2 Watt 24 Pin DIL Package V
4:1 Input Range Metal Case

- **Wide Input Range**
- **Regulated Single & Dual Output**
- **Continuous Short Circuit Protection**
- **1500 VDC I/O-Isolation**
- **Option 3500 VDC I/O-Isolation**

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF.	Capacitor Load µF
				NO LOAD	FULL LOAD		
2VRS24X3.3M	9-36 VDC	3.3 VDC	600 mA	15 mA	110 mA	75	470
2VRS24X5M		5 VDC	400 mA		109.6 mA	76	330
2VRS24X9M		9 VDC	222 mA		106.8 mA	78	68
2VRS24X12M		12 VDC	166 mA		106.8 mA	78	47
2VRS24X15M		15 VDC	133 mA		106.8 mA	78	22
2VRS24X24M		24 VDC	83 mA		106.8 mA	78	10
2VRD24X3.3M		±3.3 VDC	±303 mA		110 mA	75	±220
2VRD24X5M		±5 VDC	±200 mA		109.6 mA	76	±100
2VRD24X9M		±9 VDC	±111 mA		106.8 mA	78	±33
2VRD24X12M		±12 VDC	±83 mA		106.8 mA	78	±22
2VRD24X15M		±15 VDC	±66 mA		106.8 mA	78	±10
2VRD24X24M		±24 VDC	±41 mA		106.8 mA	78	±10
2VRS48X3.3M	18-72 VDC	3.3 VDC	600 mA	12 mA	55 mA	75	470
2VRS48X5M		5 VDC	400 mA		54.82 mA	76	330
2VRS48X9M		9 VDC	222 mA		53.4 mA	78	68
2VRS48X12M		12 VDC	166 mA		53.4 mA	78	47
2VRS48X15M		15 VDC	133 mA		53.4 mA	78	22
2VRS48X24M		24 VDC	83 mA		53.4 mA	78	10
2VRD48X3.3M		±3.3 VDC	±303 mA		55.5 mA	75	±220
2VRD48X5M		±5 VDC	±200 mA		54.82 mA	76	±100
2VRD48X9M		±9 VDC	±111 mA		53.4 mA	78	±33
2VRD48X12M		±12 VDC	±83 mA		53.4 mA	78	±22
2VRD48X15M		±15 VDC	±66 mA		53.4 mA	78	±10
2VRD48X24M		±24 VDC	±41 mA		53.4 mA	78	±10

last up-date 20.01.2011

SPECIFICATIONS

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

INPUT SPECIFICATIONS	
Input Voltage Range	4:1
Input Filter	Pi Type
Input Reflected Ripple Current [1]	35 mA p-p

OUTPUT SPECIFICATIONS		
Voltage Accuracy		±1%
Temperature Coefficient		±0.02%/°C
Ripple and Noise, 20MHz BW [2]		60 mV p-p
Short Circuit Protection		Indefinite (Automatic Recovery)
Capacitor Load [3]		see table
Line Regulation		±0.5%
Load Regulation	Output 3.3 V/±3.3 V Model	±1.5% ±0.5%

NOTE:
1. Measured input reflected ripple current with a simulated source inductance of 12 µH.
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) Plastic Case Suffix "P" Suffix "H"	1000 VDC 1500 VDC 3500 VDC
Isolation Resistance	1000 Mohms
Isolation Capacitance	470 pF
Switching Frequency	266 kHz
Operating Temperature Range (see derating)	-40°C to +85°C
Storage Temperature Range	-40°C to +125°C
Case Temperature	+100°C max.
Derating	see derating curve
Humidity	95% rel H
Cooling	Nature Convection
Dimension	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	ø0.5 mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight Plastic Case Suffix "P"	17.0 g 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)	24 V 48 V	-0.7 VDC to 40 VDC -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.

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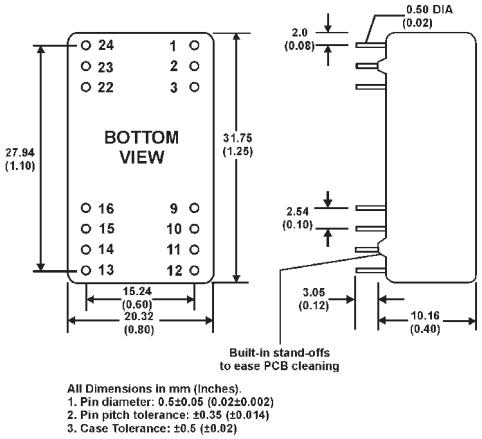
MECHANICAL SPECIFICATIONS

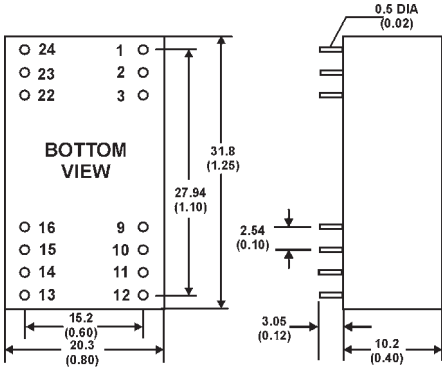
CASE "V"

NICKEL-COATED COPPER



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)

NON-CONDUCTIVE BLACK PLASTIC Suffix „P“



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

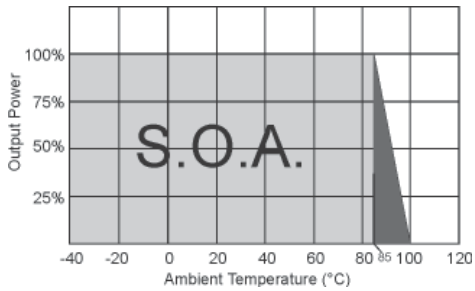
*NC = NOT CONNECTED

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

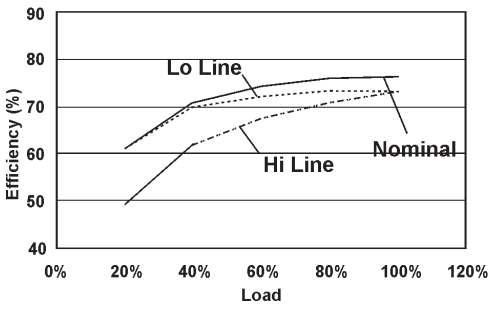
*NC = NOT CONNECTED

DIAGRAMS

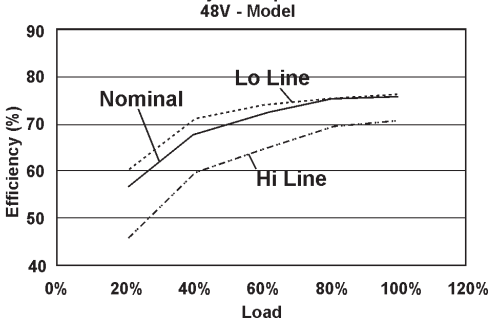
Derating Curve



Effeciency vs Output Current
24V - Model



Effeciency vs Output Current
48V - Model



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