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

CB CE UKCA

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	**S:**Single	**3P3:**3.3
	24:18~36		**05:**5
	48:36~75		**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℃ 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	8	9	VDC
		24Vin(nom)	15	16	17.5	
		48Vin(nom)	32.5	34.5	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 DC-DC ON		Open or 3 ~ 12VDC		
		DC-DC OFF		Short or 0 ~ 1.2VDC		
		Input current of Ctrl pin	-0.5		0.5	mA
		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		3.3Vout Others	-2.0 -1.0		+2.0 +1.0	%
Cross regulation	Asymmetrical load 25%/100% FL		Dual	-5.0		+5.0	%
Voltage adjustability	Single output		28Vout Others	-3 -10		+17 +10	%
Ripple and noise	Measured by 20MHz bandwidth	Single	3.3Vout, 5Vout 12Vout, 15Vout 24Vout, 28Vout		50 75 100		mVp-p
		Dual	All		100		
Temperature coefficient				-0.02		+0.02	%/℃
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, automatics 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/ EN/ UL62368-1				UL:E193009 CB:UL(Demko)	
Chassis material						Aluminum
Weight						170g (5.98oz)
MTBF	MIL-HDBK-217F, Full load					9.229 x 10^5 hrs

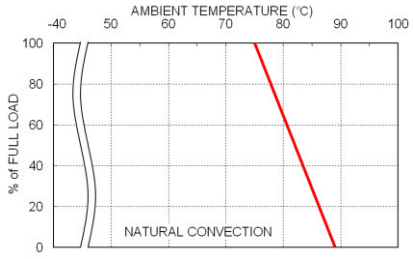
ENVIRONMENTAL SPECIFICATIONS

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

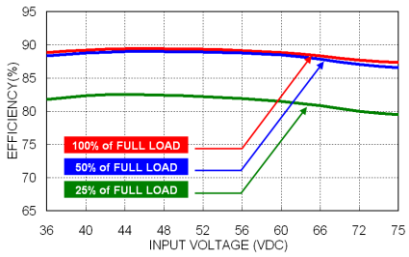
EMC SPECIFICATIONS

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

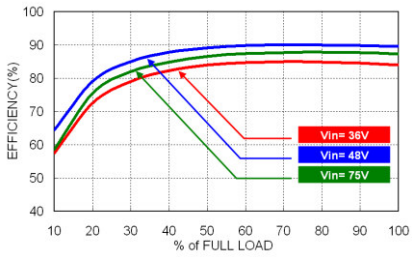
CHARACTERISTIC CURVE



DFEC30-48S05 Derating Curve

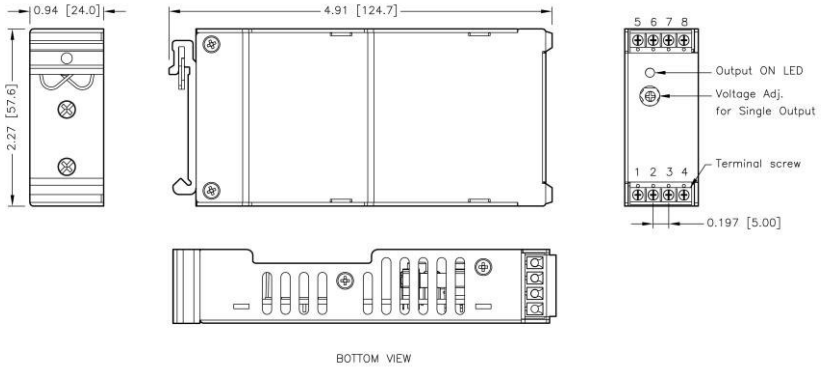


DFEC30-48S05 Efficiency vs. Input Voltage



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

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