

## DC/DC Converter – VD-S/D1

1.5 WATT  
Single / Dual Output

### FEATURES

- 1500 Vdc Isolation (3500 Vdc Isolation available)
- Wide 2:1 Input Range
- 24 Pin DIL Package
- Regulated
- Continuous Short Circuit Protection
- Nickel-Coated Copper Metal
- MTBF > 1.5 MHours

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
VD-1205S1	9-18	5	300	74
VD-1209S1		9	167	77
VD-1212S1		12	125	76
VD-1215S1		15	100	78
VD-1224S1		24	63	78
VD-1205D1	9-18	±5	±150	74
VD-1209D1		±9	±84	76
VD-1212D1		±12	±63	75
VD-1215D1		±15	±50	78
VD-1224D1		±24	±32	78
VD-2405S1	18-36	5	300	74
VD-2409S1		9	167	74
VD-2412S1		12	125	76
VD-2415S1		15	100	76
VD-2424S1		24	63	77
VD-2405D1	18-36	±5	±150	75
VD-2409D1		±9	±84	76
VD-2412D1		±12	±63	77
VD-2415D1		±15	±50	78
VD-2424D1		±24	±32	78
VD-4805S1	36-72	5	300	73
VD-4809S1		9	167	75
VD-4812S1		12	125	77
VD-4815S1		15	100	77
VD-4824S1		24	63	78
VD-4805D1	36-72	±5	±150	74
VD-4809D1		±9	±84	75
VD-4812D1		±12	±63	77
VD-4815D1		±15	±50	78
VD-4824D1		±24	±32	78

1. Suffix " P " Plastic Instead of Metal case Package.  
2. Input Voltage range is from 4.5 V to 72 V and Output Voltage is from 3.3 V to 24 V.

#### Input Specifications:

Voltage Range 12Vdc, 9-18 Vdc., 24Vdc, 18-36 Vdc, 48Vdc, 36-72 Vdc  
Filter  $\pi$  (Pi) Network

#### Isolation Specification:

Rated Voltage 1500 Vdc, Standard  
Resistance 1000M  $\Omega$  Min.  
Capacitance 390 pF, Typ.

#### Output Specifications:

Voltage Accuracy:  $\pm 1\%$ , Max.  
Voltage Balance (Dual Outputs)  $\pm 1\%$   
Ripple and Noise (at 20 MHz BW) ( $\pm$ ) 60mVp-p, Max  
Short Circuit Protection Continuous  
Short Circuit Restart Automatic  
Line Voltage Regulation  $\pm 0.5\%$ , Max.  
Load Voltage Regulation  $\pm 0.5\%$ , Max.  
Temperature Coefficient  $\pm 0.02\%$  /  $^{\circ}\text{C}$

#### General Specifications:

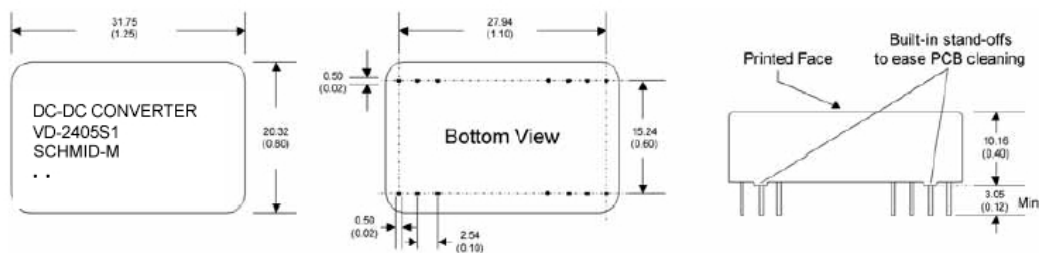
Efficiency 73% ~ 78%  
Switching Frequency 260 KHz, Typ.

#### Environmental Specification:

Operating Temperature (Ambient)  $-40^{\circ}\text{C}$  ~  $+85^{\circ}\text{C}$   
Case Temperature  $100^{\circ}\text{C}$  Max.  
Storage Temperature  $-40^{\circ}\text{C}$  ~  $+125^{\circ}\text{C}$   
Derating None Required  
Humidity Up to 90%, Non-condensing  
Cooling Free-air Convection

### MECHANICAL DIMENSIONS & PIN CONNECTIONS

#### 24 Pin DIL package



Pin #	STANDARD	Single	Dual
2	-V Input	-V Input	
3	-V Input	-V Input	
9	Omitted		Common
11	N.C		-V Output
14	+V Output		+V Output
16	-V Output		Common
22	+V Input	+V Input	
23	+V Input	+V Input	

- Notes: 1. All dimensions are typical in millimeters (inches). Tolerance x.xx =  $\pm 0.25$  ( $\pm 0.01$ )  
2. Plastic Case Dimensions are 31.75 \* 20.32 \* 10.16 mm.

## DC/DC Converter – VD-S/D3

3 WATT

Single / Dual Output

### FEATURES

- 1500 Vdc Isolation (3500 Vdc Isolation available)
- Wide 2:1 Input Range
- 24 Pin DIL Package
- Regulated
- Continuous Short Circuit Protection
- Nickel-Coated Copper Metal
- MTBF > 1.5 MHours

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
VD-1205S3	9-18	5	600	76
VD-1209S3		9	334	77
VD-1212S3		12	250	79
VD-1215S3		15	200	79
VD-1224S3		24	125	79
VD-1205D3	9-18	±5	±300	77
VD-1209D3		±9	±167	78
VD-1212D3		±12	±125	78
VD-1215D3		±15	±100	78
VD-1224D3		±24	±63	78
VD-2405S3	18-36	5	600	80
VD-2409S3		9	334	80
VD-2412S3		12	250	82
VD-2415S3		15	200	82
VD-2424S3		24	125	80
VD-2405D3	18-36	±5	±300	78
VD-2409D3		±9	±167	79
VD-2412D3		±12	±125	80
VD-2415D3		±15	±100	80
VD-2424D3		±24	±63	80
VD-4805S3	36-72	5	600	77
VD-4809S3		9	334	78
VD-4812S3		12	250	80
VD-4815S3		15	200	80
VD-4824S3		24	125	80
VD-4805D3	36-72	±5	±300	78
VD-4809D3		±9	±167	79
VD-4812D3		±12	±125	80
VD-4815D3		±15	±100	80
VD-4824D3		±24	±63	80

1. Suffix " P " Plastic Instead of Metal case Package.

2. Input Voltage range is from 4.5 V to 72 V and Output Voltage is from 3.3 V to 24 V.

#### Input Specifications:

Voltage Range 12Vdc, 9-18 Vdc., 24Vdc, 18-36 Vdc, 48Vdc, 36-72 Vdc

Filter  $\pi$  (Pi) Network

#### Isolation Specification:

Rated Voltage 1500 Vdc, Standard  
Resistance 1000M  $\Omega$  Min.  
Capacitance 390 pF, Typ.

#### Output Specifications:

Voltage Accuracy:  $\pm 1\%$ , Max.  
Voltage Balance (Dual Outputs)  $\pm 1\%$   
Ripple and Noise (at 20 MHz BW) ( $\pm$ ) 60mVp-p, Max  
Short Circuit Protection Continuous  
Short Circuit Restart Automatic  
Line Voltage Regulation  $\pm 0.5\%$ , Max.  
Load Voltage Regulation  $\pm 0.5\%$ , Max.  
Temperature Coefficient  $\pm 0.02\%$  /  $^{\circ}\text{C}$

#### General Specifications:

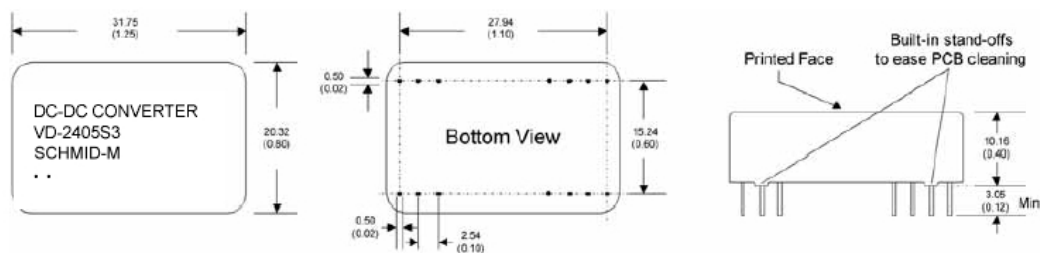
Efficiency 76% ~ 82%  
Switching Frequency 260 KHz, Typ.

#### Environmental Specification:

Operating Temperature (Ambient)  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$   
Case Temperature  $100^{\circ}\text{C}$  Max.  
Storage Temperature  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$   
Derating None Required  
Humidity Up to 90%, Non-condensing  
Cooling Free-air Convection

### MECHANICAL DIMENSIONS & PIN CONNECTIONS

#### 24 Pin DIL package



Pin #	STANDARD	
	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	Omitted	Common
11	N.C	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

- Notes: 1. All dimensions are typical in millimeters (inches). Tolerance x.xx =  $\pm 0.25$  ( $\pm 0.01$ )  
2. Plastic Case Dimensions are 31.75 \* 20.32 \* 10.16 mm.

## DC/DC Converter – VD-S/D6

6 WATT

Single / Dual Output

### FEATURES

- 1500 Vdc Isolation (3500 Vdc Isolation available)
- Wide 2:1 Input Range
- 24 Pin DIL Package
- Regulated
- Continuous Short Circuit Protection
- Nickel-Coated Copper Metal
- MTBF > 1.5 MHours

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
VD-1205S6	9-18	5	1200	77
VD-1209S6		9	667	75
VD-1212S6		12	500	80
VD-1215S6		15	400	80
VD-1224S6		24	250	80
VD-1205D6	9-18	±5	±600	77
VD-1209D6		±9	±334	75
VD-1212D6		±12	±250	80
VD-1215D6		±15	±200	80
VD-1224D6		±24	±125	80
VD-2405S6	18-36	5	1200	80
VD-2409S6		9	667	83
VD-2412S6		12	500	83
VD-2415S6		15	400	83
VD-2424S6		24	250	83
VD-2405D6	18-36	±5	±600	80
VD-2409D6		±9	±334	83
VD-2412D6		±12	±250	83
VD-2415D6		±15	±200	83
VD-2424D6		±24	±125	83
VD-4805S6	36-72	5	1200	80
VD-4809S6		9	667	83
VD-4812S6		12	500	83
VD-4815S6		15	400	83
VD-4824S6		24	250	83
VD-4805D6	36-72	±5	±600	80
VD-4809D6		±9	±334	83
VD-4812D6		±12	±250	83
VD-4815D6		±15	±200	82
VD-4824D6		±24	±125	82

1. Suffix " P " Plastic Instead of Metal case Package.
2. Input Voltage range is from 4.5 V to 72 V and Output Voltage is from 3.3 V to 24 V.

#### Input Specifications:

Voltage Range 12Vdc, 9-18 Vdc., 24Vdc, 18-36 Vdc, 48Vdc, 36-72 Vdc

Filter  $\pi$  (Pi) Network

#### Isolation Specification:

Rated Voltage 1500 Vdc, Standard  
Resistance 1000M  $\Omega$  Min.  
Capacitance 390 pF, Typ.

#### Output Specifications:

Voltage Accuracy:  $\pm 1\%$ , Max.  
Voltage Balance (Dual Outputs)  $\pm 1\%$   
Ripple and Noise (at 20 MHz BW) ( $\pm$ ) 60mVp-p, Max  
Short Circuit Protection Continuous  
Short Circuit Restart Automatic  
Line Voltage Regulation  $\pm 0.5\%$ , Max.  
Load Voltage Regulation  $\pm 0.5\%$ , Max.  
Temperature Coefficient  $\pm 0.02\%$  /  $^{\circ}\text{C}$

#### General Specifications:

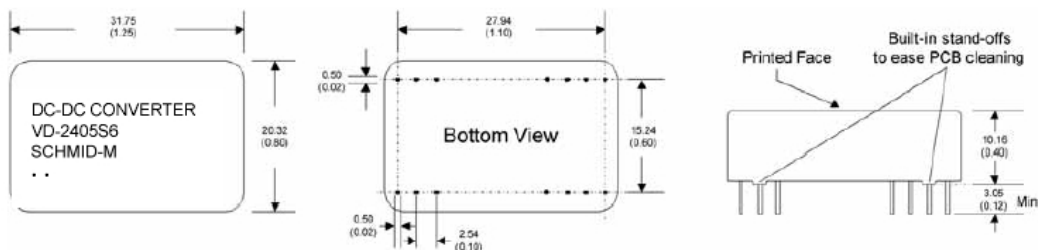
Efficiency 75% ~ 83%  
Switching Frequency 260 KHz, Typ.

#### Environmental Specification:

Operating Temperature (Ambient)  $-40^{\circ}\text{C} \sim +71^{\circ}\text{C}$   
Case Temperature  $100^{\circ}\text{C}$  Max.  
Storage Temperature  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$   
Derating None Required  
Humidity Up to 90%, Non-condensing  
Cooling Free-air Convection

### MECHANICAL DIMENSIONS & PIN CONNECTIONS

#### 24 Pin DIL package



Pin #	STANDARD	
	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	Omitted	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

- Notes: 1. All dimensions are typical in millimeters (inches). Tolerance x.xx =  $\pm 0.25$  ( $\pm 0.01$ )  
2. Plastic Case Dimensions are 31.75 \* 20.32 \* 10.16 mm.