

# 300WFS series

## Single & Dual Output DC/DC Converter



### DESCRIPTIONS

The 300WFS series 3 watts power modules are high efficiency, surface mount dc-dc converters that operate over a wide input voltage range of 9 - 18 VDC, 18 - 36 VDC and 36 - 75 VDC and provide precisely regulated output voltages of 3.3V, 5V, 12V, 15V,  $\pm 5V$ ,  $\pm 12V$  and  $\pm 15V$ .

The  $-40^{\circ}\text{C}$  to  $+71^{\circ}\text{C}$  operating temperature range makes it ideal for data communication equipment, mobile battery driven equipment, distributed power systems, telecommunication equipment, mixed analog/digital subsystems, process/machine control equipment, computer peripheral systems and industrial robot systems.

### OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Set Point	$\pm 0.5$	$\pm 1.0$		% Output voltage at nominal line & FL
Output Voltage Balance (Duals)	$\pm 0.5$	$\pm 2.0$		% Equal Output Loads
Line Regulation	$\pm 0.1$	$\pm 0.3$		% Output voltage measured from min. input line to maximum
Load Regulation	$\pm 0.3$	$\pm 1.0$		% Output voltage measured from FL to 10% load
Ripple/Noise		50	75	mV p-p, Nom.Line @FL, 20MHz B.W., using 1 $\mu\text{f}$ bypass capacitor
Ripple/Noise			100	mV p-p, Over Line, Load & Temp., 20 MHz B.W., using 1 $\mu\text{f}$ bypass capacitor
Short Circuit Protection				Continuous, Automatic Recovery
Transient Response Deviation	$\pm 2$	$\pm 6$		% deviation of $V_{\text{out}}$ for a 25% load change
Over Power Protection	120			%
Transient Recovery Time		200	500	$\mu\text{s}$ for 25% load change
Temperature Coefficient	$\pm 0.01$	$\pm 0.02$		% per degree C

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**MARTEK POWER**

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### FEATURES

- SMT Package
- Up to 83% Efficiency
- Single & Dual Output, 3 watt converter
- 2 - 1 Input Range
- 1500 VDC Input / Output Isolation
- Short Circuit Protection
- MTBF > 1,000,000 Hours

### INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Start Voltage				
12 VDC Input Models	9	12	18	VDC
24 VDC Input Models	18	24	36	VDC
48 VDC Input Models	36	48	72	VDC
Input Fuse Requirements				
12 VDC Input Models		750		mA; Slow blow type
24 VDC Input Models		350		mA; Slow blow type
48 VDC Input Models		200		mA; Slow blow type
Reverse Polarity Input Current			0.5	A
Short Circuit Input Power			1500	mW
Input Filter				Pi Filter

### GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency		300		kHz
Isolation Voltage	1500			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance		65	100	pF, 100kHz, 1Volt
MTBF (MIL-HBK-217F)	1			Million Hours, +25°C, Ground Benign

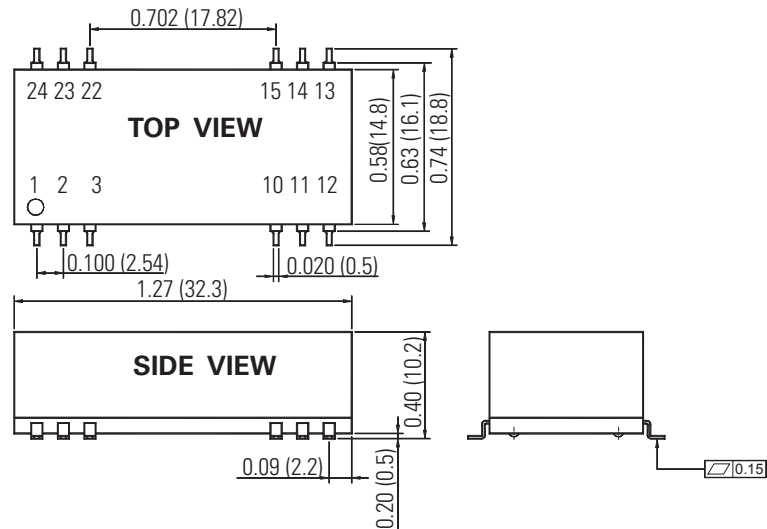
## ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-40		+71	°C; Ambient
Operating Temp. Range	-40		+90	°C; Case
Storage Temp. Range	-40		+125	°C
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection

## PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	1.27 X 0.74 X 0.4 inches (32.3 X 18.8X 10.2 mm)
Case Material	Non-conductive Black Plastic
Flammability	UL94V-0
Weight	8.8 Grams max.

## OUTLINE DRAWING



## PIN OUT CHART

Pins	Single	Dual
1	- Vin	- Vin
2	- Vin	- Vin
3	NC	NC
10	NC	Common
11	NC	NC
12	NC	- Vout
13	+ Vout	+ Vout
14	NC	NC
15	- Vout	Common
22	NC	NC
23	+ Vin	+ Vin
24	+ Vin	+ Vin

NC = No Connection

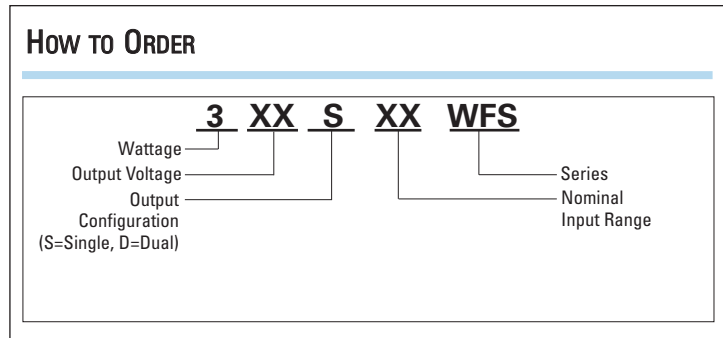
### Notes:

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
Pin :	±0.002	±0.05

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

## How To ORDER



## MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Input Voltage Range (VDC)	Output Voltage (VDC)	Full Load Output Current (mA)	Input Current No Load Typ. (mA)	Efficiency @ FL (%)
303S12WFS	12	9 - 18	3.3	700	20	75
305S12WFS	12	9 - 18	5.0	600	20	79
312S12WFS	12	9 - 18	12.0	250	20	82
315S12WFS	12	9 - 18	15.0	200	20	82
305D12WFS	12	9 - 18	±5.0	±300	20	78
312D12WFS	12	9 - 18	±12.0	±125	20	81
315D15WFS	12	9 - 18	±15.0	±100	20	81
303S24WFS	24	18 - 36	3.3	700	5	76
305S24WFS	24	18 - 36	5.0	600	5	80
312S24WFS	24	18 - 36	12.0	250	5	83
315S24WFR	24	18 - 36	15.0	200	5	83
305D24WFS	24	18 - 36	±5.0	±300	5	79
312D24WFS	24	18 - 36	±12.0	±125	5	82
315D24WFS	24	18 - 36	±15.0	±100	5	82
303S48WFS	48	36 - 72	3.3	700	3	76
305S48WFS	48	36 - 72	5.0	600	3	80
312S48WFS	48	36 - 72	12.0	250	3	83
315S48WFS	48	36 - 72	15.0	200	3	83
305D48WFS	48	36 - 72	±5.0	±300	3	79
312D48WFS	48	36 - 72	±12.0	±125	3	82
315D48WFS	48	36 - 72	±15.0	±100	3	82