FEC30W SERIES

DC / DC Single & Dual Output: 30 Watts

HELIOS POWER SOLUTIONS
www.heliosps.com.au

Features

- 4:1 wide Input range option 10~40V & 18~75V
- Single & Dual outputs
- Industry Standard 2 x 1.6in package
- High efficiency up to 82%
- Regulated output & Short circuit protection
- 1600V isolation
- Five sided continuous copper shield
- Remote ON / OFF- Standard Positive Logic
- Remote ON / OFF- Negative Logic - Option
- High operating temperature +85ºC
- Fixed switching frequency
- Optional heat sink: P/N: 7G-0011C-F

Specifications:

Input Voltage	24VDC (10 ~ 40) 48VDC (18 ~ 75)
Input Filter	L-C type
Input Surge Voltage. (100mS)	24V: 50VDC. 48V: 100VDC
Input Reflected Ripple Current	20mA pk-pk @ nominal input & 100% load
Start Up time	10mS constant resistive load
Remote ON/OFF (Positive logic – Standard)	DC-DC ON Open or 3.0V < Vr < 12V DC-DC OFF Short or 0V < Vr < 1.2V
(Negative logic – Option)	DC-DC ON Short or 0V < Vr < 1.2V DC-DC OFF Open or 3.0V < Vr < 12V Input current of remote control pin: .5mA Remote off state input current: 3mA
Output power	30 watts
Voltage Accuracy	±1.0%
Minimum Load	Zero load
Voltage Trim	±10% (Single & Dual)
Line Regulation	Single ±0.5% Dual ±0.5%
Load Regulation	Single ±0.5% , Dual ±1% (Min load -100% load)
Cross Regulation	±5% Asymmetrical load: 25-100% load)
Ripple & noise	See table. 20MHZ bandwidth
Temp. Coefficient	±0.02% / ºC
Transient Response	250uS (25% load step change)
Over Voltage Protection	1.5V ~ 3.3V: 3.9V: 5.0V: 6.2V 12V: 15V 15V: 18V
Overload Protection	Typically 150% of load
Short Circuit protection	Continuous hicc-up mode

Efficiency	Model dependant 80 ~ 88%
Isolation	1600VDC
Isolation Cap.	1000pF
Switching Freq.	300KHz
Safety	EN60950-1, UL60950-1
Case Material	Nickel-coated copper
Base Material	Non-conductive black plastic
Potting	Epoxy UL94-V0
Dimensions	50.8 x 40.6 x 10.2mm
Weight	48g
MTBF	1.315 x 10_6 Hrs
Operating Temp	-40ºC to +85ºC (with derating)
Case Temp	+100ºC maximum case temperature
Thermal Impedance	10ºC / watt Standard convection 8.24ºC / watt with optional heatsink
Thermal shock	MIL-STD-810F
Vibration	10-55Hz, 10G, 30min along X, Y,Z
Humidity	5-95% RH
EMC	EN55022 Class A Consult office for Class B design
ESD	EN61000-4-2
Radiated Immunity	EN61000-4-3
Fast Transients	EN61000-4-4
Surge	EN61000-4-5
Conducted Immunity	EN61000-4-6

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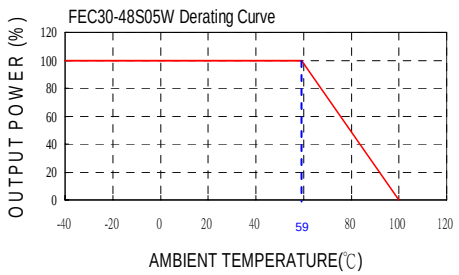
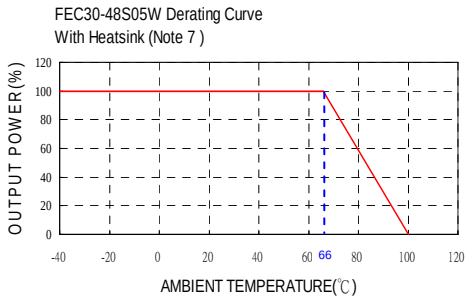
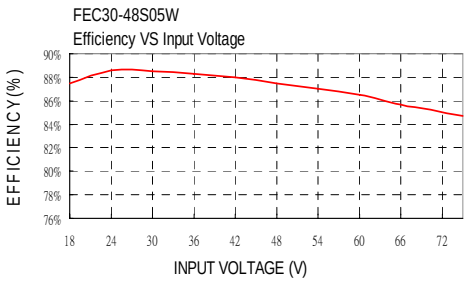
Model	Input V	Output V	Output Current		Output Ripple & Noise	Input Current		Eff (%)	Capacitor Load max
			Min. load	Full load		No load	Full load		
FEC30-24S1P5W	10 – 40 V	1.5 V	0mA	8000mA	60mVp-p	35mA	658mA	80	65000uF
FEC30-24S1P8W	10 – 40 V	1.8 V	0mA	8000mA	60mVp-p	35mA	759mA	83	65000uF
FEC30-24S2P5W	10 – 40 V	2.5 V	0mA	8000mA	60mVp-p	40mA	1029mA	85	33000uF
FEC30-24S3P3W	10 – 40 V	3.3 V	0mA	6000mA	60mVp-p	50mA	994mA	87	19500uF
FEC30-24S05W	10 – 40 V	5 V	0mA	6000mA	75mVp-p	65mA	1506mA	87	10200uF
FEC30-24S12W	10 – 40 V	12 V	0mA	2500mA	100mVp-p	65mA	1506mA	87	3300uF
FEC30-24S15W	10 – 40 V	15 V	0mA	2000mA	100mVp-p	70mA	1488mA	88	1100uF
FEC30-24D12W	10 – 40 V	±12V	0mA	±1250mA	100mVp-p	30mA	1563mA	84	±1000uF
FEC30-24D15W	10 – 40 V	±15V	0mA	±1000mA	100mVp-p	35mA	1543mA	85	±680uF
FEC30-48S1P5W	18 – 75 V	1.5 V	0mA	8000mA	60mVp-p	20mA	329mA	80	65000uF
FEC30-48S1P8W	18 – 75 V	1.8 V	0mA	8000mA	60mVp-p	20mA	380mA	83	65000uF
FEC30-48S2P5W	18 – 75 V	2.5 V	0mA	8000mA	60mVp-p	25mA	508mA	86	33000uF
FEC30-48S3P3W	18 – 75 V	3.3 V	0mA	6000mA	60mVp-p	30mA	497mA	87	19500uF
FEC30-48S05W	18 – 75 V	5 V	0mA	6000mA	75mVp-p	30mA	744mA	88	10200uF
FEC30-48S12W	18 – 75 V	12 V	0mA	2500mA	100mVp-p	35mA	753mA	87	3300uF
FEC30-48S15W	18 – 75 V	15 V	0mA	2000mA	100mVp-p	45mA	744mA	88	1100uF
FEC30-48D12W	18 – 75 V	±12V	0mA	±1250mA	100mVp-p	25mA	772mA	85	±1000uF
FEC30-48D15W	18 – 75 V	±15V	0mA	±1000mA	100mVp-p	25mA	762mA	86	±680uF

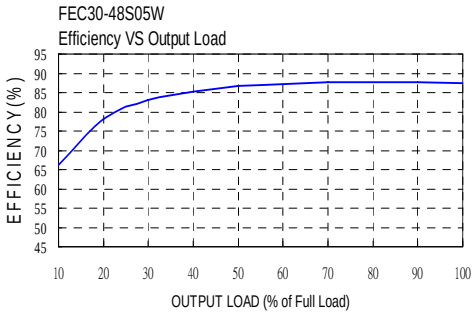
Notes:

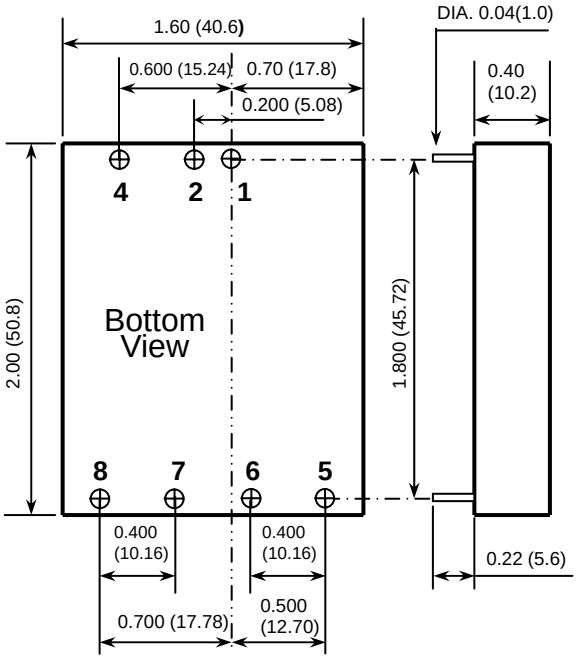
1. MTBF as per BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40ºC. (Ground fixed and controlled environment).
2. Typical values at nominal input voltage and full resistive load.
3. Test by minimum Vin and constant resistive load.
4. The ON/OFF control pin voltage is referenced to -Vin.
   To order negative logic ON-OFF control add the suffix-N (eg: FEC30-24S05W-N).
5. Heat sink is optional and P/N: 7G-0011C-F
6. The FEC30W series can meet EN55022 Class A with parallel an external capacitor to the input pins.
   Recommend: 24Vin : 6.8μF/50V 1812 MLCC , 48Vin : 2.2μF/100V*2 PCS 1812 MLCC.
7. An external filter capacitor is required if the module has to meet EN61000-4-5.
   Filter capacitor recommended: Nippon chemi-con KY series, 220μF/100V, ESR 48mΩ.



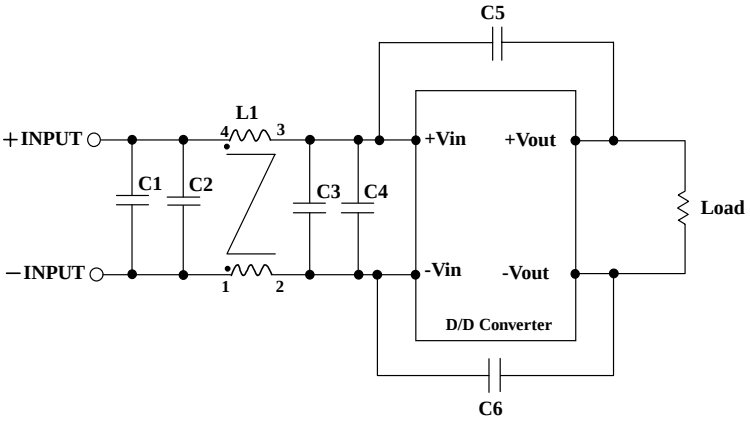








1. All dimensions in Inches (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01(0.25)
3. Pin dimension tolerance ±0.004 (0.1)



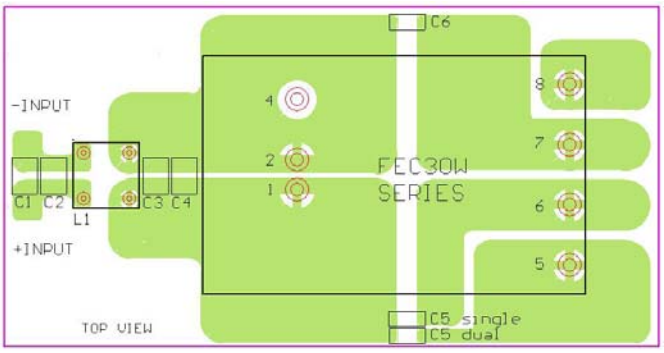
Recommended Filter for EN55022 Class B Compliance

The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

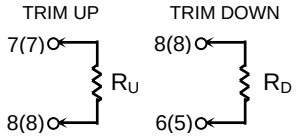
	C1	C2	C3	C4	C5 & C6	L1
FEC30-24xxxW	6.8uF/50V 1812 MLCC	N/A	6.8uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	450uH Common Choke PMT-048
FEC30-48xxxW	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	1000pF/2KV MLCC	450uH Common Choke PMT-048

Pin Assignment

PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
4	CTRL	CTRL
5	NO PIN	+ OUTPUT
6	+ OUTPUT	COMMON
7	- OUTPUT	- OUTPUT
8	TRIM	TRIM



Recommended EN55022 Class B Filter Circuit Layout

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.
( ) FOR DUAL OUTPUR TRIM