

VJ-3W Series



3W 4:1 Regulated Single & Dual output

Features

- Wide 4:1 Input Range
- 1500VDC Isolation, Up to 3500VDC
- Continuous Short Circuit Protection
- Efficiency up to 84%
- Operating Temperature Range -40 ~ 95°C max.



PART NUMBER STRUCTURE

VJ - 24 05 S 3 H
(1) (2) (3) (4) (5) (6)

(1) Series

(2) Input Voltage Range

24 - 9-36 V
48 - 18-75 V

(4) Output Type

S - Single Output
D - Dual Output

(3) Output Voltage

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

(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)		
VJ-243R3S3	9-36	12	161	3.3	0	900	77	1000
VJ-2405S3	9-36	10	155	5	0	600	81	100
VJ-2409S3	9-36	12	155	9	0	333	81	100
VJ-2412S3	9-36	20	151	12	0	250	83	220
VJ-2415S3	9-36	20	149	15	0	200	84	100
VJ-2424S3	9-36	18	155	24	0	125	81	100
VJ-243R3D3	9-36	16	167	±3.3	0	±454	75	±330
VJ-2405D3	9-36	15	155	±5	0	±300	81	±220
VJ-2409D3	9-36	16	157	±9	0	±166	80	±47
VJ-2412D3	9-36	20	155	±12	0	±125	81	±47
VJ-2415D3	9-36	25	157	±15	0	±100	80	±47
VJ-2424D3	9-36	16	157	±24	0	±63	80	±10
VJ-483R3S3	18-72	15	80	3.3	0	900	78	1000
VJ-4805S3	18-72	10	77	5	0	600	82	680
VJ-4809S3	18-72	14	79	9	0	333	80	100
VJ-4812S3	18-72	10	77	12	0	250	82	100
VJ-4815S3	18-72	15	79	15	0	200	80	47
VJ-4824S3	18-72	14	79	24	0	125	80	22
VJ-483R3D3	18-72	14	84	±3.3	0	±454	75	±330
VJ-4805D3	18-72	10	81	±5	0	±300	78	±220
VJ-4809D3	18-72	14	79	±9	0	±166	80	±47
VJ-4812D3	18-72	15	77	±12	0	±125	82	±100
VJ-4815D3	18-72	8	77	±15	0	±100	82	±47
VJ-4824D3	18-72	20	79	±24	0	±63	80	±10

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INPUT SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	24V Input	9	24	36	VDC
	48V Input	18	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)	24V Input	0.63			A
	48V Input	0.315			
Note :					
1. Measured with a simulated source inductance of 12uH and a source capacitor Cin (47uF, 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)	24V Input			40	VDC
	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.					

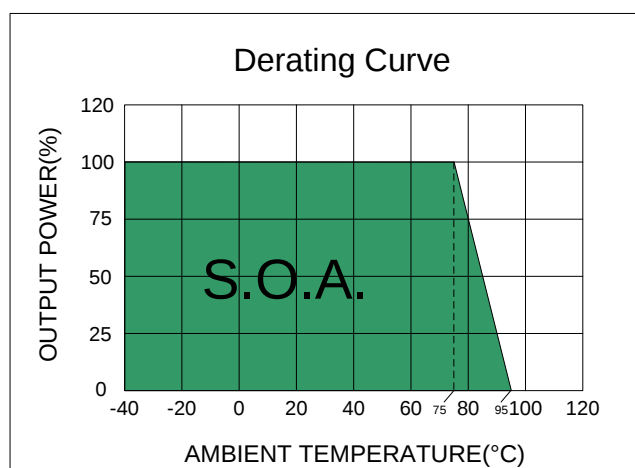
GENERAL SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, and rated for 60sec	Standard Type	1500		VDC
		Suffix "H"	3500		
	Case-I/O, and rated for 60sec	1000			
Isolation Resistance	Input-output	1000			MΩ
Isolation Capacitance	Input-output		500		pF
Switching 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			

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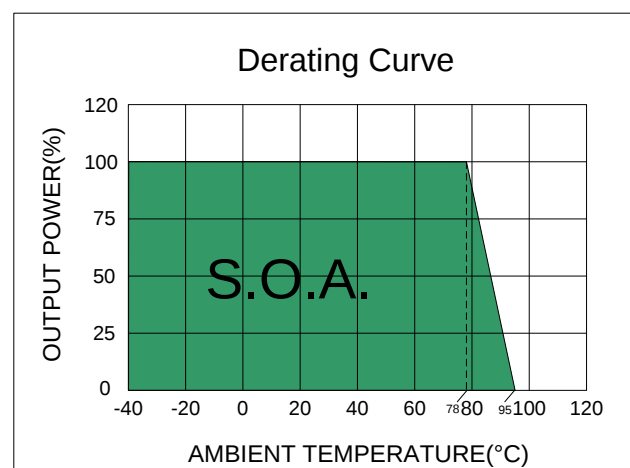
ENVIRONMENT SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating Ambient Temperature	See the Derating Curve	-40		95	°C
Maximum Case Temperature				100	°C
Thermal Impedance		25			°C/W
Storage Humidity				95	% rel. H
Storage Temperature		-55		125	°C
Cooling	Natural Convection	30-65 LFM			

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"

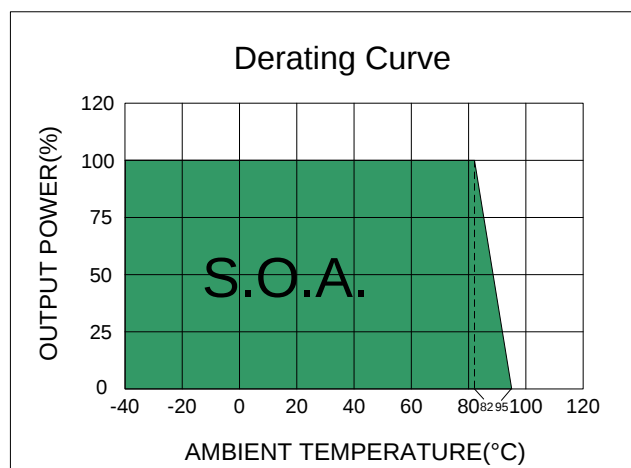
ELECTRICAL CHARACTERISTIC CURVES



Efficiency 75% ~ 79% Models



Efficiency 80% ~ 82% Models

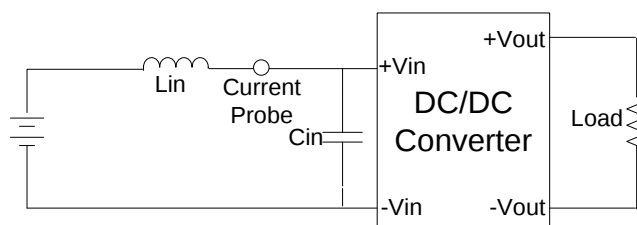


Efficiency 83% ~ 84% Models

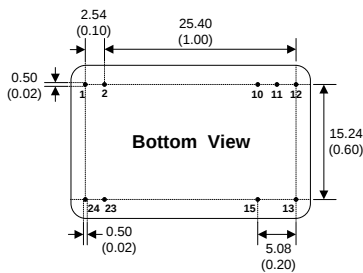
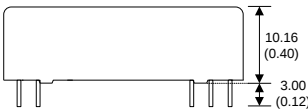
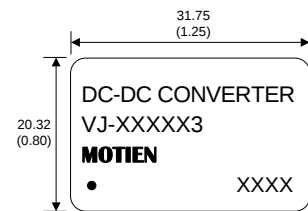
TEST CONFIGURATIONS

Input Reflected Ripple Current Test Step

Input reflected ripple current is measured with a source inductor L_{in} (12 μ H) and a source capacitor C_{in} (47 μ F, ESR<1.0 Ω at 100kHz) at nominal input and full load.



MECHANICAL SPECIFICATIONS

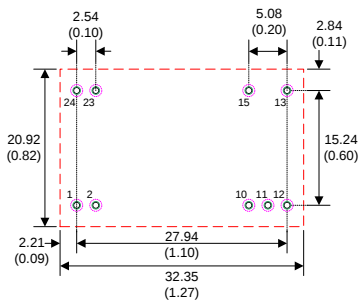


- Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
 2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)
 4. Stand-off tolerance: ± 0.1 (± 0.004)

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: $\varnothing 0.80$ (0.031)
 - Top view pad (green) 1 ~ 24: $\varnothing 1.00$ (0.039)
 - Bottom view pad (pink) 1 ~ 24: $\varnothing 1.60$ (0.063)