

3000UR series



www.martekpower.com

Single, Dual, Triple Output DC/DC Converter



DESCRIPTIONS

The 3000UR series is a family of compact 25W and 30W high performance DC/DC converters specifically designed for board mount power distribution applications where space is critical, but performance and power cannot be sacrificed. 18 models operate over 4:1 input ranges of 10 to 40 or 18 to 72 VDC; providing single, dual or triple output combinations of 3.3, 5, 12, 15, ± 5 , ± 12 , ± 15 , 5 ± 12 and 5 ± 15 VDC. Standard features include an input Pi filter to reduce reflected ripple current, output voltage accuracy of $\pm 1\%$, and a minimum input/ output isolation voltage of 1400 VDC.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Accuracy				
Single & Dual Outputs			± 1.0	% ¹
Triple Outputs - Primary			± 1.0	% ¹
- Auxiliaries			± 5.0	% ¹
Output Voltage Adjustment				
3.3V Outputs			± 100	mV
All Other Models			± 5.0	% Output Voltage
Output Voltage Balance				
Dual Outputs			± 2.0	%; Equal Output Loads
Triple Outputs			± 100	mV; Equal Output Loads
Line Regulation - 3.3V Outputs			100	mV ²
Single and Dual Outputs			± 1.0	% ²
Triple Outputs - Primary			± 1.0	% ²
- Auxiliaries			± 5.0	% ²
Load Regulation - 3.3V Outputs			100	mV ³
Single Outputs			± 1.0	% ³
Dual Outputs			± 1.0	% ⁴ ; Equal Loads
Triple Outputs - Primary			± 1.0	% ⁴
- Auxiliaries			± 2.0	% ³ ; Equal Loads
Ripple/Noise - 3.3V Outputs			100	mV; p-p ⁵
5V Outputs			75	mV; p-p ⁵
12V and 15V Outputs			1	%; p-p ⁵
Triple Outputs - Primary			125	mV p-p ⁵
Short Circuit Protection				Continuous, Automatic Recovery
Transient Recovery Time		250		μ S, to within 1% error band for 50% load step, 50% load to FL
Temperature Coefficient			± 0.02	% per °C
Over Voltage Protection				See Model Selection Guide

FEATURES

- Efficiency to 83%
- Wide 4:1 Input Voltage Range
- Input Pi Filter
- Continuous Circuit Protection
- Wide -40°C to +75°C Operating Temperature Range
- 6 sided Continuous Shielding
- Output Voltage Trim

INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Input Voltage Range				
24 VDC Input Models	10	12	40	VDC
48 VDC Input Models	18	24	72	VDC
Over Voltage Shutdown				
24 VDC Input Models		42		VDC
48 VDC Input Models		74		
Input Fuse Requirement				
24 VDC Input Models		4000		mA; Slow Blow Type
48 VDC Input Models		3000		mA; Slow Blow Type
Reflected Ripple Current				See Model Selection Guide
Reverse Polarity Input Current			12	Amp
Input Filter				Pi Filter

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency		130		kHz
Isolation Voltage		1000		VDC, 1 minute
Isolation Resistance		1000		Mohm, 500VDC
MTBF (MIL-HBK-217F)		706		Thousand Hours, +25°C, Ground Benign

¹ = Output voltage at nominal line & FL

² = % Output voltage measured from min. input line to maximum

³ = Output voltage measured from FL to 25% Load

⁴ = Output voltage measured from FL to no load

⁵ = Nom. Line @ FL, 20 Mhz B.W. using 1 μ f bypass capacitor

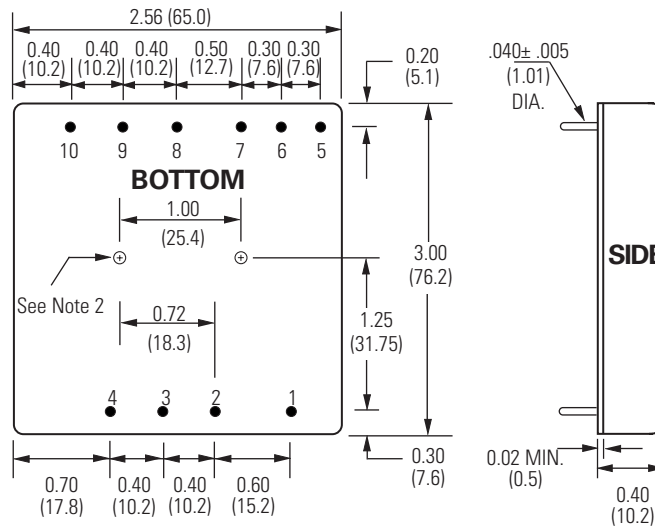
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-40		+75	°C; Ambient
Storage Temp. Range	-40		+125	°C
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection

PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	2.56 X 3.00 X 0.40 inches (65.0 X 76.2 X 10.2 mm)
Case Material	Coated Metal with Non-Conductive Base
Shield Connection	
24V Input Models	Negative Input, Pin 3
48V Input Models	Positive Input, Pin 2
Flammability	UL94V-0
Weight	142 Grams

OUTLINE DRAWING



PIN OUT CHART

Pin	Single	Dual	Triple
1	Remote On/Off	Remote On/Off	Remote On/Off
2	+ Vin	+ Vin	+ Vin
3	- Vin	- Vin	- Vin
5	+Sense/Trim	+ Vout	+ Vout (Aux)
6	Output Trim	Common	Common(Aux)
7	- Sense/Trim	- Vout	- Vout (Aux)
8	+ Vout	Output Trim	+5V Vout
9	- Vout	No Pin	- 5V Vout
10	No Pin	No Pin	Output Trim (Primary)

* Connections for single output models without sensing or external trimming:
For proper operation, externally connect Pin 5 (+Sense) to Pin 8 (+Vout)
and Pin 7 (-Sense) to Pin 9 (-Vout)

Notes:

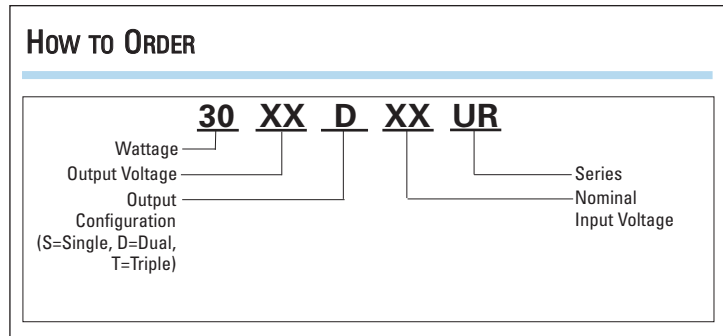
1. Unless otherwise specified dimensions are in inches (mm).

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

2. Mounting inserts: 4-40 X .10 (2.5) Deep

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



MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Output Voltage (VDC)	Full Load Output Current (mA)	No Load Input Current (mA)	Full Load Input Current (mA)	Reflected Ripple Current (mA)	Output Over Voltage (VDC)	Efficiency @ FL (%)
3003S24UR	24	3.3	7400	40	1300	120	5.8	78
3005S24UR	24	5	5000	40	1280	100	6.8	81
3012S24UR	24	12	2000	40	1280	100	16.0	78
3015S24UR	24	15	1660	40	1290	100	18.0	80
3005D24UR	24	±5	±2500	40	1250	100	±6.8	83
3012D24UR	24	±12	±1000	40	1250	100	±16.0	83
3015D24UR	24	±15	±830	40	1250	100	±18.0	83
3003S48UR	48	3.3	7400	40	1250	100	5.8	82
3005S48UR	48	5	6000	40	760	100	6.8	82
3012S48UR	48	12	2500	40	770	100	16.0	81
3015S48UR	48	15	2000	40	770	100	18.0	81
3005D48UR	48	±5	±3000	40	510	100	±6.8	82
3012D48UR	48	±12	±1250	40	520	100	±16.0	81
3015D48UR	48	±15	±1000	40	520	100	±18.0	81
3005/12T24UR	24	5, ±12	2500, ±500	40	1340	100	6.8, ±15.0	76
3005/15T24UR	24	5, ±15	2500, ±400	40	1310	100	6.8, ±18.0	80
3005/12T48UR	48	5, ±12	3000, ±625	40	800	100	6.8, ±15.0	78
3005/15T48UR	48	5, ±15	3000, ±500	40	800	100	6.8, ±18.0	78