2700 HN series

www.martekpower.com

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 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;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

Martek Power reserves the right to change specifications without notice.

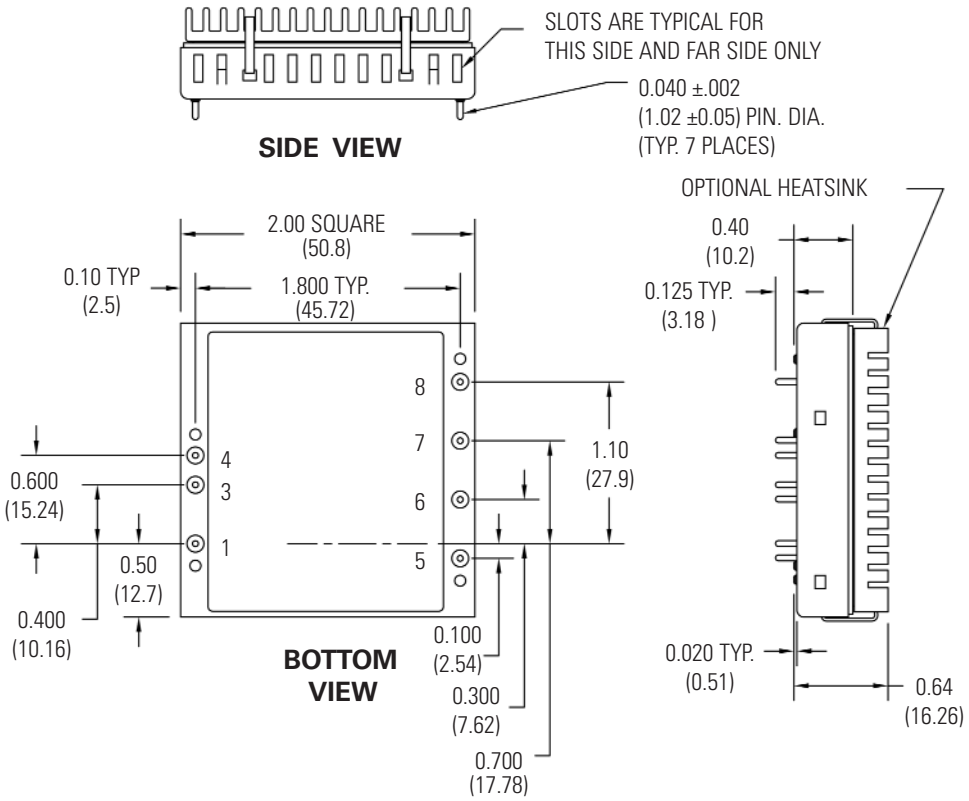
Model Selection Chart

	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, TUV, EN60950

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

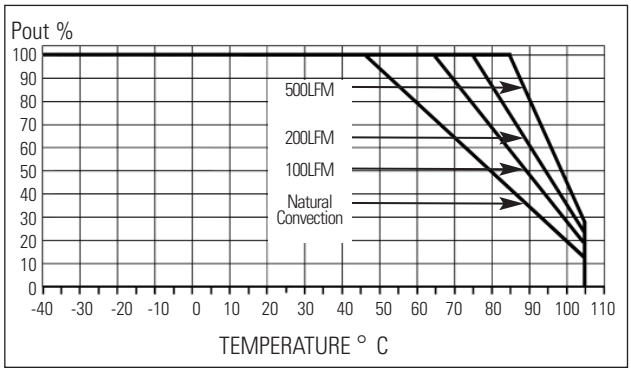
27 XX / 3 X XX HN - Y

- Wattage
- Output Voltage
- XX = ±3
- Output Configuration (P= Positive) (N = Negative)
- Input Voltage
- Hi-Density, Non-Encap
- ROHS Compliant

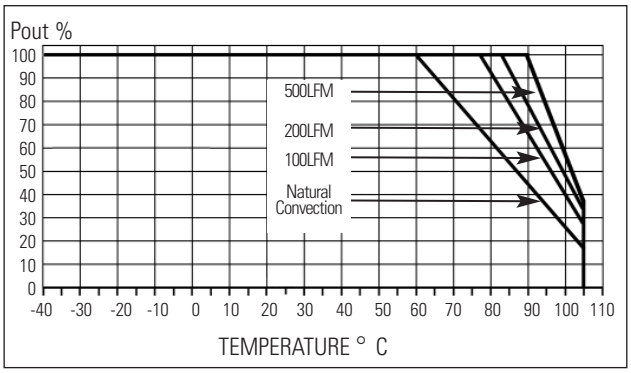
H Options: To add external heatsink mounted on the baseplate of the converter please add a "- H" at the end of the part number. Heatsink is provided to improve thermal performance (see derating curves).

Derating Curves

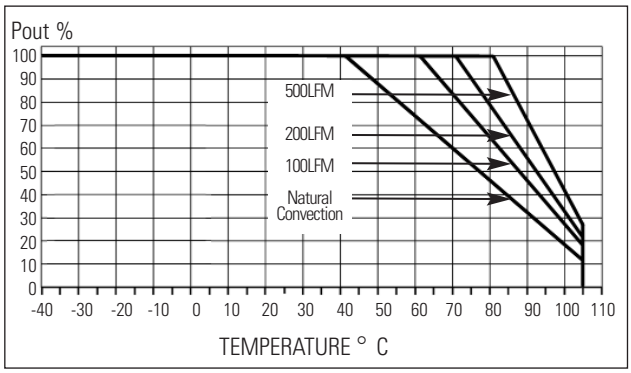
MODEL 2705SXX (Without heatsink)



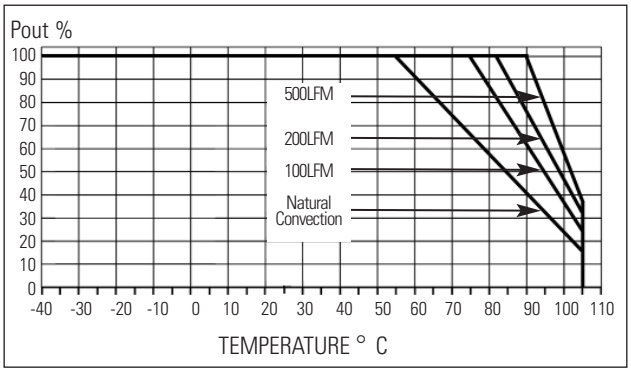
MODEL 2705SXX (With heatsink)



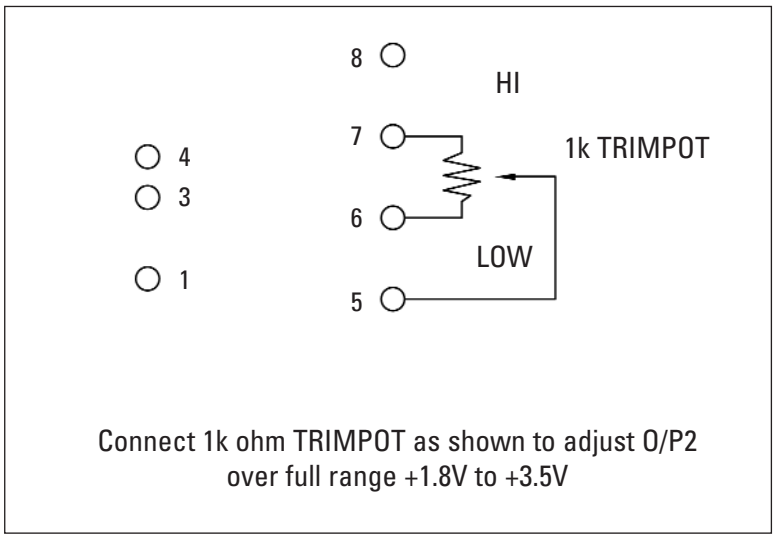
MODEL 2703SXX (Without heatsink)



MODEL 2703SXX (With heatsink)

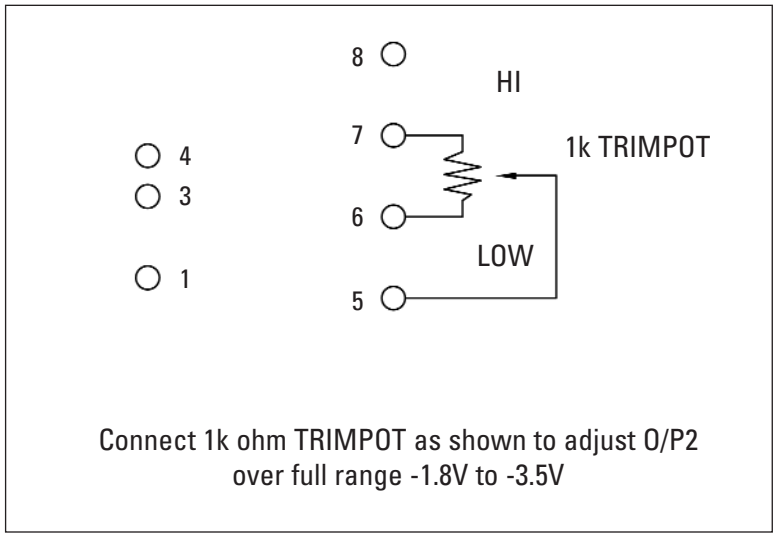


OUTPUT VOLTAGE +V2
TRIM CONFIGURATION



Connect 1k ohm TRIMPOT as shown to adjust O/P2
over full range +1.8V to +3.5V

OUTPUT VOLTAGE -V2
TRIM CONFIGURATION



Connect 1k ohm TRIMPOT as shown to adjust O/P2
over full range -1.8V to -3.5V