



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 -	48	S	05
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	12Vin(nom)		6		A
		24Vin(nom)		6		
		48Vin(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	Power up		100		ms
		Remote ON/OFF		25		
Input surge voltage	100ms, max.	12Vin(nom)			36	VDC
		24Vin(nom)			50	
		48Vin(nom)			100	
Remote ON/OFF	Referred to –Vin pin	Positive logic			Open or 3 ~ 12VDC	mA
		DC-DC ON			Short or 0 ~ 1.2VDC	
		DC-DC OFF				
		Input current of Ctrl pin	-0.5		0.5	mA
		Remote off input current		2.5		

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		50 75 100		mVp-p
		Dual		100		
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		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					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 ⁵ hrs	

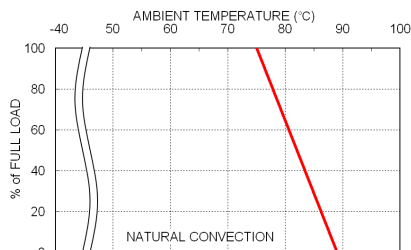
ENVIRONMENTAL SPECIFICATIONS

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

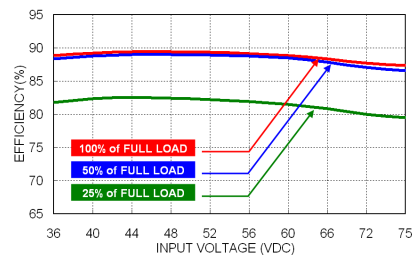
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032	Class B
ESD	EN61000-4-2 Air $\pm 8\text{kV}$ and Contact $\pm 6\text{kV}$	Perf. Criteria A
Radiated immunity	EN61000-4-3 10V/m	Perf. Criteria A
Fast transient	EN61000-4-4 $\pm 2\text{kV}$	Perf. Criteria A
Surge	EN61000-4-5 $\pm 1\text{kV}$	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

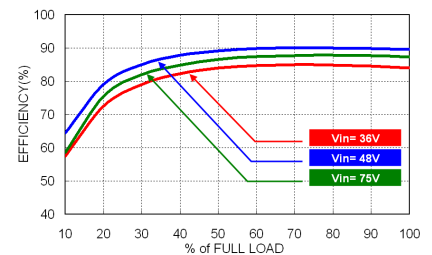
CHARACTERISTIC CURVE



DFEC30-48S05 Derating Curve

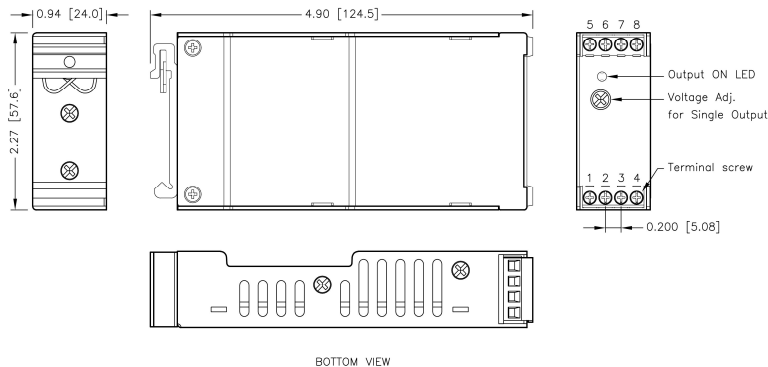


DFEC30-48S05 Efficiency vs. Input Voltage



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

- All dimensions in Inch [mm]
- Tolerance : X.XX $\pm$ 0.02 [X.X $\pm$ 0.5]
X.XXX $\pm$ 0.01 [X.XX $\pm$ 0.25]
- Clamp screw locked torque:
MAX 5.0kgf-cm/0.49N-m
- Terminal screw locked torque:
MAX 2.5kgf-cm/0.25N-m