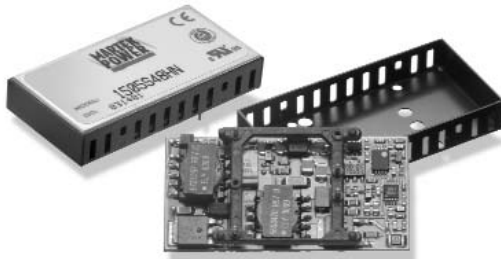


1500 HN series



www.martekpower.com

Single Output DC/DC Converter



DESCRIPTIONS

The 1500HN, single output power modules are 12 to 15 watt DC/DC converters available in a single output configuration providing 3.3 VDC to 15 VDC outputs in a compact, industry standard 1.0" X 2.0" X 0.375" package. These 400kHz, switching converters are available in 12, 24 and 48 VDC inputs making them one of the most versatile product lines in the market with efficiencies up to 89%. Advanced surface mount construction allows these converters to achieve outstanding thermal performance eliminating the need for thermal potting compounds and thereby enhancing manufacturing efficiency to reduce costs.

OUTPUT CHARACTERISTICS

| | Min | Typ | Max | Unit/Comments |
|----------------------------|-----|-------|-----|--|
| Output Voltage Set Point | | ±1 | | % Output voltage at nominal line & FL |
| Total Band Error | -2 | | +2 | % Output voltage including line/load regulation setting |
| Line Regulation | | ±0.5 | | % Output voltage measured from min. input line to maximum |
| Load Regulation | | ±0.5 | | % Output voltage measured from FL to 10% load |
| Temperature Coefficient | | ±0.01 | | % per degree C |
| Ripple/Noise | | 60 | 100 | mV p-p measured at 20 MHz bandwidth with external 1 µf capacitor |
| Output Voltage and Current | | | | Refer to model selection chart |
| Load Transient Response | | ±2 | | % deviation of Vout voltage for a 25% load change for 200µS |
| Short Circuit Protection | | | | Indefinite, Automatic Recovery |
| Overvoltage Protection | | 125 | | %; Clamp type (5VDC output set at 6.8VDC) |

FEATURES

- Up to 89% Efficiency
- Single Output, 15 watt converter
- Available in 12, 24 and 48 VDC Inputs
- Industry Standard 1.0" X 2.0" X 0.375" Package
- Remote On/Off, Input Over Voltage and Short Circuit Protection

INPUT CHARACTERISTICS

| | Min | Typ | Max | Units/Comments |
|----------------------------|-----|------|------|----------------------------------|
| Input Voltage | | | | |
| 12 VDC Input Models | 9 | 12 | 18 | VDC |
| 24 VDC Input Models | 18 | 24 | 36 | VDC |
| 48 VDC Input Models | 36 | 48 | 75 | VDC |
| Under Voltage Shut Down | | | | |
| 12 VDC Input Models | | 7.8 | | VDC |
| 24 VDC Input Models | | 15.0 | | VDC |
| 48 VDC Input Models | | 28.1 | | VDC |
| Minimum Input Current | | | | |
| 12 VDC Input Models | | 0 | | mA |
| 24 VDC Input Models | | 0 | | mA |
| 48 VDC Input Models | | 0 | | mA |
| Full Load Input Current | | | | |
| 12 VDC Input Models | | | 1.63 | A |
| 24 VDC Input Models | | | 0.78 | A |
| 48 VDC Input Models | | | 0.39 | A |
| Input Fuse Requirements | | | | |
| 12 VDC Input Models | | | 3 | Amps; Slow blow type |
| 24 VDC Input Models | | | 2 | Amps; Slow blow type |
| 48 VDC Input Models | | | 1 | Amps; Slow blow type |
| Efficiency by Model | | | | |
| 1503S12HN | | 78 | | %; FL Nominal Line |
| 1505S12HN | | 82 | | %; FL Nominal Line |
| 1512S12HN | | 86 | | %; FL Nominal Line |
| 1515S12HN | | 86 | | %; FL Nominal Line |
| 1503S24HN | | 80 | | %; FL Nominal Line |
| 1505S24HN | | 84 | | %; FL Nominal Line |
| 1512S24HN | | 86 | | %; FL Nominal Line |
| 1515S24HN | | 87 | | %; FL Nominal Line |
| 1503S48HN | | 80 | | %; FL Nominal Line |
| 1505S48HN | | 84 | | %; FL Nominal Line |
| 1512S48HN | | 86 | | %; FL Nominal Line |
| 1515S48HN | | 89 | | %; FL Nominal Line |
| Switching Frequency | 360 | 400 | 440 | kHz; Factory set |
| Remote Shut Down | Off | 0 | 0.80 | VDC; Referenced to input |
| | On | 3.5 | | VDC or open; Referenced to input |
| Input - Output Capacitance | | 1200 | | pF |
| Input Filter | | | | LC type |
| Isolation Voltage | | 1500 | | VDC |
| Isolation Resistance | | 100 | | MOhms |

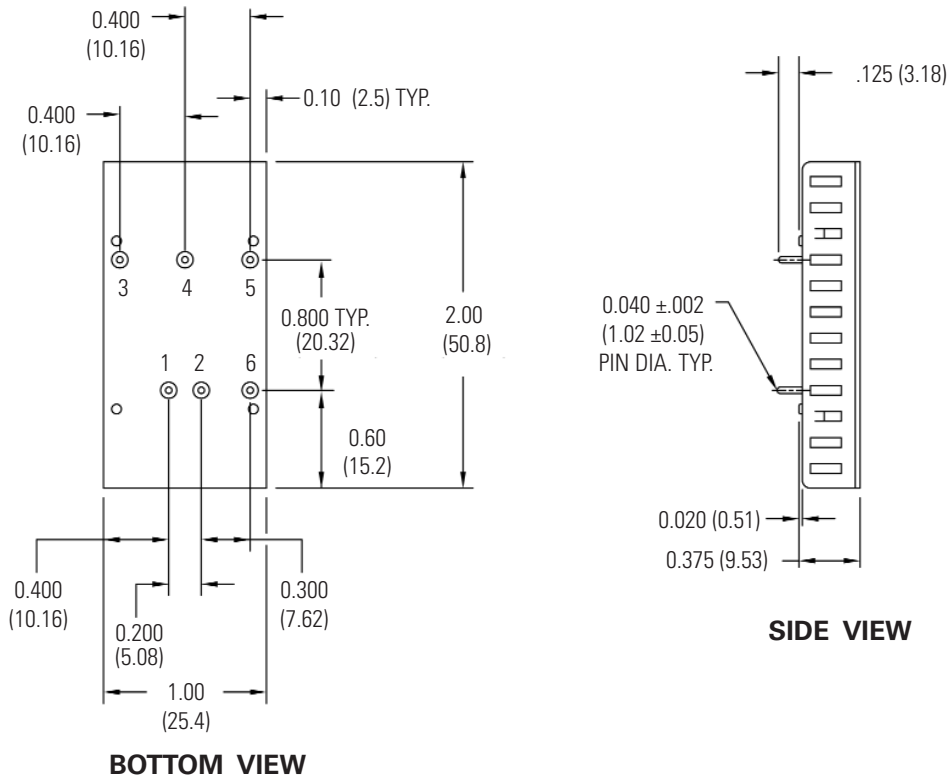
MODEL SELECTION CHART

| | Input Voltage (VDC) | Output Voltage (VDC) | Full Load Output Current (A) |
|-----------|---------------------|----------------------|------------------------------|
| 1503S12HN | 12 | 3.3 | 3.5 |
| 1505S12HN | 12 | 5.0 | 3.0 |
| 1512S12HN | 12 | 12.0 | 1.25 |
| 1515S12HN | 12 | 15.0 | 1.00 |
| 1503S24HN | 24 | 3.3 | 3.5 |
| 1505S24HN | 24 | 5.0 | 3.0 |
| 1512S24HN | 24 | 12.0 | 1.25 |
| 1515S24HN | 24 | 15.0 | 1.00 |
| 1503S48HN | 48 | 3.3 | 3.5 |
| 1505S48HN | 48 | 5.0 | 3.0 |
| 1512S48HN | 48 | 12.0 | 1.25 |
| 1515S48HN | 48 | 15.0 | 1.00 |

GENERAL CHARACTERISTICS

| | Min | Typ | Max | Unit/Comments |
|-----------------------|-----|-----|--------|----------------------------|
| Operating Temp. Range | -40 | | +105 | °C; measured at baseplate |
| Storage Temp. Range | -55 | | +125 | °C; measured at baseplate |
| Material Flammability | | | | UL94V-0 |
| Altitude: Operating | | | 10,000 | Feet |
| Non-Operating | | | 40,000 | Feet |
| Relative Humidity | 5 | | 95 | % Humidity, non-condensing |
| Weight | | | 16 | Grams |
| Size | | | | 1.0" X 2.0" X 0.375" |
| Case Material | | | | Black coated aluminum |
| Agency Approvals | | | | UL/CUL1950, TUV, EN60950 |

OUTLINE DRAWING



PIN OUT CHART

| Pins | FUNCTION |
|------|----------------|
| 1 | + Vin |
| 2 | - Vin |
| 3 | + Vout |
| 4 | NO PIN |
| 5 | - Vout |
| 6 | *REMOTE ON/OFF |

Notes:

1. Unless otherwise specified dimensions are in inches (mm).

| Tolerances | Inches | mm |
|------------|----------------|--------------|
| | X.XX = ±0.02 | X.X = ±0.5 |
| | X.XXX = ±0.010 | X.XX = ±0.25 |

2. Controlling dimension in inches.

3. Case is vented on 2" long sides only.

* Optional - present on -R Models only.

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified. External, low ESR, 10 microfarad (minimum) capacitor across output is recommended for operation.

How To ORDER

HOW TO ORDER

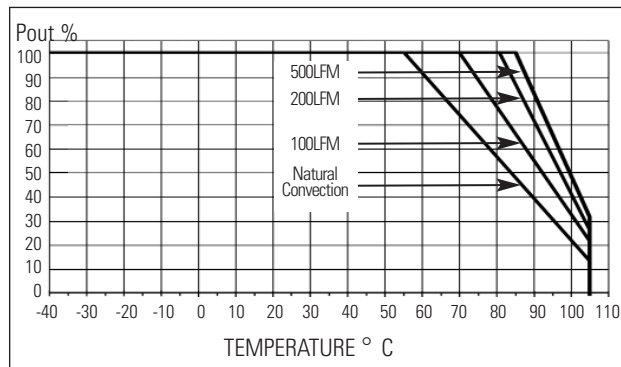
15 XX S XX HN - Y

Wattage — 15
 Output Voltage — XX
 Single Output — S
 Input Voltage — XX
 Hi-Density, Non-Encap — HN
 ROHS Compliant — Y

R Options: To add the remote on/off feature to the converter please add a "R" at the end of the part number. An additional pin (pin#6) will be added to the converter. Consult mechanical drawing for location.

DERATING CURVES

MODEL 1500HN Single 3.3V & 5V



MODEL 1500HN Single 12 & 15V

