

UFEC' \$W SERIES

DC/DC Converter Single & Dual Output: ' \$ Watts



Features

- 4:1 wide Input range: 18~75V
- High quality Panel mount assembly
- Single & Dual outputs
- High efficiency up to 87%
- Regulated output & Short circuit protection
- 1600V isolation
- High operating temperature up to +85°C
- Zero load operation
- Designed to EN60950, UL1950
- EMC Compliant
- Input In-rush current limit
- Option. DIN Rail mounting - "DR" to model
- Option. Fully enclosed case - "EC" to model

Model Number	Input Range VDC	Output Voltage VDC	Output Current @Full Load A	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load (1) uF
UFEC30-24S3P3W	10 ~ 40	3.3	6	51	86	19500
UFEC30-24S05W	10 ~ 40	5	6	66	86	10200
UFEC30-24S12W	10 ~ 40	12	2.5	68	86	3300
UFEC30-24S15W	10 ~ 40	15	2	74	87	1100
UFEC30-24S24W	10 ~ 40	24	1.25	38	83	500
UFEC30-24S28W	10 ~ 40	28	1	44	84	340
UFEC30-24D12W	10 ~ 40	±12	±1.25	33	83	±1000
UFEC30-24D15W	10 ~ 40	±15	±1	39	84	±680
UFEC30-48S3P3W	18 ~ 75	3.3	6	31	86	19500
UFEC30-48S05W	18 ~ 75	5	6	31	87	10200
UFEC30-48S12W	18 ~ 75	12	2.5	37	86	3300
UFEC30-48S15W	18 ~ 75	15	2	47	87	1100
UFEC30-48S24W	18 ~ 75	24	1.25	29	84	500
UFEC30-48S28W	18 ~ 75	28	1	29	85	340
UFEC30-48D12W	18 ~ 75	±12	±1.25	27	84	±1000
UFEC30-48D15W	18 ~ 75	±15	±1	27	85	±680

PART NUMBER STRUCTURE

UFEC30 -	48	S	05	W -	N	EC
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Option	Assembly Option
	24: 10~40 48: 18~75	S: Single D: Dual	3P3: 3.3 05: 5 12: 12 15: 15 24: 24 28: 28 12: ±12 15: ±15	4:1	□: Positive logic N: Negative logic	□: No Assembly Option EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

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INPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom)		10	24	40	VDC
	48Vin(nom)		18	48	75	
Input fuse (slow blow)	24Vin(nom)			6		A
	48Vin(nom)			4		
In-rush current				15		A
Input reflected ripple current	Nominal input and Full load			15		mAp-p
Start up voltage	24Vin(nom)				10	VDC
	48Vin(nom)				18	
Shutdown voltage	24Vin(nom)			8		VDC
	48Vin(nom)			16		
Start up time	Constant resistive load	Power up		100		ms
Input surge voltage	100ms, max.	24Vin(nom)			50	VDC
		48Vin(nom)			100	
Remote ON/OFF	Referred to -Vin pin	Positive logic	DC-DC ON	Open or 3 ~ 12VDC		mA
		(Standard)	DC-DC OFF	Short or 0 ~ 1.2VDC		
		Negative logic	DC-DC ON	Short or 0 ~ 1.2VDC		
		(Option)	DC-DC OFF	Open or 3 ~ 12VDC		
		Input current of Ctrl pin		-0.5		
		Remote off input current		3		mA

OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy	3.3Vout		-1.5		+1.5	%
	Others		-1.0		+1.0	
Line regulation	Low Line to High Line at Full Load		-0.5		+0.5	%
Load regulation	No Load to Full Load					%
	3.3Vout		-1.5		+1.5	
	Others		-1.0		+1.0	
Cross regulation	Asymmetrical load 25%/100% FL		-5.0		+5.0	%
Voltage adjustability	Single output					%
	28Vout		-3		+17	
Ripple and noise	Measured by 20MHz bandwidth	Single	3.3Vout, 5Vout,	50		mVp-p
			12Vout, 15Vout	75		
		Dual	24Vout, 28Vout	130		
			All	100		
Temperature coefficient			-0.02		+0.02	%/°C
Transient response recovery time	25% load step change			250		µs
Over voltage protection	Zener diode clamp	3.3Vout		3.9		VDC
		5Vout		6.2		
		12Vout		15		
		15Vout		18		
		24Vout		30		
		28Vout		36		
Output indicator			Green LED			
Over load protection	% of lout rated			150		%
Short circuit protection			Continuous, automatic recovery			

GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	1600			VDC
		Input (Output) to Chassis	1600			
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					4000	pF
Switching frequency			270	300	330	kHz
Safety meets						UL60950-1 EN60950-1 IEC60950-1
Chassis material						Aluminum
Weight						110g (3.87oz)
MTBF	MIL-HDBK-217F, Full load					8.277 x 10 ⁵ hrs

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ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating	-40		+59	°C
	With derating	+59		+85	
Over temperature protection	DC/DC Converter Case		115		°C
Storage temperature range		-40		+105	°C
Thermal shock					MIL-STD-810F
Vibration					MIL-STD-810F
Relative humidity					5% to 95% RH

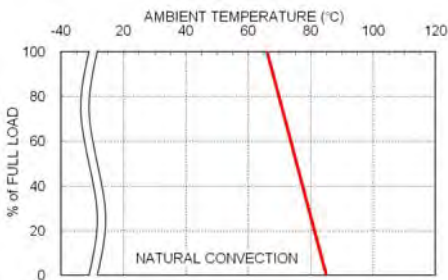
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55022	Class B
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge	EN61000-4-5 ± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10Vr.m.s	Perf. Criteria A

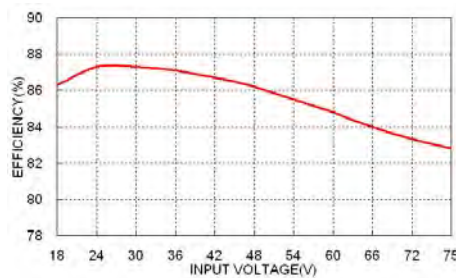
Note:

1. Test by minimum input and constant resistive load.

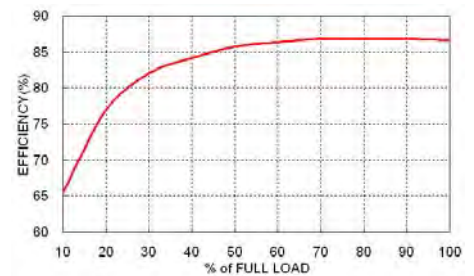
CHARACTERISTIC CURVE



UFEC30-48S05W Derating Curve



UFEC30-48S05W Efficiency vs. Input Voltage



UFEC30-48S05W Efficiency vs. Output Load

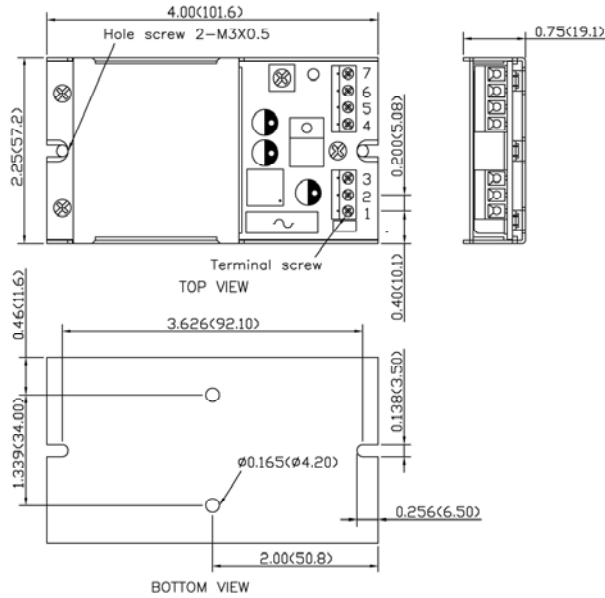
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MECHANICAL DRAWINGS:

CHASSIS MOUNTING TYPE – STD



PIN CONNECTION

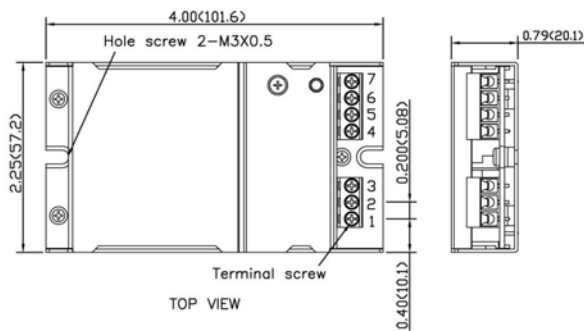
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

* NC : No Connection

* Screw terminals – wire range from 14 to 18 AWG

1. All dimensions in Inch (mm)
2. Tolerance : X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
3. Hole screw locked torque :
MAX 5.0kgf – cm (0.49N – m)
4. Terminal screw locked torque :
MAX 2.5kgf – cm (0.25N – m)

ENCLOSED MOUNTING TYPE : (OPTION – EC)



DIN RAIL MOUNTING TYPE: (OPTION – DR)

