

# 300XFR series

**NEW** Approved for New Designs

**MARTEK  
POWER**

www.martekpower.com

## Single & Dual Output DC/DC Converter



### DESCRIPTIONS

The 300XFR series power modules are high efficiency, low-profile, 3 watt dc-dc converters that operate over input voltage ranges of 4.5 - 9 VDC, 9 - 18 VDC, 18 - 36 VDC and 36 - 75 VDC and provide precisely regulated output voltages of 5V, 12V, 15V,  $\pm 12V$  and  $\pm 15V$ .

The  $-40^{\circ}C$  to  $+71^{\circ}C$  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	$\pm 0.5$	$\pm 2.0$		% Output voltage at nominal line & FL
Output Voltage Balance	$\pm 0.5$	$\pm 2.0$		% Equal Output Loads
Line Regulation	$\pm 0.2$	$\pm 0.5$		% Output voltage measured from min. input line to maximum
Load Regulation	$\pm 0.2$	$\pm 0.5$		% Output voltage measured from FL to 10% load
Ripple/Noise		45	60	mV p-p, Nom.Line @FL, 20MHz B.W., using 1 $\mu$ f bypass capacitor
Ripple/Noise			100	mV p-p, Over Line, Load & Temp., 20 MHz B.W., using 1 $\mu$ f bypass capacitor
Short Circuit Protection				Continuous, Automatic Recovery
Transient Response Deviation	$\pm 3$	$\pm 5$		% deviation of Vout for a 25% load change
Transient Recovery Time	300	500		$\mu$ S for 25% load change
Temperature Coefficient	$\pm 0.01$	$\pm 0.02$		% per degree C

### FEATURES

- Up to 81% Efficiency
- Single and Dual Output, 3 watt converter
- Available in 5, 12, 24 and 48 VDC Inputs 2 - 1 Input Range
- Industry Standard Pin out
- Short Circuit Protection

### INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Input Voltage				
5 VDC Input Models	4.5	5	9	VDC
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				
5 VDC Input Models			4	VDC
12 VDC Input Models			8.5	VDC
24 VDC Input Models			17	VDC
48 VDC Input Models			34	VDC
Input Fuse Requirements				
5 VDC Input Models		1500		mA; Slow blow type
12 VDC Input Models		700		mA; Slow blow type
24 VDC Input Models		350		mA; Slow blow type
48 VDC Input Models		135		mA; Slow blow type
Reverse Polarity Input Current			1	Amp
Short Circuit Input Power		1000	1500	mW
Input Filter				Pi Filter

### GENERAL CHARACTERISTICS

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

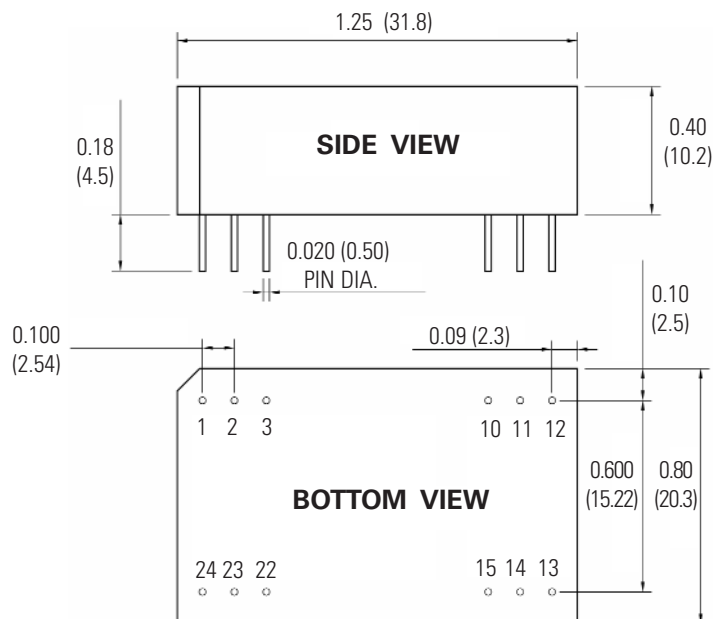
## ENVIRONMENTAL SPECIFICATIONS

	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
Conducted EMI				Complies with EN55022 Class A

## PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	1.25 X 0.8 X 0.4 inches (31.8 X 20.3 X 10.2 mm)
Case Material	Non-Conductive Black Plastic
Flammability	UL94V-0
Weight	12.4 Grams

## OUTLINE DRAWING



## PIN OUT CHART

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

NC = No Connection

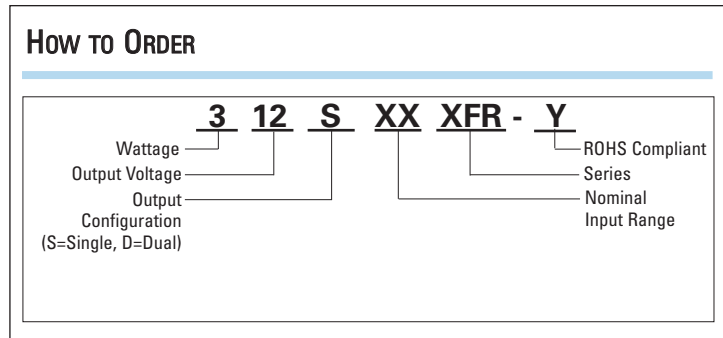
### Notes:

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)	Output Voltage (VDC)	Full Load Output Current (mA)	No Load Input Current (mA)	Full Load Input Current (mA)	Efficiency @ FL (%)
305S5XFR	5	5	600	40	857	70
312S5XFR	5	12	250	40	811	74
315S5XFR	5	15	200	40	811	74
312D5XFR	5	±12	±125	40	811	74
315D5XFR	5	±15	±100	40	811	74
305S12XFR	12	5	600	20	329	76
312S12XFR	12	12	250	20	313	80
315S12XFR	12	15	200	20	313	80
312D12XFR	12	±12	±125	20	313	80
315D12XFR	12	±15	±100	20	313	80
305S24XFR	24	5	600	5	162	77
312S24XFR	24	12	250	5	154	81
315S24XFR	24	15	200	5	154	81
312D24XFR	24	±12	±125	5	154	81
315D24XFR	24	±15	±100	5	154	81
305S48XFR	48	5	600	3	81	77
312S48XFR	48	12	250	3	77	81
315S48XFR	48	15	200	3	77	81
312D48XFR	48	±12	±125	3	77	81
315D48XFR	48	±15	±100	3	77	81

# DERATING CURVES

MODEL 300XFR

