

# 2 Watt

# 24 Pin DIL Package V 2:1 Input Range - Metal Case

- o Wide Input Range
- o Regulated Single & Dual Output
- o Short Circuit Protection
- o 1.5 KVDC I/O-Isolation
- o Option 3.5 KVDC I/O-Isolation



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF.	Capacitor Load $\mu$ F
				NO LOAD	FULL LOAD		
2VRS12W3.3M	9-18 VDC	3.3 VDC	600 mA	30 mA	223 mA	74	680
2VRS12W5M		5 VDC	400 mA		222 mA	75	680
2VRS12W9M		9 VDC	222 mA		219 mA	76	330
2VRS12W12M		12 VDC	167 mA		219 mA	76	220
2VRS12W15M		15 VDC	133 mA		219 mA	76	100
2VRS12W24M		24 VDC	83 mA		219 mA	76	33
2VRD12W3.3M		$\pm$ 3.3 VDC	$\pm$ 300 mA		229 mA	72	$\pm$ 330
2VRD12W5M		$\pm$ 5 VDC	$\pm$ 200 mA		219 mA	75	$\pm$ 330
2VRD12W9M		$\pm$ 9 VDC	$\pm$ 111 mA		219 mA	76	$\pm$ 100
2VRD12W12M		$\pm$ 12 VDC	$\pm$ 83 mA		219 mA	76	$\pm$ 47
2VRD12W15M		$\pm$ 15 VDC	$\pm$ 67 mA		219 mA	76	$\pm$ 33
2VRD12W24M		$\pm$ 24 VDC	$\pm$ 42 mA		219 mA	76	$\pm$ 22
2VRS24W3.3M	18-36 VDC	3.3 VDC	600 mA	20 mA	109 mA	76	680
2VRS24W5M		5 VDC	400 mA		107 mA	78	680
2VRS24W9M		9 VDC	222 mA		107 mA	78	330
2VRS24W12M		12 VDC	167 mA		107 mA	78	220
2VRS24W15M		15 VDC	133 mA		107 mA	78	100
2VRS24W24M		24 VDC	83 mA		107 mA	78	33
2VRD24W3.3M		$\pm$ 3.3 VDC	$\pm$ 300 mA		112 mA	74	$\pm$ 330
2VRD24W5M		$\pm$ 5 VDC	$\pm$ 200 mA		109 mA	76	$\pm$ 330
2VRD24W9M		$\pm$ 9 VDC	$\pm$ 111 mA		107 mA	78	$\pm$ 100
2VRD24W12M		$\pm$ 12 VDC	$\pm$ 83 mA		107 mA	78	$\pm$ 47
2VRD24W15M		$\pm$ 15 VDC	$\pm$ 67 mA		107 mA	78	$\pm$ 33
2VRD24W24M		$\pm$ 24 VDC	$\pm$ 42 mA		107 mA	78	$\pm$ 22

**SPECIFICATIONS**

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF.	Capacitor Load $\mu$ F
				NO LOAD	FULL LOAD		
2VRS48W3.3M	36-72 VDC	3.3 VDC	600 mA	12 mA	56 mA	74	680
2VRS48W5M		5 VDC	400 mA		56 mA	75	680
2VRS48W9M		9 VDC	222 mA		56 mA	75	330
2VRS48W12M		12 VDC	167 mA		56 mA	75	220
2VRS48W15M		15 VDC	133 mA		56 mA	75	100
2VRS48W24M		24 VDC	83 mA		56 mA	75	33
2VRD48W3.3M		$\pm$ 3.3 VDC	$\pm$ 300 mA		56 mA	74	$\pm$ 330
2VRD48W5M		$\pm$ 5 VDC	$\pm$ 200 mA		56 mA	75	$\pm$ 330
2VRD48W9M		$\pm$ 9 VDC	$\pm$ 111 mA		56 mA	75	$\pm$ 100
2VRD48W12M		$\pm$ 12 VDC	$\pm$ 83 mA		56 mA	75	$\pm$ 47
2VRD48W15M		$\pm$ 15 VDC	$\pm$ 67 mA		56 mA	75	$\pm$ 33
2VRD48W24M		$\pm$ 24 VDC	$\pm$ 42 mA		56 mA	75	$\pm$ 22

**INPUT SPECIFICATIONS**

Input Voltage Range	2:1
Input Filter	Pi Type
Input Reflected Ripple Current <sup>1)</sup>	35 mA p-p

**OUTPUT SPECIFICATIONS**

Voltage Accuracy	$\pm$ 1%
Temperature Coefficient	$\pm$ 0.02%/°C
Ripple and Noise, 20MHz BW <sup>2)</sup>	60mV p-p
Short Circuit Protection	Indefinite (Automatic Recovery)
Capacitor Load <sup>3)</sup>	see table
Line Regulation	$\pm$ 0.5%
Load Regulation	Output 3.3 V/ $\pm$ 3.3 V Model $\pm$ 1.5% $\pm$ 0.5%

## NOTE

1. Measured Input reflected ripple current with a simulated source inductance of 12  $\mu$ H.
2. Typical value at nominal input voltage and full load.
3. Test by nominal input voltage and constant resistor load.

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**GENERAL SPECIFICATION**

Efficiency	see table
Isolation Voltage (3 sec)	1000 VDC
Plastic Case Suffix "P"	1500 VDC
Suffix "H"	3500 VDC
Isolation Resistance	1.000 Mohms
Isolation Capacitance	470 pF
Switching Frequency	266 kHz
Operating Temperature Range	-40°C to +85°C
Case Temperature	+100°C max.
Storage Temperature Range	-40°C to +125°C
Derating	see derating curve
Cooling	Nature Convection
Humidity	95% rel H
Dimensions	31.75 x 20.32 x 10.16 mm (1.25 x 0.8 x 0.4 Inches)
Case Material	Nickel-Coated Copper
Case Material Suffix "P"	Non-Conductive Black Plastic (UL94V-0 rated)
Base Material	Non-Conductive Black Plastic (UL94V-0 rated)
Pin Material	ø0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	17.0 g
Plastic Case Suffix "P"	13.5 g
MTBF (MIL-HDBK-217F)	>1.121 Mhrs
Safety Standard (designed to meet)	IEC 60950-1

**ABSOLUTE SPECIFICATIONS**

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

Input Voltage (100 mS)	12 V	-0.7 VDC to 24 VDC
	24 V	-0.7 VDC to 40 VDC
	48 V	-0.7 VDC to 80 VDC
Lead Soldering Temperature (1.5 mm from case 10 sec.)		+260°C

## NOTE:

Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.  
Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

**NOTICE:**

The information in this document has been carefully checked. However, no responsibility is assumed for inaccuracies!  
Specifications can be changed without notice. The latest and most complete information can be found on our website.

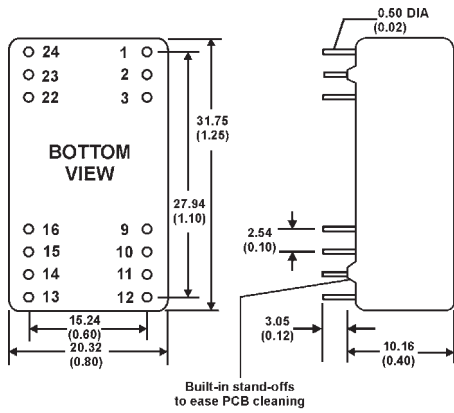
**SPECIFICATIONS**

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**MECHANICAL SPECIFICATIONS**

**CASE "V"**

NICKEL-COATED COPPER

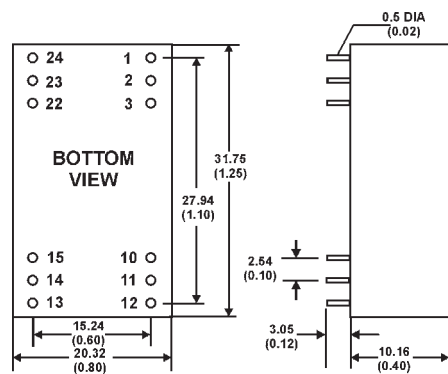


All Dimensions in mm (Inches).  
 Tolerances: x.xx = ±0.25 (±0.01)

PIN CONNECTIONS 1.500VDC		
PIN	SINGLE	DUAL
1 & 24	+INPUT	+INPUT
2 & 23	NC*	-OUTPUT
3 & 22	NC*	COMMON
9 & 16	NO PIN	NO PIN
10 & 15	-OUTPUT	COMMON
11 & 14	+OUTPUT	+OUTPUT
12 & 13	-INPUT	-INPUT

\*NC = NOT CONNECTED

**NON-CONDUCTIVE BLACK PLASTIC (Suffix „P“)**



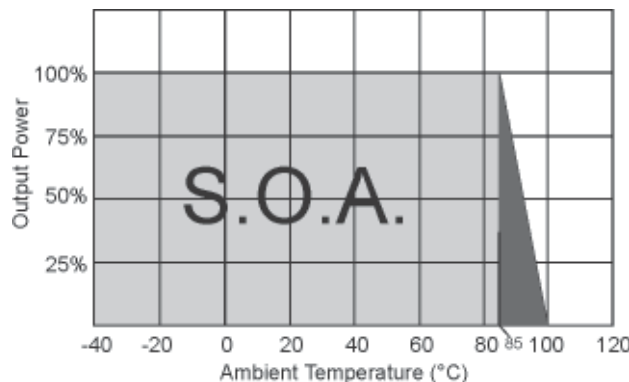
All Dimensions in mm (Inches).  
 1. Pin diameter: 0.5±0.05 (0.02±0.002)  
 2. Pin pitch tolerance: ±0.35 (±0.014)  
 3. Case Tolerance: ±0.5 (±0.02)

PIN CONNECTIONS 3.500VDC		
PIN	SINGLE	DUAL
1 & 24	NO PIN	NO PIN
2 & 3	-INPUT	-INPUT
9	NO PIN	COMMON
10 & 15	NO PIN	NO PIN
11	NC*	-OUTPUT
12 & 13	NO PIN	NO PIN
14	+OUTPUT	+OUTPUT
16	-OUTPUT	COMMON
22 & 23	+INPUT	+INPUT

\*NC = NOT CONNECTED

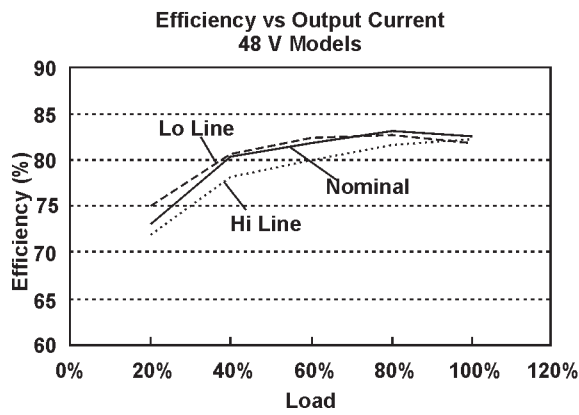
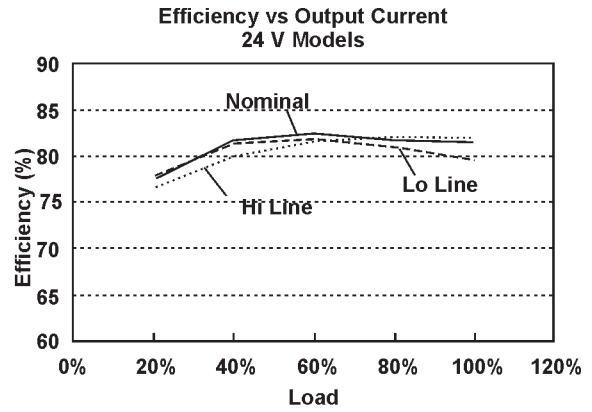
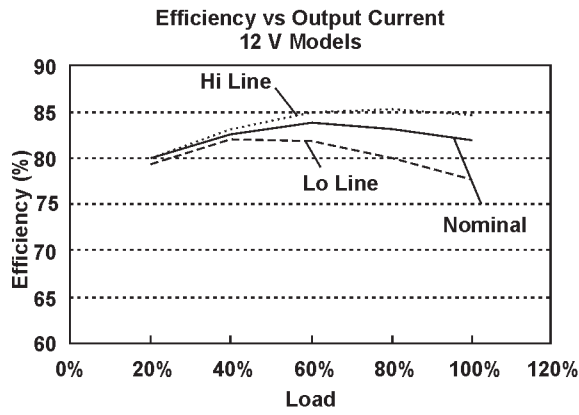
**DIAGRAMS**

Derating Curve



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