



3
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway



1600
VDC
Isolation
Voltage

2 : 1
Input
Range

FUSE
Installed

INRUSH
CURRENT
LIMIT

Internal
EN55032
Class **B**
Filter

REMOTE
ON
OFF

REVERSE
POLARITY
PROTECTION

OCP

OTP

OVP

SCP

UVP

PART NUMBER STRUCTURE

UFEC40 -	48	S	05	-	R	EC
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Conformal Coating Options		Assembly Options
	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	☐ : None R: Conformal Coating	☐ : None EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type	
		D:Dual	12:±12 15:±15			
		T:Triple	3312:3.3 / ±12 3315:3.3 / ±15 0512:5 / ±12 0515:5 / ±15			

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

Model Number	Input Range	Output Voltage	Output Current @Full Load		Input Current @No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	Min. Load mA	Full Load mA	mA	%	μF
UFEC40-12S3P3	9.5 ~ 18	3.3	0	8000	177	85	21000
UFEC40-12S05	9.5 ~ 18	5	0	8000	230	85	13600
UFEC40-12S12	9.5 ~ 18	12	0	3333	260	85	2360
UFEC40-12S15	9.5 ~ 18	15	0	2666	318	86	1510
UFEC40-12S24	9.5 ~ 18	24	144	1800	40	84	600
UFEC40-12S28	9.5 ~ 18	28	112	1400	48	84	375
UFEC40-12D12	9.5 ~ 18	±12	±144	±1800	35	84	±1200
UFEC40-12D15	9.5 ~ 18	±15	±112	±1400	43	84	±750
UFEC40-12T3312	9.5 ~ 18	3.3 / ±12	600 / ±40	6000 / ±400	220	83	13000 / ±330
UFEC40-12T3315	9.5 ~ 18	3.3 / ±15	600 / ±30	6000 / ±300	235	83	13000 / ±110
UFEC40-12T0512	9.5 ~ 18	5 / ±12	600 / ±40	6000 / ±400	285	85	6800 / ±330
UFEC40-12T0515	9.5 ~ 18	5 / ±15	600 / ±30	6000 / ±300	285	85	6800 / ±110
UFEC40-24S3P3	18 ~ 36	3.3	0	8000	65	86	21000
UFEC40-24S05	18 ~ 36	5	0	8000	80	88	13600
UFEC40-24S12	18 ~ 36	12	0	3333	85	87	2360
UFEC40-24S15	18 ~ 36	15	0	2666	90	88	1510
UFEC40-24S24	18 ~ 36	24	144	1800	30	86	600
UFEC40-24S28	18 ~ 36	28	112	1400	30	86	375
UFEC40-24D12	18 ~ 36	±12	±144	±1800	25	86	±1200
UFEC40-24D15	18 ~ 36	±15	±112	±1400	25	86	±750
UFEC40-24T3312	18 ~ 36	3.3 / ±12	600 / ±40	6000 / ±400	65	84	13000 / ±330
UFEC40-24T3315	18 ~ 36	3.3 / ±15	600 / ±30	6000 / ±300	65	84	13000 / ±110
UFEC40-24T0512	18 ~ 36	5 / ±12	600 / ±40	6000 / ±400	65	86	6800 / ±330
UFEC40-24T0515	18 ~ 36	5 / ±15	600 / ±30	6000 / ±300	75	86	6800 / ±110
UFEC40-48S3P3	36 ~ 75	3.3	0	8000	40	87	21000
UFEC40-48S05	36 ~ 75	5	0	8000	42	89	13600
UFEC40-48S12	36 ~ 75	12	0	3333	52	88	2360
UFEC40-48S15	36 ~ 75	15	0	2666	55	88	1510
UFEC40-48S24	36 ~ 75	24	144	1800	21	86	600
UFEC40-48S28	36 ~ 75	28	112	1400	21	86	375
UFEC40-48D12	36 ~ 75	±12	±144	±1800	18	86	±1200
UFEC40-48D15	36 ~ 75	±15	±112	±1400	18	86	±750
UFEC40-48T3312	36 ~ 75	3.3 / ±12	600 / ±40	6000 / ±400	40	85	13000 / ±330
UFEC40-48T3315	36 ~ 75	3.3 / ±15	600 / ±30	6000 / ±300	40	85	13000 / ±110
UFEC40-48T0512	36 ~ 75	5 / ±12	600 / ±40	6000 / ±400	40	87	6800 / ±330
UFEC40-48T0515	36 ~ 75	5 / ±15	600 / ±30	6000 / ±300	45	87	6800 / ±110

INPUT SPECIFICATIONS					
Parameter	Conditions		Min.	Typ.	Max. Unit
Operating input voltage range		12Vin(nom)	9.5	12	18
		24Vin(nom)	18	24	36
		48Vin(nom)	36	48	75
Input fuse	slow blow	12Vin(nom)		8	
		24Vin(nom)		8	
		48Vin(nom)		4	
In-rush current				15	A
Start up voltage		12Vin(nom)			9.5
		24Vin(nom)			18
		48Vin(nom)			36
Shutdown voltage		12Vin(nom)	7	8	9
		24Vin(nom)	15	16	17.5
		48Vin(nom)	32.5	34	35.5
Start up time	Constant resistive load	Power up Remote ON/OFF		100 25	ms
Input surge voltage	100ms, max.	12Vin(nom)			36
		24Vin(nom)			50
		48Vin(nom)			100
Remote ON/OFF	Referred to –Vin pin	Positive logic DC-DC ON		Open or 3.5 ~ 12VDC	
		DC-DC OFF		Short or 0 ~ 1.2VDC	
		Input current of Ctrl pin Remote off input current	-0.5 2.5	0.5	mA mA

OUTPUT SPECIFICATIONS					
Parameter	Conditions		Min.	Typ.	Max. Unit
Voltage accuracy		3.3Vout	-1.5		+1.5
		Single / Dual	-1.0		+1.0
		Triple: 3.3Vout, 5Vout	-1.5		+1.5
		Triple: 12Vout, 15Vout	-5.0		+5.0
Line regulation	Low Line to High Line at Full Load	Single / Dual	-0.5		+0.5
		Triple: 3.3Vout, 5Vout	-1.0		+1.0
		Triple: 12Vout, 15Vout	-5.0		+5.0
Load regulation	Min. Load to Full Load	3.3Vout	-1.5		+1.5
		Single / Dual	-1.0		+1.0
		Triple: Main output : (3.3Vout, 5Vout) 10% to 100% with 10% to 100% balanced on auxiliaries.	-2.0		+2.0
		Auxiliary outputs 10% to 100% balanced on all outputs.	-5.0		+5.0
Cross regulation	Dual: Asymmetrical load 25%/100% FL Triple: Main output : (3.3Vout, 5Vout) 100% load, auxiliary 100%, other auxiliary 25% to 100% load or main output : (3.3Vout, 5Vout) 25%, auxiliary 25%, other auxiliary 25% to 100%.	Dual	-5.0		+5.0
		Triple: 3.3Vout, 5Vout	-2.5		+2.5
		Triple: 12Vout, 15Vout	-5.0		+5.0
Voltage adjustability	Single output	28Vout	-3		+17
		Others	-10		+10
Ripple and noise	Measured by 20MHz bandwidth	Single / Triple: Main		50	
		Single / Triple: Auxiliary		75	
		Single		350	
		Dual		120	
		Dual		150	
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	
		5Vout		6.2	
		12Vout		15	
		15Vout		18	
		24Vout		30	
		28Vout		36	
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				IEC/ EN/ UL62368-1	
Chassis material				Aluminum	
Conformal coating				Impregnating varnish	
Weight				122g (4.29oz)	
MTBF	MIL-HDBK-217F, Full load			6.565 x 10 ⁵ hrs	

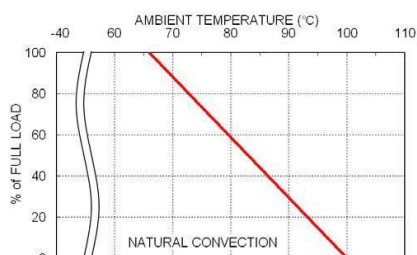
ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	With derating	-40		+100	°C
Over temperature protection	Case of DC/DC module		115		°C
Storage temperature range		-40		+105	°C
Thermal shock					MIL-STD-810F
Vibration	□□S□□ □□S□□ -EC □□S□□ -DR □□S□□ -ED				MIL-STD-810F MIL-STD-810F IEC60068-2-6 IEC60068-2-6
Relative humidity					5% to 95% RH

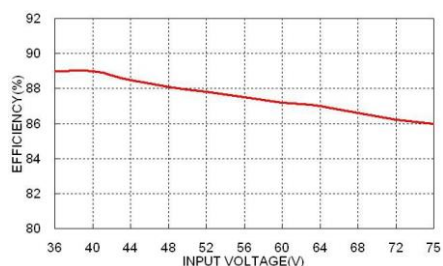
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032	Class B
EMS	EN55024	
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
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

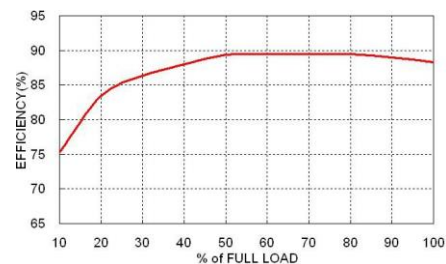
CHARACTERISTIC CURVE



UFEC40-48S05 Derating Curve



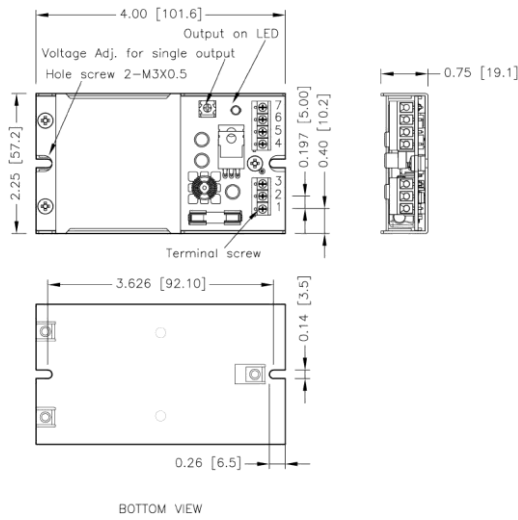
UFEC40-48S05 Efficiency vs. Input Voltage



UFEC40-48S05 Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE



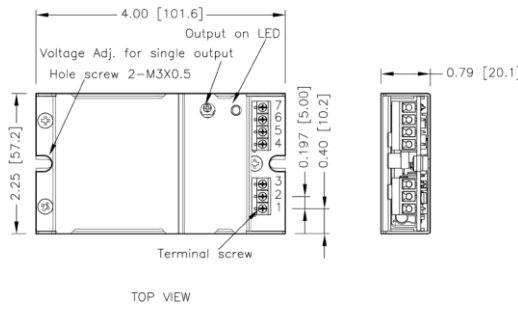
TERMINAL CONNECTION

NO.	SINGLE	DUAL	TRIPLE
1	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin
3	Ctrl	Ctrl	Ctrl
4	NC	NC	+Aux
5	-Vout	-Vout	Common
6	+Vout	Common	-Aux
7	NC	+Vout	+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



DIN RAIL MOUNTING TYPE

