VG-2W Series

2W 2:1 Regulated Single & Dual output

Features

- Wide 2:1 Input Range
- 1500VDC Isolation, Up to 3500VDC
- Continuous Short Circuit Protection
- Efficiency up to 82%
- Operating Temperature Range -40 ~ 95°C max.

ROHS

PART NUMBER STRUCTURE

VG - 24 05 S 2 H

(1) (2) (3) (4) (5) (6)

(1) Series

(2) Input Voltage Range

12 - 9-18 V
24 - 18-36 V
48 - 36-72 V

(3) Output Voltage

3R3 - 3.3 V
05 - 5.0 V
09 - 9.0 V
12 - 12 V
15 - 15 V
24 - 24 V

(4) Output Type

S - Single Output
D - Dual Output

(5) Watt

(6) Isolation Voltage

Blank - 1500 VDC
H - 3500 VDC

ALL SPECIFICATIONS ARE TYPICAL AT 25°C, NOMINAL INPUT AND FULL LOAD UNLESS OTHERWISE NOTED

Model Number	Input Voltage Range (VDC)	Input Current		Output Voltage (VDC)	Output Current		Efficiency @FL (%, typ.)	Capacitive Load @FL (μF, max.)
		No-Load (mA, max.)	Full Load (mA, typ.)		Min. load (mA)	Full load (mA)		
VG-123R3S2	9-18	30	220	3.3	0	600	75	680
VG-1205S2	9-18	30	223	5	0	400	75	680
VG-1209S2	9-18	30	220	9	0	222	76	330
VG-1212S2	9-18	30	220	12	0	167	76	220
VG-1215S2	9-18	30	220	15	0	133	76	100
VG-1224S2	9-18	30	220	24	0	83	76	33
VG-123R3D2	9-18	30	223	±3.3	0	±300	75	±330
VG-1205D2	9-18	30	223	±5	0	±200	75	±330
VG-1209D2	9-18	30	220	±9	0	±111	76	±100
VG-1212D2	9-18	30	220	±12	0	±83	76	±47
VG-1215D2	9-18	30	220	±15	0	±67	76	±33
VG-1224D2	9-18	30	214	±24	0	±42	78	±10
VG-243R3S2	18-36	20	109	3.3	0	600	76	680
VG-2405S2	18-36	15	105	5	0	400	80	220
VG-2409S2	18-36	20	107	9	0	222	78	330
VG-2412S2	18-36	15	102	12	0	167	82	220
VG-2415S2	18-36	18	105	15	0	133	80	22
VG-2424S2	18-36	20	107	24	0	83	78	33
VG-243R3D2	18-36	20	112	±3.3	0	±300	75	±330
VG-2405D2	18-36	20	110	±5	0	±200	76	±330
VG-2409D2	18-36	20	107	±9	0	±111	78	±100
VG-2412D2	18-36	20	107	±12	0	±83	78	±47
VG-2415D2	18-36	20	107	±15	0	±67	78	±33
VG-2424D2	18-36	20	107	±24	0	±42	78	±22
VG-483R3S2	36-72	12	55	3.3	0	600	75	680
VG-4805S2	36-72	12	56	5	0	400	75	680
VG-4809S2	36-72	12	56	9	0	222	75	330
VG-4812S2	36-72	12	56	12	0	167	75	220
VG-4815S2	36-72	12	56	15	0	133	75	100
VG-4824S2	36-72	12	56	24	0	83	75	33
VD-483R3D2	36-72	12	56	±3.3	0	±300	75	±330
VG-4805D2	36-72	12	56	±5	0	±200	75	±330
VG-4809D2	36-72	12	56	±9	0	±111	75	±100
VG-4812D2	36-72	12	56	±12	0	±83	75	±47
VG-4815D2	36-72	12	56	±15	0	±67	75	±33
VG-4824D2	36-72	12	56	±24	0	±42	75	±22

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	12V Input	9	12	18	VDC
	24V Input	18	24	36	
	48V Input	36	48	72	
Input Filter		Pi Type			
Input Reflected Ripple Current (1)			35		mApk-pk
Start up Time	Nominal Vin and constant resistive load		500		ms
Recommended input fuse (slow blow)	12V Input	0.4			A
	24V Input	0.2			
	48V Input	0.1			

Note：
1. Measured with a simulated source inductance of 12μH and a source capacitor Cin (47μF, ESR<1.0Ω at 100kHz).

OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	3.3V Output		-2.0		+2.0	%
	Other Output		-1.0		+1.0	
Line Regulation			-0.5		+0.5	%
Load Regulation	From 0% to 100% Load	3.3V Output	-1.5		+1.5	%
		Other Output	-0.5		+0.5	
Cross Regulation	Asymmetrical Load 25% / 100% for Dual Output		-5		+5	%
Ripple & Noise (1)	20MHz bandwidth	24V Output			150	mVpk-pk
		Other Output			60	
Short Circuit Protection			Indefinite (Automatic Recovery)			
Temperature Coefficient			-0.02		+0.02	%/°C
Maximum Capacitive Load	Nominal Vin and constant resistive load		See Table			

Note：
1. Measured with a 1.0μF MLCC.

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (100 ms)	12V Input			24	VDC
	24V Input			40	
	48V Input			80	
Soldering Temperature	1.5mm from case 10sec max.			260	°C

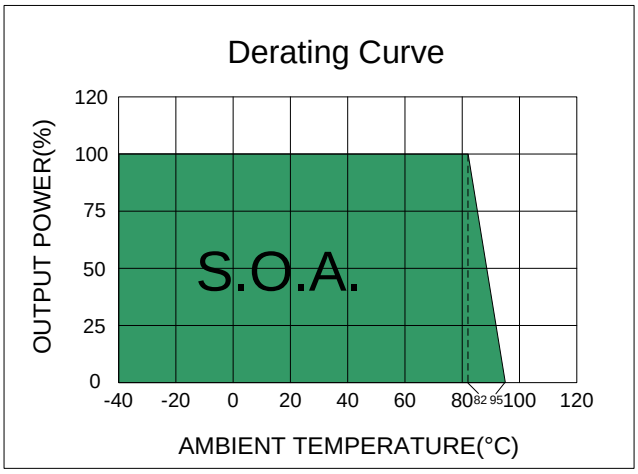
Note：These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

GENERAL SPECIFICATIONS						
Parameter	**Conditions**		**Min.**	**Typ.**	**Max.**	**Unit**
Isolation Voltage	Input-output, and rated for 60sec	Standard Type	1500			VDC
		Suffix “H”	3500			
	Case-I/O, and rated for 60sec		1000			
Isolation Resistance	Input-output		1000			MΩ
Isolation Capacitance	Input-output			500		pF
Switching Frequency				266		kHz
MTBF	MIL-HDBK-217 F @ 25°C		1121			k hours
Safety Standard	IEC / EN / UL 62368-1		Designed to meet			
Environmental compliance			RoHS			

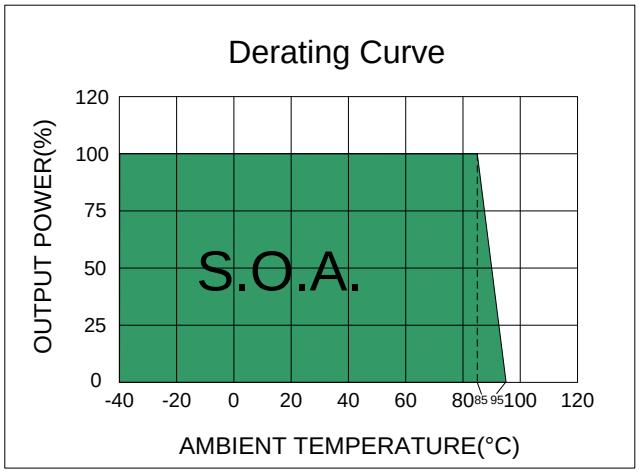
ENVIRONMENT SPECIFICATIONS					
Parameter	**Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Operating Ambient Temperature	See the Derating Curve	-40		95	°C
Maximum Case Temperature				100	°C
Thermal Impedance		26			°C/W
Storage Humidity				95	% rel. H
Storage Temperature		-55		125	°C
Cooling	Natural Convection	30-65 LFM			

PHYSICAL SPECIFICATIONS	
Parameter	**Value**
Case Material	Aluminum
Pin Material	Ø0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	13.0 g, typ.
Dimensions	1.25" x 0.8" x 0.4"

ELECTRICAL CHARACTERISTIC CURVES



Efficiency 75% ~ 77% Models

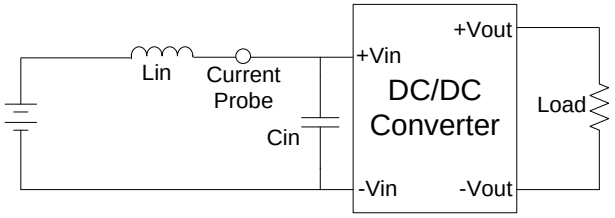


Efficiency 78% ~ 82% Models

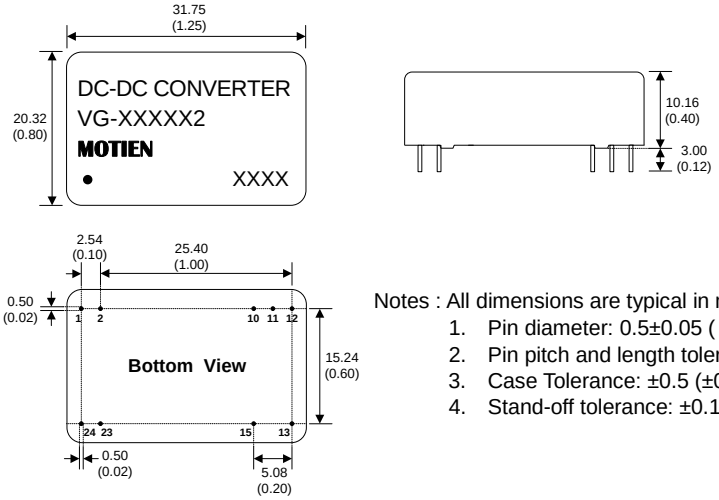
TEST CONFIGURATIONS

Input Reflected Ripple Current Test Step

Input reflected ripple current is measured with a source inductor Lin (12μH) and a source capacitor Cin (47μF, ESR<1.0Ω at 100kHz) at nominal input and full load.



MECHANICAL SPECIFICATIONS

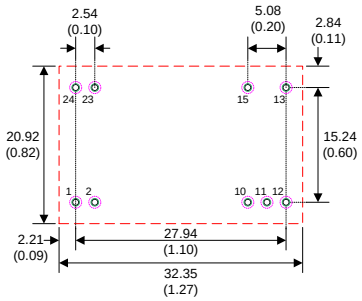


Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch and length tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)
4. Stand-off tolerance: ±0.1 (±0.004)

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+Vin	+Vin
2	+Vin	+Vin
10	N.C.	COM
11	N.C.	COM
12	-Vout	N.C.
13	+Vout	-Vout
15	N.C.	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

*N.C.：No Connection

RECOMMENDED FOOTPRINT DETAILS



Notes：1. All dimensions are typical in millimeters (inches).
Through hole (black) 1 ~ 24: Ø0.80 (0.031)
Top view pad (green) 1 ~ 24: Ø1.00 (0.039)
Bottom view pad (pink) 1 ~ 24: Ø1.60 (0.063)

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