



1500UFR series

Single & Dual Output DC/DC Converter



DESCRIPTIONS

The 1500UFR series is a family of 16 models DC/DC converters designed to address the application needs for data communication equipment, mobile battery driven equipment, distributed power systems, telecommunications equipment, mixed analog/ digital subsystems, process/ machine control equipment, computer peripheral systems and industrial robot systems. In addition to packing up to 15 watts of power into a 2" X 1" X 0.4" package with efficiency up to 86%, the series also has ultra-wide input ranges of 9-36VDC and 18-75 VDC, which are available in output voltage of 3.3V, 5V, 5.1V, 12V, 15V, $\pm 5V$, $\pm 12V$ and $\pm 15V$ VDC.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Set Point	± 1.0	± 2.0		% Output voltage at nominal line & FL
Output Voltage Balance	± 0.5	± 2.0		%; Equal Output Loads
Line Regulation	± 0.1	± 0.5		% Output voltage measured from min. input line to maximum
Load Regulation	± 0.5	± 1.0		% Output voltage measured from FL to 10% load
Ripple/Noise		55	80	mV p-p, Nom.Line @FL, 20MHz B.W., using 1 μ F bypass capacitor
Over Power Protection	120			%
Transient Response Deviation	± 2	± 4		% deviation of Vout for a 25% load change
Transient Recovery Time	300	500		μ S for 25% load change, to within 1%
Temperature Coefficient	± 0.01	± 0.02		% per $^{\circ}$ C
Output Short Circuit				Continuous

FEATURES

- Efficiency up to 86%
- 1500 VDC Isolation
- 4:1 Wide Input Range
- Remote On/Off Control
- UL 1950 and EN 55022 Approved
- >700,000 Hours MTBF

INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Start Voltage				
24 VDC Input Models	8	8.5	9	VDC
48 VDC Input Models	15	17	18	VDC
Input Fuse Requirement				
24 VDC Input Models		2500		mA; Slow blow type
48 VDC Input Models		1250		mA; Slow blow type
Under Voltage Shutdown				
24 VDC Input Models	7	8	8.5	VDC
48 VDC Input Models	13	15	17	VDC
Reverse Polarity Input			1	Amp
Short Circuit Input Power			3500	mW
Input Filter				Pi Filter

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency	290	330	400	kHz
Isolation Voltage	1500			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance		1200	1500	pF, 100kHz, 1Volt
MTBF (MIL-HBK-217F)	0.7			Million Hours, +25 $^{\circ}$ C, Ground Benign

Martek Power reserves the right to change specifications without notice.



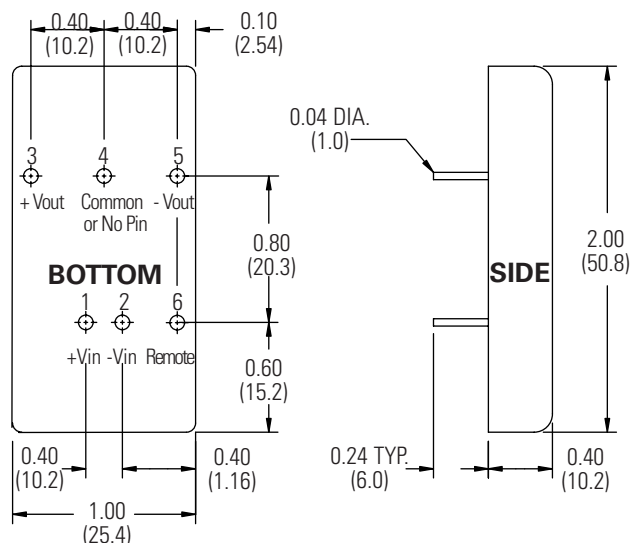
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-40		+60	°C; Ambient
Operating Temp. Range	-40		+100	°C; Case
Storage Temp. Range	-50		+125	°C
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection

PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	1.0 X 2.0 X 0.40 inches (25.4 X 50.8 X 10.2 mm)
Case Material	Metal with Non-Conductive Baseplate
Flammability	UL94V-0
Weight	32 Grams

OUTLINE DRAWING



PIN OUT CHART

Pins	Single	Dual
1	+ Vin	+ Vin
2	- Vin	- Vin
3	+ Vout	+ Vout
4	No pin	Common
5	- Vout	- Vout
* 6	Remote On/Off (Optional)	

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

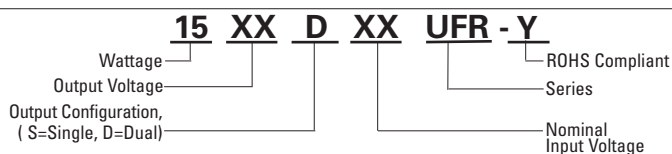
* 2. Remote On/Off is optional. Use -R suffix.

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

How to ORDER



To order the converter with Remote On/Off function, please add a suffix -R
(e.g. 1505S24UFR-R)

MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Input Voltage Range (VDC)	Output Voltage (VDC)	Max. Output Current (mA)	Max. Output Current (mA)	No Load Input Current (mA)	Full Load Input Current (mA)	Reflected Ripple Current (mA)	Efficiency @ FL (%)
15033S24UFR	24	9 - 36	3.3	3000	300	25	528	40	78
1505S24UFR	24	9 - 36	5	3000	300	25	762	40	82
1512S24UFR	24	9 - 36	12	1250	125	25	735	40	85
1515S24UFR	24	9 - 36	15	1000	100	25	726	40	86
1505D24UFR	24	9 - 36	±5	±1500	±150	25	771	40	81
1512D24UFR	24	9 - 36	±12	±625	±62.5	25	735	40	85
1515D24UFR	24	9 - 36	±15	±500	±50	25	726	40	86
15051S24UFR	24	9 - 36	5.1	3000	300	25	787	40	81
15033S48UFR	48	18 - 75	3.3	3000	300	15	264	30	78
1505S48UFR	48	18 - 75	5	3000	300	15	381	30	82
1512S48UFR	48	18 - 75	12	1250	125	15	368	30	85
1515S48UFR	48	18 - 75	15	1000	100	15	363	30	86
1505D48UFR	48	18 - 75	±5	±1500	±150	15	386	30	81
1512D48UFR	48	18 - 75	±12	±625	±62.5	15	368	30	85
1515D48UFR	48	18 - 75	±15	±500	±50	15	369	30	86
15051S48UFR	48	18 - 75	5.1	3000	300	15	393	30	81



DERATING CURVES

1500UFR - All Models

