300XFR series

NEW Approved for New Designs

MARTEK POWER

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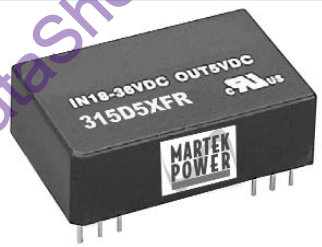
Single & Dual Output DC/DC Converter



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

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, ±12V and ±15V.

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

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°C, Ground Benign

Specifications Are Subject To Change Without Notice.

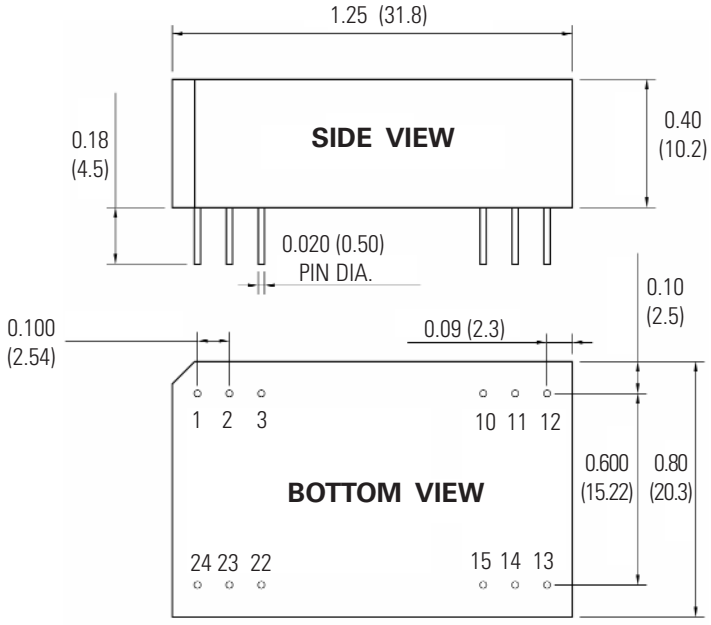
Environmental Specifications

	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

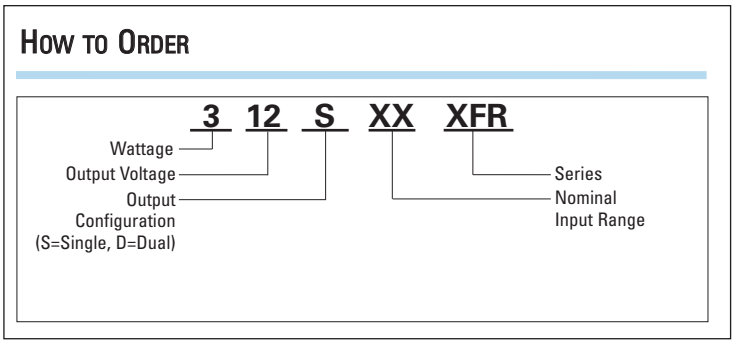
Notes:

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

MODEL 300XFR