



# P-DUKE POWER

## DFEC40W Series

Din Rail DC-DC Converter  
Up to 40 Watts

**3**  
YEARS  
WARRANTY

ROHS  
COMPLIANT

REACH  
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway

CE UK  
CA

**1600**  
VDC  
Isolation  
Voltage

**4 : 1**  
Wide  
Input  
Range

**FUSE**  
Installed

**INRUSH  
CURRENT  
LIMIT**

Internal  
EN55032  
Class **B**  
Filter

**REMOTE  
ON  
OFF**

**REVERSE  
POLARITY  
PROTECTION**

**OCP**

**OVP**

**SCP**

**UVP**

### PART NUMBER STRUCTURE

DFEC40 -	48	S	05	W -	N
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Options
	24:9.5~36 48:18~75	S:Single	3P3:3.3 05:5 12:12 15:15 24:24 28:28	4:1	□:Positive logic N:Negative logic
		D:Dual	12:±12 15:±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
			Min. Load	Full Load			
			mA	A			
DFEC40-24S3P3W	9.5 ~ 36	3.3	0	10	83	85	25750
DFEC40-24S05W	9.5 ~ 36	5	0	8	103	86	13600
DFEC40-24S12W	9.5 ~ 36	12	0	3.33	56	85	2360
DFEC40-24S15W	9.5 ~ 36	15	0	2.67	56	85	1510
DFEC40-24S24W	9.5 ~ 36	24	0	1.67	76	84	600
DFEC40-24S28W	9.5 ~ 36	28	0	1.33	82	84	375
DFEC40-24D12W	9.5 ~ 36	±12	±65	±1.67	65	84	±1200
DFEC40-24D15W	9.5 ~ 36	±15	±50	±1.33	76	84	±750
DFEC40-48S3P3W	18 ~ 75	3.3	0	10	63	85	25750
DFEC40-48S05W	18 ~ 75	5	0	8	68	87	13600
DFEC40-48S12W	18 ~ 75	12	0	3.33	34	85	2360
DFEC40-48S15W	18 ~ 75	15	0	2.67	34	86	1510
DFEC40-48S24W	18 ~ 75	24	0	1.67	41	85	600
DFEC40-48S28W	18 ~ 75	28	0	1.33	41	84	375
DFEC40-48D12W	18 ~ 75	±12	±65	±1.67	34	85	±1200
DFEC40-48D15W	18 ~ 75	±15	±60	±1.33	34	84	±750

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom) 48Vin(nom)		9.5 18	24 48	36 75	VDC
Input fuse	slow blow	24Vin(nom) 48Vin(nom)		8 4		A
In-rush current				15		A
Start up voltage		24Vin(nom) 48Vin(nom)			9.5 18	VDC
Shutdown voltage		24Vin(nom) 48Vin(nom)	7 15	8 16	9 17.5	VDC
Start up time	Constant resistive load	Power up Remote ON/OFF		100 20		ms
Input surge voltage	100ms, max.	24Vin(nom) 48Vin(nom)			50 100	VDC
Remote ON/OFF	Referred to -Vin pin	Positive logic DC-DC ON (Standard) DC-DC OFF Negative logic DC-DC ON (Option) DC-DC OFF			Open or 3 ~ 12VDC Short or 0 ~ 1.2VDC Short or 0 ~ 1.2VDC Open or 3 ~ 12VDC	
	Remote off input current	Input current of Ctrl pin 24Vin(nom) 48Vin(nom)	-0.5	10 5	0.5	mA 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	Min. Load to Full Load		3.3Vout	-2.0		+2.0 %
			Others	-1.5		+1.5 %
Cross regulation	Asymmetrical load 25%/100% FL		Dual	-5.0		+5.0 %
Voltage adjustability	Single output		28Vout	-3		+17 %
			Others	-10		+10 %
Ripple and noise	Measured by 20MHz bandwidth	Single	3.3Vout, 5Vout, 12Vout, 15Vout		50	mVp-p
			24Vout, 28Vout		75	
		Dual	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 Iout rated				150	%
Short circuit protection				Continuous, automatic recovery		

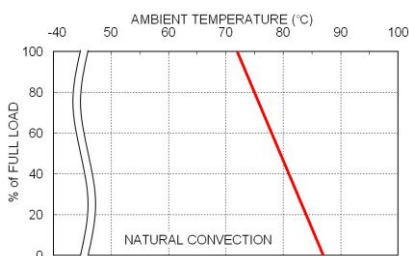
GENERAL SPECIFICATIONS						
Parameter	Conditions			Min.	Typ.	Max. Unit
Isolation voltage	1 minute	Input to Output		1600		VDC
		Input (Output) to Chassis		1600		
Isolation resistance	500VDC			1		GΩ
Isolation capacitance						4500 pF
Switching frequency				270	300	330 kHz
Safety meets				IEC/ EN/ UL62368-1		
Chassis material				Aluminum		
Weight				182g (6.40oz)		
MTBF	MIL-HDBK-217F, Full load			7.632 x 10 <sup>5</sup> hrs		

ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions			Min.	Typ.	Max. Unit
Operating ambient temperature			Without derating	-40		+63 °C
			With derating	+63		+95 °C
Storage temperature range				-40		+105 °C
Thermal shock				MIL-STD-810F		
Vibration				IEC60068-2-6		
Relative humidity				5% to 95% RH		

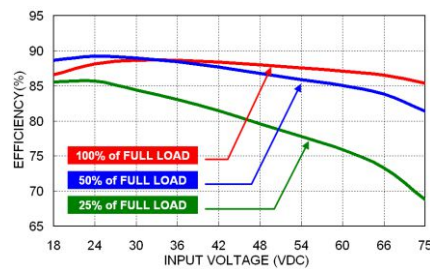
## EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032	Class B
EMS	EN55035	
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

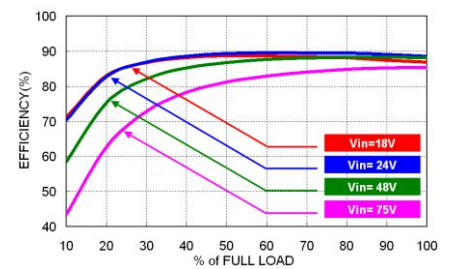
## CHARACTERISTIC CURVE



DFEC40-48S05W Derating Curve

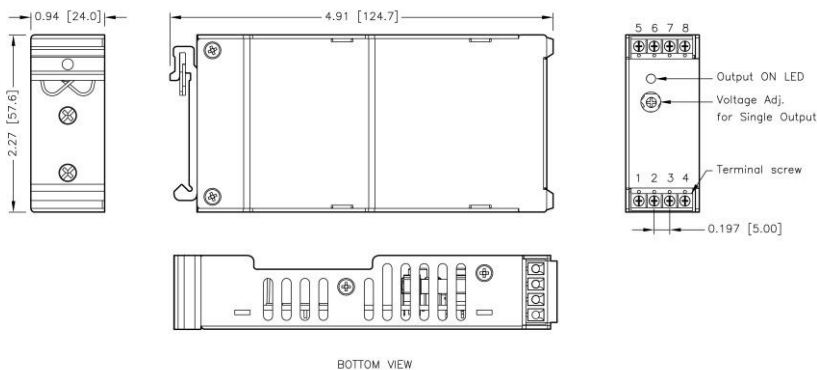


DFEC40-48S05W Efficiency vs. Input Voltage



DFEC40-48S05W Efficiency vs. Output Load

## MECHANICAL DRAWING



## TERMINAL CONNECTION

NO.	SINGLE	DUAL
1	Ctrl	Ctrl
2	-Vin	-Vin
3	-Vin	-Vin
4	+Vin	+Vin
5	NC	NC
6	-Vout	-Vout
7	+Vout	Common
8	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. Clamp screw locked torque:  
MAX 5.0kgf-cm/0.49N-m
4. Terminal screw locked torque:  
MAX 2.5kgf-cm/0.25N-m