

# 5 to 6 Watt 24 Pin DIL Package V

## 2:1 Input Range - High Efficiency



- o Wide Input Range
- o High Efficiency and Wide Operating Temperature
- o Regulated Outputs
- o Single & Dual Outputs
- o Efficiency up to 87%
- o Option 3000 VDC I/O-Isolation
- o Continuous Short Circuit Protection
- o No Tantalum Capacitor inside
- o Meet EMI EN55022 Class A

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF	Cap. Load
				NO LOAD	FULL LOAD		
5VERS12W3.3LC	9-18 VDC	3.3 VDC	1200 mA	7.5 mA	429 mA	77	4700 µF
5VERS12W5LC		5 VDC	1000 mA		514 mA	81	
6VERS12W12LC		12 VDC	500 mA		10 mA	595 mA	
6VERS12W15LC		15 VDC	400 mA	15 mA	588 mA	85	2200 µF
5VERD12W5LC		±5 VDC	±500 mA	12 mA	514 mA	81	
6VERD12W12LC		±12 VDC	±250 mA		588 mA	85	
6VERD12W15LC		±15 VDC	±200 mA	18 mA			
5VERS24W3.3LC	18-36 VDC	3.3 VDC	1200 mA	5 mA	209 mA	79	4700 µF
5VERS24W5LC		5 VDC	1000 mA		251 mA	83	
6VERS24W12LC		12 VDC	500 mA		8 mA	291 mA	
6VERS24W15LC		15 VDC	400 mA	287 mA		87	
5VERD24W5LC		±5 VDC	±500 mA	254 mA		82	
6VERD24W12LC		±12 VDC	±250 mA	291 mA		86	
6VERD24W15LC		±15 VDC	±200 mA	10 mA	287 mA	87	2200 µF
5VERS48W3.3LC	36-72 VDC	3.3 VDC	1200 mA	2 mA	104 mA	79	4700 µF
5VERS48W5LC		5 VDC	1000 mA	3 mA	126 mA	83	
6VERS48W12LC		12 VDC	500 mA	6 mA	144 mA	87	
6VERS48W15LC		15 VDC	400 mA		144 mA		
5VERD48W5LC		±5 VDC	±500 mA	5 mA	126 mA	83	2200 µF
6VERD48W12LC		±12 VDC	±250 mA	6 mA	144 mA	87	
6VERD48W15LC		±15 VDC	±200 mA				

**SPECIFICATIONS**

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

**INPUT SPECIFICATIONS**

Input Voltage Range		2:1
Input Surge Voltage (100 ms max.)	12 V	25 VDC max.
	24 V	50 VDC max.
	48 V	100 VDC max.
Input Filter		Pi Type

**OUTPUT SPECIFICATIONS**

Voltage Accuracy		±2.0% max.
Voltage Balance, Dual Output		±1.0% max.
Temperature Coefficient		±0.05%/°C
Ripple and Noise, 20MHz BW	3.3V, 5V	100 mV p-p max.
	12V, 15V	1% p-p max.
Short Circuit Protection		Continuous
Start up Time		5 ms max.
Line Regulation <sup>1)</sup>		±0.5% max.
Load Regulation	Single <sup>2)</sup>	±0.5% max.
	Dual <sup>3)</sup>	±1.0% max.

1) Measured from High Line to Low Line.

2) Measured from Full Load to 10% Load.

3) Measured from Full Load to 1/4 Load.

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**GENERAL SPECIFICATION**

Efficiency		see table
Isolation Voltage		500 VDC min.
Suffix "H" <sup>4)</sup>		3000 VDC min.
Suffix "HM"		1500 VDC min.
Isolation Resistance		1000 Mohms min.
Isolation Capacitance		250 pF
Switching Frequency		100 kHz min.
Operating Temperature Range		-40°C to +85°C (see Derating)
Power de-rating Curve		see Figure1
Case Temperature <sup>5)</sup>	Plastic Case	+95°C max.
	Copper Case	+100°C max.
Storage Temperature Range		-40°C to +100°C
Humidity		95% RH max. non condensing
Derating		see Diagram
Cooling		Natural convection
Case Material		Non-Conductive Black Plastic
Suffix "M"		Black Coated Copper with Non-Conductive Base
Case Dimensions		1.25 x 0.8 x 0.4 Inches (31.8 x 20.3 x 10.2 mm)
Weight		12.5 g
MTBF (MIL-STD-217F)		1.8 Mhrs

4) Non-Conductive Black Plastic only

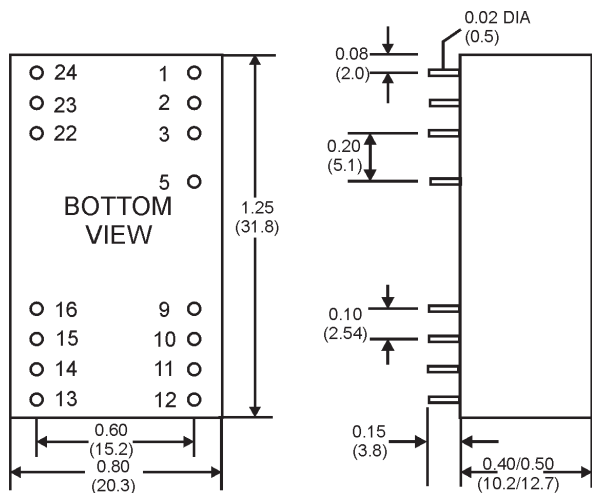
5) Maximum case temperature under any operating condition should not exceed 95°C (Plastic Case), 100°C (Copper Case).

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**MECHANICAL SPECIFICATIONS**

CASE "V"



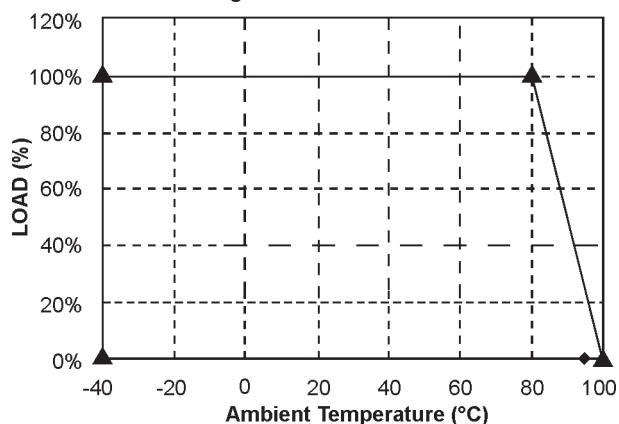
All Dimensions in Inches(mm)  
Tolerance: x.xx = ±0.02, x.xxx = ±0.10

PIN CONNECTIONS 500VDC		
PIN	SINGLE	DUAL
1 & 24	+INPUT	+INPUT
2 & 23	NOT CONNECTED	-OUTPUT
3 & 22	NOT CONNECTED	COMMON
5	NO PIN	NO PIN
9 & 16	NO PIN	NO PIN
10 & 15	-OUTPUT	COMMON
11 & 14	+OUTPUT	+OUTPUT
12 & 13	-INPUT	-INPUT

PIN CONNECTIONS 1.5 KVDC & 3KVDC		
PIN	SINGLE	DUAL
1 & 24	NO PIN	NO PIN
2 & 3	-INPUT	-INPUT
5	NO PIN	NO PIN
9	NOT CONNECTED	COMMON
10 & 15	NOT CONNECTED	NOT CONNECTED
11	NOT CONNECTED	-OUTPUT
12 & 13	NO PIN	NO PIN
14	+OUTPUT	+OUTPUT
16	-OUTPUT	COMMON
22 & 23	+INPUT	+INPUT

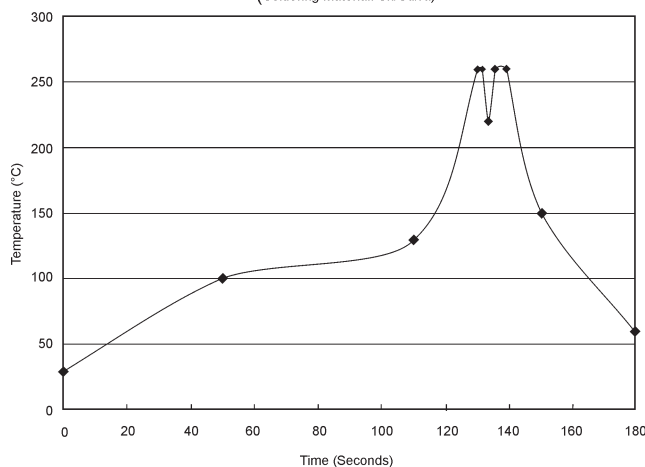
**DIAGRAMS**

Derating Curve for Natural Convection



Lead Free Wave Soldering Profile

(Soldering Material: Sn/Cu/Ni)



1. Ramp up rate during preheat: 1.5°C/Sec (From 50°C to 100°C)
2. Soaking temperature: 0.5°C/Sec (From 100°C to 130°C), 60±20 seconds
3. Peak temperature: 260°C, above 250°C 3-6 Seconds
4. Ramp up rate during cooling: -10.0°C/Sec (From 260°C to 150°C)

**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.