



# P-DUKE POWER

## DFEC30 Series

Din Rail DC-DC Converter  
Up to 30 Watts

**3**  
YEARS  
WARRANTY

ROHS  
COMPLIANT

REACH  
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway

CE CB

**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

DFEC30 -	<b>48</b>	<b>S</b>	<b>05</b>
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)
	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
		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
	VDC	VDC	A	mA	%	μF
DFEC30-12S3P3	9.5 ~ 18	3.3	6	119	83	19500
DFEC30-12S05	9.5 ~ 18	5	6	100	85	10200
DFEC30-12S12	9.5 ~ 18	12	2.5	178	86	3240
DFEC30-12S15	9.5 ~ 18	15	2	220	86	1100
DFEC30-12S24	9.5 ~ 18	24	1.25	74	85	510
DFEC30-12S28	9.5 ~ 18	28	1	56	85	340
DFEC30-12D12	9.5 ~ 18	±12	±1.25	68	85	±1020
DFEC30-12D15	9.5 ~ 18	±15	±1	50	85	±675
DFEC30-24S3P3	18 ~ 36	3.3	6	52	85	19500
DFEC30-24S05	18 ~ 36	5	6	52	86	10200
DFEC30-24S12	18 ~ 36	12	2.5	84	87	3300
DFEC30-24S15	18 ~ 36	15	2	95	87	1100
DFEC30-24S24	18 ~ 36	24	1.25	38	86	510
DFEC30-24S28	18 ~ 36	28	1	39	86	340
DFEC30-24D12	18 ~ 36	±12	±1.25	34	86	±1020
DFEC30-24D15	18 ~ 36	±15	±1	35	86	±675
DFEC30-48S3P3	36 ~ 75	3.3	6	32	85	19500
DFEC30-48S05	36 ~ 75	5	6	37	88	10200
DFEC30-48S12	36 ~ 75	12	2.5	38	88	3300
DFEC30-48S15	36 ~ 75	15	2	58	88	1100
DFEC30-48S24	36 ~ 75	24	1.25	29	86	510
DFEC30-48S28	36 ~ 75	28	1	29	86	340
DFEC30-48D12	36 ~ 75	±12	±1.25	23	86	±1020
DFEC30-48D15	36 ~ 75	±15	±1	23	86	±675

**INPUT SPECIFICATIONS**

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	12Vin(nom)	9.5	12	18	VDC
	24Vin(nom)	18	24	36	
	48Vin(nom)	36	48	75	
Input fuse	slow blow		6		A
	12Vin(nom)		6		
	24Vin(nom)		4		
In-rush current			15		A
Start up voltage	12Vin(nom)			9.5	VDC
	24Vin(nom)			18	
	48Vin(nom)			36	
Shutdown voltage	12Vin(nom)	7.5	8	9	VDC
	24Vin(nom)	15.5	16	17.5	
	48Vin(nom)	32.5	33	35.5	
Start up time	Constant resistive load		100		ms
Input surge voltage	100ms, max.			36	VDC
	12Vin(nom)			50	
	24Vin(nom)			100	
Remote ON/OFF	Referred to -Vin pin	Positive logic	DC-DC ON	Open or 3 ~ 12VDC	
			DC-DC OFF	Short or 0 ~ 1.2VDC	
		Input current of Ctrl pin		-0.5	0.5
		Remote off input current		2.5	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		-0.5		+0.5	%
Load regulation	No Load to Full Load		-2.0 -1.0		+2.0 +1.0	%
Cross regulation	Asymmetrical load 25%/100% FL		-5.0		+5.0	%
Voltage adjustability	Single output		-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			

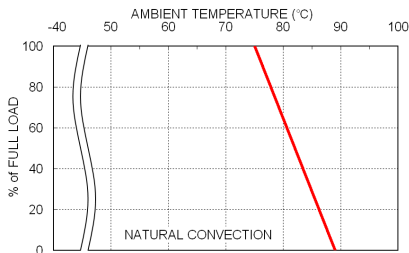
GENERAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output Input (Output) to Chassis	1600 1600			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					4000	pF
Switching frequency			270	300	330	kHz
Safety approvals	IEC/ UL/ EN60950-1				UL:E193009 CB:UL(Demko)	
Chassis material					Aluminum	
Weight					170g (5.98oz)	
MTBF	MIL-HDBK-217F, Full load				9.229 x 10 <sup>5</sup>	hrs

ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating With derating	-40 +68		+68 +95	°C
Storage temperature range			-40		+105	°C
Thermal shock					MIL-STD-810F	
Vibration					IEC60068-2-6	
Relative humidity					5% to 95% RH	

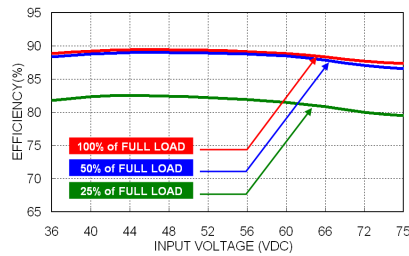
## EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032	Class B
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

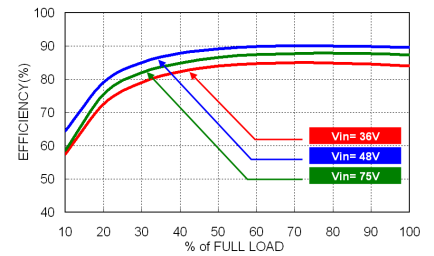
## CHARACTERISTIC CURVE



DFEC30-48S05 Derating Curve

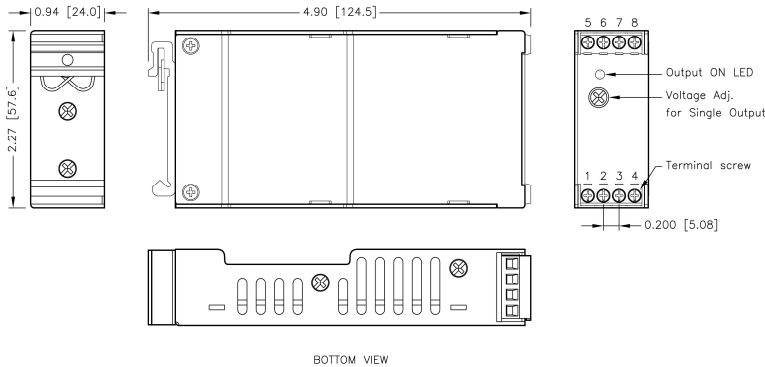


DFEC30-48S05 Efficiency vs. Input Voltage



DFEC30-48S05 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