3-2412S02	V3-2412S02H

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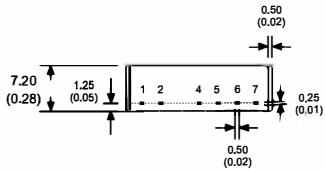
MECHANICAL SPECIFICATIONS



* The thickness of 48V input voltage model is 6.0(0.24)

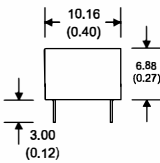
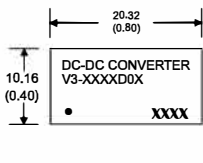
7 Pin SIL Package

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



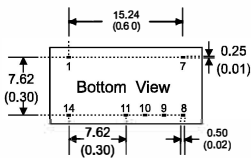
PIN CONNECTIONS	
PIN NUMBER	Dual Separate
1	+V Input
2	-V Input
4	+V1 Output
5	-V1 Output
6	+V2 Output
7	-V2 Output

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



14 Pin DIL Package

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



PIN CONNECTIONS	
PIN NUMBER	Dual Separate
1	-V Input
7	N.C
8	-V2 Output
9	+V2 Output
10	-V1 Output
11	+V1 Output
14	+V Input

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