



P-DUKE POWER

UFEC60 Series

Chassis-Mount DC-DC Converter
Up to 60 Watts

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

NO
Min. Load
Required

REMOTE
ON
OFF

REVERSE
POLARITY
PROTECTION

OCP

OVP

SCP

UVP

PART NUMBER STRUCTURE

UFEC60 -	48	S	05	-	N	R	EC
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)		Remote Control Option	Conformal Coating Option	Assembly Option
	24:18~36 48:36~75	S:Single	3P3:3.3 05:5 12:12 15:15 24:24		<input type="checkbox"/> :Positive logic N:Negative logic	<input type="checkbox"/> : None R: Conformal Coating	<input type="checkbox"/> : None EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

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	A	mA	%	μF
UFEC60-24S3P3	18 ~ 36	3.3	14	102	87	36000
UFEC60-24S05	18 ~ 36	5	12	132	88	20400
UFEC60-24S12	18 ~ 36	12	5	57	89	3550
UFEC60-24S15	18 ~ 36	15	4	72	89	2300
UFEC60-24S24	18 ~ 36	24	2.5	74	88	885
UFEC60-48S3P3	36 ~ 75	3.3	14	100	87	36000
UFEC60-48S05	36 ~ 75	5	12	92	89	20400
UFEC60-48S12	36 ~ 75	12	5	35	89	3550
UFEC60-48S15	36 ~ 75	15	4	40	89	2300
UFEC60-48S24	36 ~ 75	24	2.5	43	89	885

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom)		18	24	36	VDC
	48Vin(nom)		36	48	75	
Input fuse	slow blow	24Vin(nom)		8		A
		48Vin(nom)		4		
In-rush current				15		A
Start up voltage	24Vin(nom)				18	VDC
	48Vin(nom)				36	
Shutdown voltage	24Vin(nom)		14.5	15	17.5	VDC
	48Vin(nom)		31	32	35.5	
Start up time	Constant resistive load	Power up		100		ms
		Remote ON/OFF		20		
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	
		(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		1
Remote off input current				4	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		+2.0	%
		Others		+1.5	
Voltage adjustability		24Vout		+20	%
		Others		+10	
Ripple and noise	Measured by 20MHz bandwidth	3.3Vout, 5Vout,	75		mVp-p
		12Vout, 15Vout	100		
		24Vout	130		
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		250		µs
Over voltage protection		3.3Vout	3.7	5.4	VDC
		5Vout	5.6	7.0	
		12Vout	13.8	17.5	
		15Vout	16.8	20.5	
		24Vout	30.0	33.0	
Output indicator			Green LED		
Over load protection	% of Iout rated; Hiccup mode			150	%
Short circuit protection			Continuous, automatic recovery		

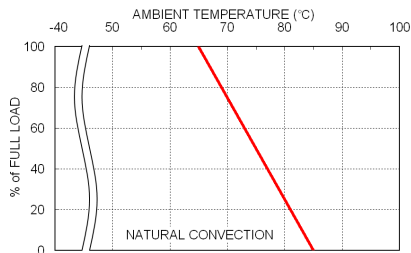
GENERAL SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	1600		VDC
		Input (Output) to Chassis	1600		
Isolation resistance	500VDC	1			GΩ
Isolation capacitance				4000	pF
Switching frequency		270	300	330	kHz
Safety meets				IEC/ UL/ EN60950-1	
Chassis material				Aluminum	
Conformal coating				Impregnating varnish	
Weight				122g (4.29oz)	
MTBF	MIL-HDBK-217F, Full load			3.307 x 10 ⁵ hrs	

ENVIRONMENTAL SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating	-40		+54	°C
	With derating	+54		+97	
Over temperature protection	Case of DC/DC module		+120		°C
Storage temperature range		-40		+105	°C
Thermal shock				MIL-STD-810F	
Vibration				EN61373, MIL-STD-810F	
		<input type="checkbox"/> S <input type="checkbox"/> - <input type="checkbox"/>		EN61373, MIL-STD-810F	
		<input type="checkbox"/> S <input type="checkbox"/> - <input type="checkbox"/> IEC		EN61373, IEC60068-2-6	
		<input type="checkbox"/> S <input type="checkbox"/> - <input type="checkbox"/> DR		EN61373, IEC60068-2-6	
		<input type="checkbox"/> S <input type="checkbox"/> - <input type="checkbox"/> ED		EN61373, IEC60068-2-6	
Relative humidity				5% to 95% RH	

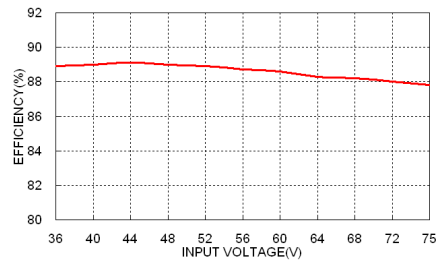
EMC SPECIFICATIONS

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

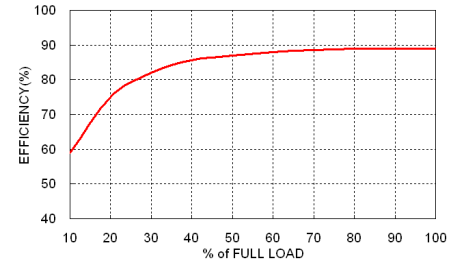
CHARACTERISTIC CURVE



UFEC60-48S05 Derating Curve



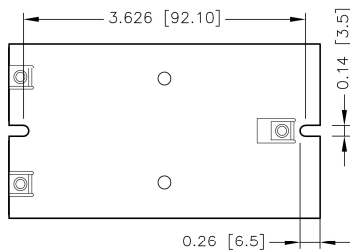
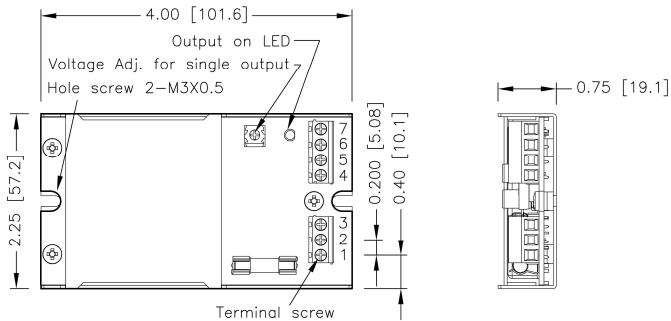
UFEC60-48S05 Efficiency vs. Input Voltage



UFEC60-48S05 Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE



BOTTOM VIEW

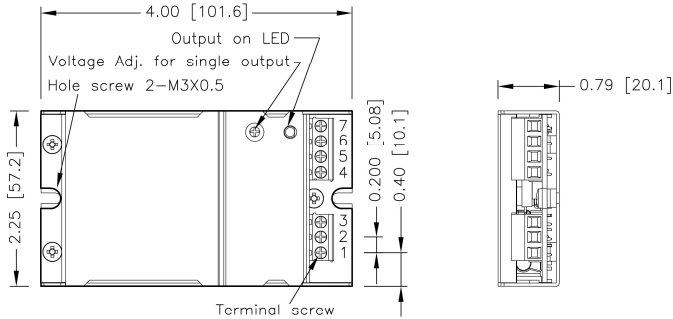
TERMINAL CONNECTION

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

- ※ NC : No Connection
- ※ Screw terminals – wire range from 14 to 18 AWG

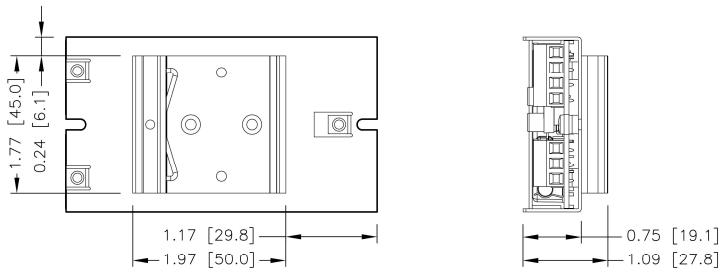
MECHANICAL DRAWING(CONTINUED)

ENCLOSED MOUNTING TYPE



TOP VIEW

DIN RAIL MOUNTING TYPE



BOTTOM VIEW

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