

2700 HN series

Dual Output DC/DC Converter



DESCRIPTIONS

The 2700HN are independent channel, dual output converters offering dual logic voltage rails (from 2.5 VDC to 5.0 VDC) operating on separate control loops. In addition V2 can be adjusted from 3.5 VDC to 1.8VDC allowing these converters to support logic voltages from 1.8 to 5.0 VDC negative or positive polarities. The 2700HN series provide up to 27 watts total power in industry standard 2" X 2" X 0.4" packages. These 400kHz, switching converters are available in 12 and 48 VDC inputs making them one of the most versatile product lines in the market with efficiencies up to 82%. 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 | | 50 | 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 |
| Output Voltage Trim Range | 1.8 | | 3.5 | % Output voltage. Place ext. resistor between pins 9 - 6 to trim down. Between pins 9 - 5 to trim up |
| OV Protection | 3.3 VDC | 3.9 | | %; Clamp type |
| | 5.0 VDC | 5.8 | | %; Clamp type |



FEATURES

- Dual, Independent output between 1.8 and 5.0 VDC
- Up to 82% Efficiency
- Available in 12 and 48 VDC Inputs
- Industry Standard 2" X 2" X 0.4" Package
- Output Over Voltage, Input Over Voltage and Short Circuit Protection

INPUT CHARACTERISTICS

| | Min | Typ | Max | Units/Comments |
|----------------------------|-----|------|------|--------------------------------|
| Input Voltage | | | | |
| 12 VDC Input Models | 9 | 12 | 18 | VDC |
| 48 VDC Input Models | 36 | 48 | 75 | VDC |
| Under Voltage Shut Down | | | | |
| 12 VDC Input Models | 8 | | | VDC |
| 48 VDC Input Models | 30 | | | VDC |
| Over Voltage Shutdown | | | | |
| 12 VDC Input Models | | | 20 | VDC |
| 48 VDC Input Models | | | 80 | VDC |
| Minimum Input Current | | | | |
| 12 VDC Input Models | 60 | | | mA |
| 48 VDC Input Models | 40 | | | mA |
| Full Load Input Current | | | | |
| 12 VDC Input Models | | | 2.30 | A |
| 48 VDC Input Models | | | 0.69 | A |
| Input Fuse Requirements | | | | |
| 12 VDC Input Models | | | 12 | Amps; Slow blow type |
| 48 VDC Input Models | | | 2 | Amps; Slow blow type |
| Efficiency by Model | | | | |
| 2703/2P12HN | | 77 | | %; FL Nominal Line |
| 2705/3P12HN | | 79 | | %; FL Nominal Line |
| 2703/2N12HN | | 77 | | %; FL Nominal Line |
| 2705/3N12HN | | 79 | | %; FL Nominal Line |
| 2703/2P48HN | | 78 | | %; FL Nominal Line |
| 2705/3P48HN | | 82 | | %; FL Nominal Line |
| 2703/2N48HN | | 78 | | %; FL Nominal Line |
| 2705/3N48HN | | 82 | | %; FL Nominal Line |
| Switching Frequency | 360 | 400 | 440 | kHz; Factory set |
| Remote Shut Down | Off | 0 | 0.80 | VDC; Referred to input |
| | On | 3.5 | | VDC or open; Referred to input |
| Input - Output Capacitance | | 1200 | | pF |
| Input Filter | | | | LC type |
| Isolation Voltage | | | | |
| 12 VDC Input Models | | | | |
| Input to Output | | 750 | | VDC |
| Input to Baseplate | | 750 | | VDC |
| Output to Baseplate | | 750 | | VDC |
| 48 VDC Input Models | | | | |
| Input to Output | | 1100 | | VDC |
| Input to Baseplate | | 1100 | | VDC |
| Output to Baseplate | | 750 | | VDC |
| Isolation Resistance | | 100 | | MOHms |

Martek Power reserves the right to change specifications without notice.



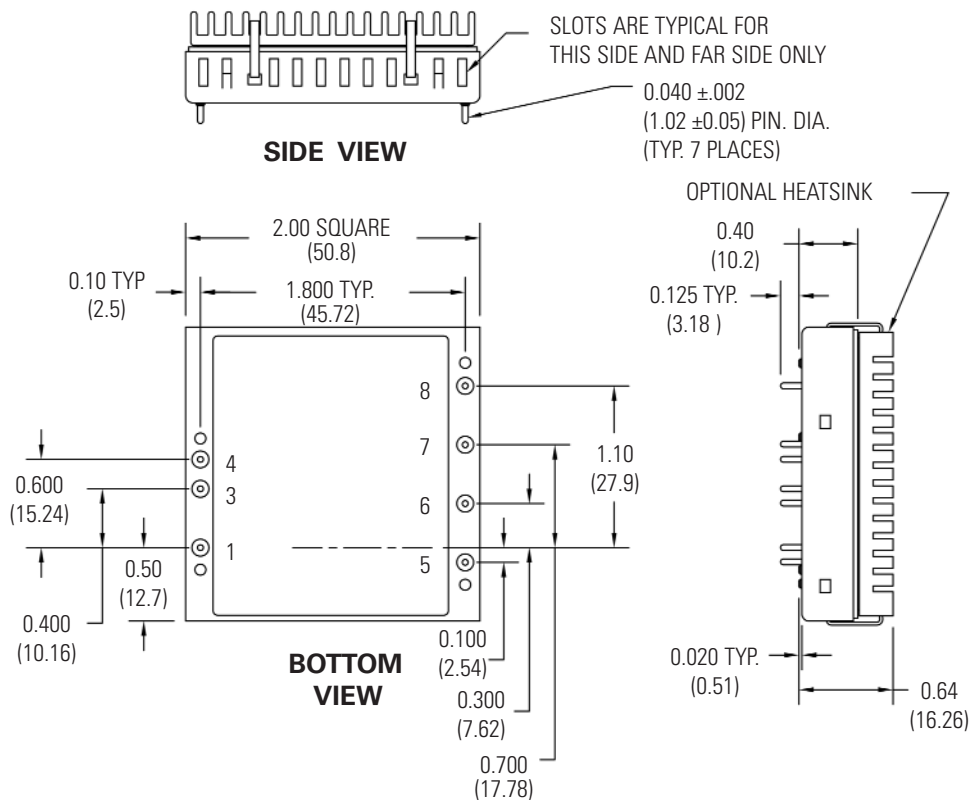
MODEL SELECTION CHART

| | Input Voltage (VDC) | Output Voltage V1(VDC) | Output Current V1(A) | Output Voltage V2(VDC) | Output Current V2(A) | Max Power (Watts) |
|-------------|---------------------|------------------------|----------------------|------------------------|----------------------|-------------------|
| 2703/2P12HN | 12 | 3.3 | 2.5 | 2.5 | 4.0 | 18.3 |
| 2705/3P12HN | 12 | 5.0 | 2.5 | 3.3 | 4.0 | 21.5 |
| 2703/2N12HN | 12 | 3.3 | 2.5 | -2.5 | 4.0 | 18.3 |
| 2705/3N12HN | 12 | 5.0 | 2.5 | -3.3 | 4.0 | 21.5 |
| 2703/2P48HN | 48 | 3.3 | 3.0 | 2.5 | 5.0 | 22.5 |
| 2705/3P48HN | 48 | 5.0 | 3.0 | 3.3 | 5.0 | 27.0 |
| 2703/2N48HN | 48 | 3.3 | 3.0 | -2.5 | 5.0 | 22.5 |
| 2705/3N48HN | 48 | 5.0 | 3.0 | -3.3 | 5.0 | 27.0 |

GENERAL CHARACTERISTICS

| | Min | Typ | Max | Unit/Comments |
|-----------------------|-------|-----|--------|---|
| Operating Temp. Range | | | | See derating curves |
| Storage Temp. Range | -40 | | +85 | °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 |
| Vibration | | 1.0 | | Grams RMS |
| MTBF | >800K | | | Hr; Calculated per MIL-HDBK-217F, Grd Benign envir. |
| Weight | | | 32 | Grams |
| Size | | | | 2" X 2" X 0.4" |
| Case Material | | | | Black coated aluminum |
| Agency Approvals | | | | UL/CUL1950 |

OUTLINE DRAWING



PIN OUT CHART

| PINS | FUNCTION |
|------|----------------|
| 1 | *REMOTE ON/OFF |
| 3 | - INPUT |
| 4 | + INPUT |
| 5 | V2 TRIM |
| 6 | V2 |
| 7 | COMMON |
| 8 | +V1 |

Notes:

1. Unless otherwise specified dimensions are in inches (mm).
2. Controlling dimension in inch.
3. Tolerances

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

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified.
 External, low ESR, 33 microfarad (minimum) capacitor across output is recommended for operation.
 Minimum 10% load on all models. Turn on of 9.6 VDC is acceptable for 12 VDC models.



How To ORDER

HOW TO ORDER

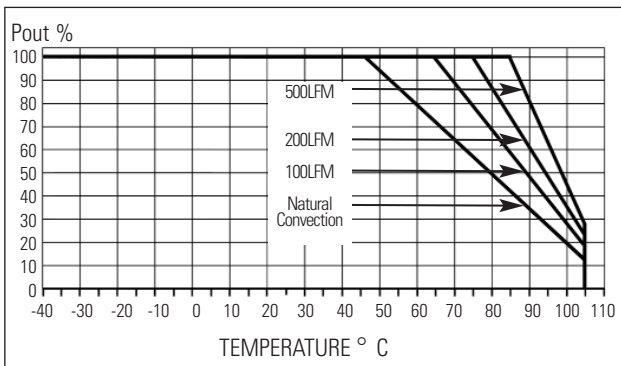
27 XX / 3 X XX HN - Y

Wattage ———— 27
 Output Voltage V1 ———— XX
 Output Voltage V2 ———— / 3
 Output Configuration (P= Positive) ———— X
 (N = Negative) ———— XX
 Hi-Density, Non-Encap ———— HN
 Input Voltage ———— Y
 ROHS Compliant

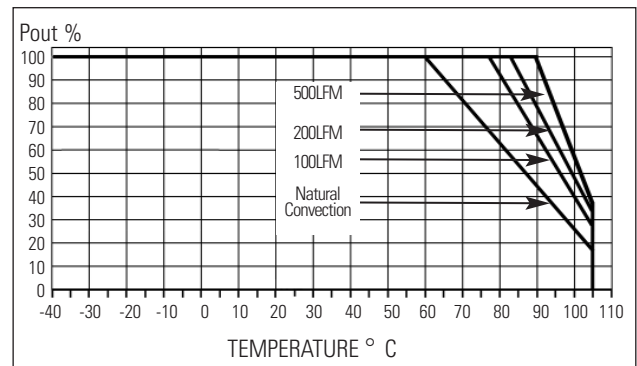
H Options: To add external heatsink mounted on the baseplate of the converter please add a “- H” at the end of the part number. Heatsink is provided to improve thermal performance (see derating curves).

DERATING CURVES

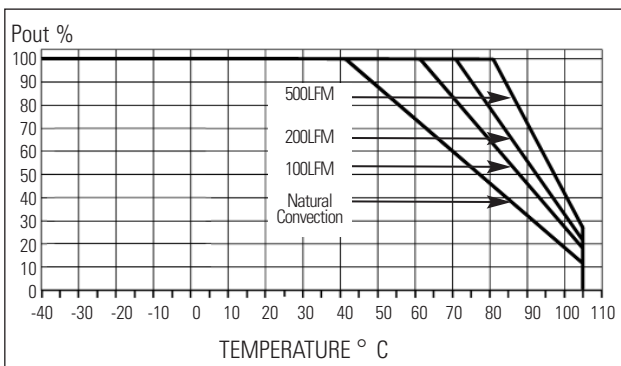
MODEL 2705SXX (Without heatsink)



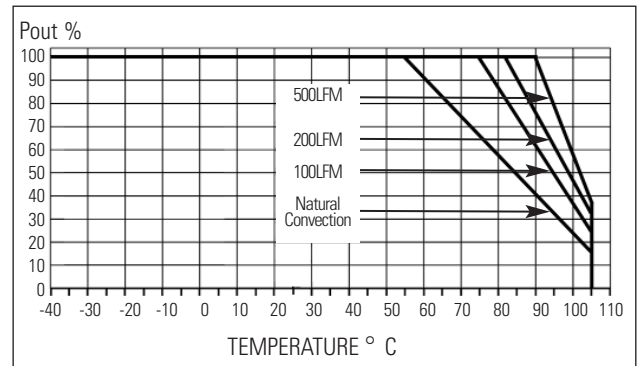
MODEL 2705SXX (With heatsink)



MODEL 2703SXX (Without heatsink)



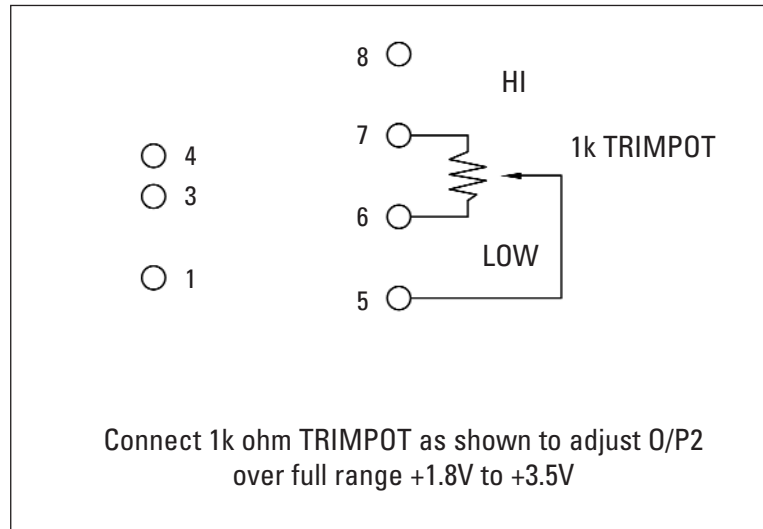
MODEL 2703SXX (With heatsink)





OUTPUT VOLTAGE ADJUSTMENT (2700HN SERIES)

OUTPUT VOLTAGE +V2 TRIM CONFIGURATION



OUTPUT VOLTAGE -V2 TRIM CONFIGURATION

