

UFEC30 SERIES

CHASSIS-MOUNT DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 30 Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- 1600VDC INPUT TO OUTPUT ISOLATION
- APPLICATION OF CHASSIS-MOUNT DC/DC CONVERTERS
- SCREW TERMINALS FOR INPUT AND OUTPUT CONNECTIONS
- INTERNAL INPUT FUSE PROTECTION
- INTERNAL OUTPUT LED INDICATOR
- MEET EN55022 CLASS B
- SAFETY MEETS UL60950-1, EN60950-1, & IEC60950-1
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- MEASUREMENT EQUIPMENT
- SEMICONDUCTOR EQUIPMENT

1600VDC ISOLATION	REMOTE CONTROL	UVP	OCP	SCP	OVP	FUSE INCLUDED	INRUSH LIMIT	REVERSE POLARITY PROTECTION
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TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C otherwise noted

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load ⁽¹⁾
	VDC	VDC	A	mA	%	μF
UFEC30-12S3P3	9.5 ~ 18	3.3	6	117	83	19500
UFEC30-12S05	9.5 ~ 18	5	6	98	85	10200
UFEC30-12S12	9.5 ~ 18	12	2.5	176	86	3240
UFEC30-12S15	9.5 ~ 18	15	2	218	86	1100
UFEC30-12S24	9.5 ~ 18	24	1.25	72	85	510
UFEC30-12S28	9.5 ~ 18	28	1	54	85	340
UFEC30-12D12	9.5 ~ 18	±12	±1.25	66	85	±1020
UFEC30-12D15	9.5 ~ 18	±15	±1	48	85	±675
UFEC30-24S3P3	18 ~ 36	3.3	6	51	85	19500
UFEC30-24S05	18 ~ 36	5	6	51	87	10200
UFEC30-24S12	18 ~ 36	12	2.5	83	88	3300
UFEC30-24S15	18 ~ 36	15	2	94	88	1100
UFEC30-24S24	18 ~ 36	24	1.25	37	87	510
UFEC30-24S28	18 ~ 36	28	1	38	87	340
UFEC30-24D12	18 ~ 36	±12	±1.25	33	87	±1020
UFEC30-24D15	18 ~ 36	±15	±1	34	87	±675
UFEC30-48S3P3	36 ~ 75	3.3	6	31	86	19500
UFEC30-48S05	36 ~ 75	5	6	36	88	10200
UFEC30-48S12	36 ~ 75	12	2.5	37	89	3300
UFEC30-48S15	36 ~ 75	15	2	57	89	1100
UFEC30-48S24	36 ~ 75	24	1.25	28	87	510
UFEC30-48S28	36 ~ 75	28	1	28	87	340
UFEC30-48D12	36 ~ 75	±12	±1.25	22	87	±1020
UFEC30-48D15	36 ~ 75	±15	±1	22	87	±675

PART NUMBER STRUCTURE

UFEC30 -	48	S	05	-	EC
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)		Assembly Option
	12: 9.5~18 24: 18~36 48: 36~75	S: Single	3P3: 3.3 05: 5 12: 12 15: 15 24: 24 28: 28		□: No Assembly Option EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type
		D: Dual	12: ±12 15: ±15		

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	12Vin(nom) 24Vin(nom) 48Vin(nom)	9.5 18 36	12 24 48	18 36 75	VDC
Input fuse (slow blow)	12Vin(nom) 24Vin(nom) 48Vin(nom)		6 6 4		A
In-rush current			15		A
Input reflected ripple current	Nominal input and Full load		15		mAp-p
Start up voltage	12Vin(nom) 24Vin(nom) 48Vin(nom)			9.5 18 36	VDC
Shutdown voltage	12Vin(nom) 24Vin(nom) 48Vin(nom)		8 16 33		VDC
Start up time	Constant resistive load Power up Remote ON/OFF		100 25		ms
Input surge voltage	100ms, max. 12Vin(nom) 24Vin(nom) 48Vin(nom)			36 50 100	VDC
Remote ON/OFF	Referred to –Vin pin Positive logic DC-DC ON DC-DC OFF Input current of Ctrl pin Remote off input current		Open or 3 ~ 12VDC Short or 0 ~ 1.2VDC -0.5 2.5	0.5	mA mA

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy	3.3Vout Others	-1.5 -1.0		+1.5 +1.0	%
Line regulation	Low Line to High Line at Full Load Single Dual	-0.2 -0.5		+0.2 +0.5	%
Load regulation	No Load to Full Load 3.3Vout Others	-1.5 -1.0		+1.5 +1.0	%
Cross regulation	Asymmetrical load 25%/100% FL Dual	-5.0		+5.0	%
Voltage adjustability	Single output 28Vout Others	-3 -10		+17 +10	%
Ripple and noise	Measured by 20MHz bandwidth Single Dual		50 75 100 100		mVp-p
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		300		µs
Over voltage protection	Zener diode clamp 3.3Vout 5Vout 12Vout 15Vout 24Vout 28Vout		3.9 6.2 15 18 30 36		VDC
Output indicator			Green LED		
Over load protection	% of Iout rated		150		%
Short circuit protection			Continuous, automatic recovery		

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute Input to Output Input (Output) to Chassis	1600 1600			VDC
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			1.259 x 10 ⁶	hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating With derating	-40 +61		+61 +88	°C
Over temperature protection	DC/DC Converter Case		110		°C
Storage temperature range		-40		+105	°C
Thermal shock				MIL-STD-810F	
Vibration				MIL-STD-810F	
Relative humidity				5% to 95% RH	

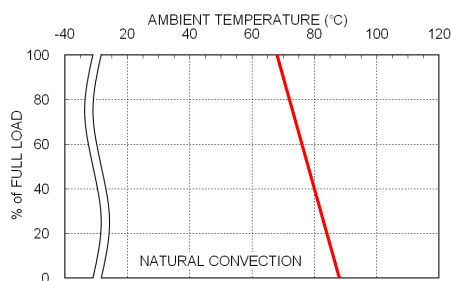
EMC SPECIFICATIONS

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

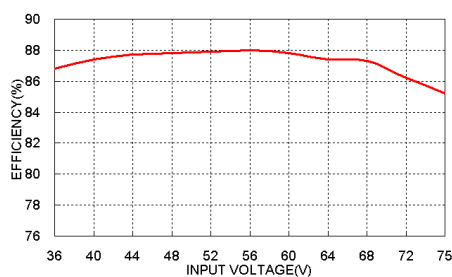
Note:

1. Test by minimum input and constant resistive load.

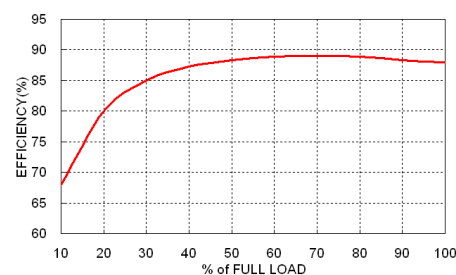
CHARACTERISTIC CURVE



UFEC30-48S05 Derating Curve

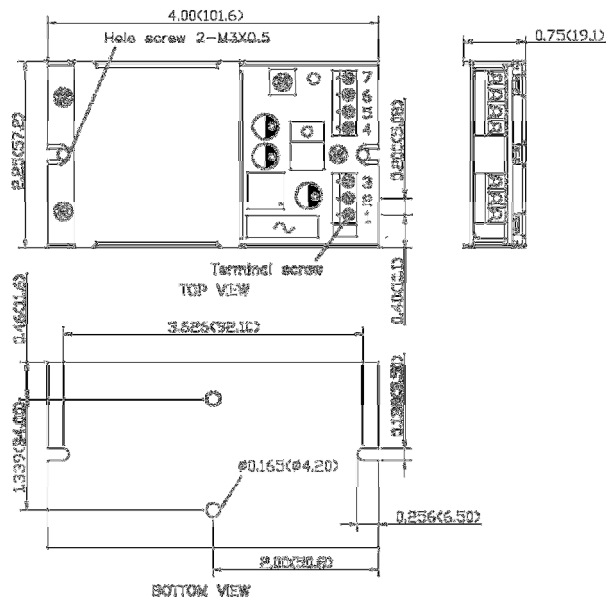


UFEC30-48S05 Efficiency vs. Input Voltage



UFEC30-48S05 Efficiency vs. Output Load

CHASSIS MOUNTING TYPE



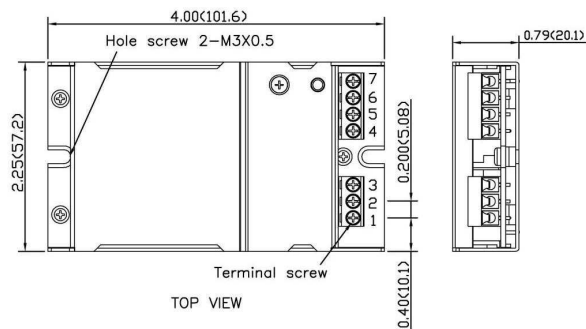
PIN CONNECTION

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

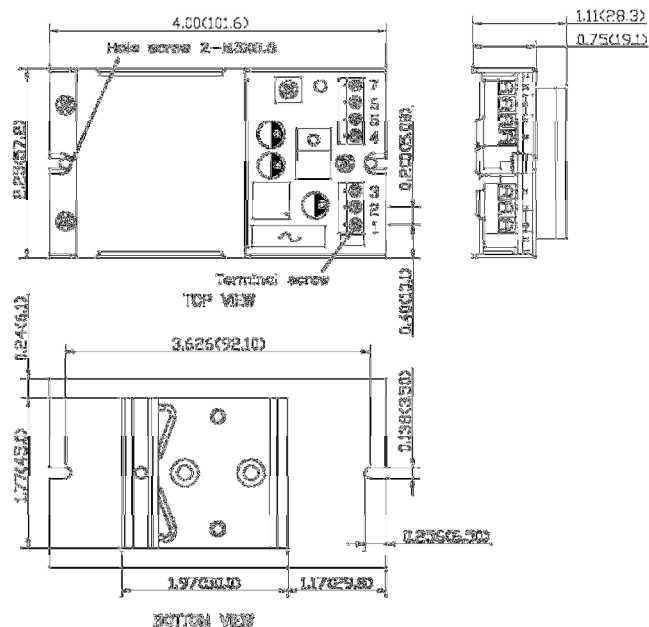
* NC : No Connection

* Screw terminals –
wire range from 14 to 18 AWG

ENCLOSED MOUNTING TYPE



DIN RAIL MOUNTING TYPE



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)