

FEC30 SERIES

DC / DC Single & Dual Output: 30 Watts



Features

- 2:1 wide Input range option 12V, 24V & 48VDC
- 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
- High operating temperature +85°C
- Fixed switching frequency
- Zero load operation
- Optional heat sink: P/N: 7G-0011C-F

Specifications:

Input Voltage	12VDC (9 ~ 18) 24VDC (18 ~ 36) 48VDC (36~ 75)
Input Filter	L-C type
Input Surge Voltage. (100mS)	12V: 36VDC, 24V: 50VDC. 48V: 100VDC
Input Reflected Ripple Current	30mA pk-pk (@ nominal input & 100% load
Start Up time	25mS constant resistive load
Remote ON/OFF (Positive logic)	DC-DC ON Open or $3.5V < V_r < 12V$ DC-DC OFF Short or $0V < V_r < 1.2V$ Input current of remote control pin: 0.5mA Remote off state input current: 2.5mA
Output power	30 watts
Voltage Accuracy	±1.0%
Voltage Trim	±10% via external resistor network
Minimum Load	Zero load
Line Regulation	Single ±0.2% 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% / °C
Transient Response	300uS (25% load step change)
Over Voltage Protection	1.5 ~ 3.3V: 3.9V 5.0V: 6.2V 12V: 15V 15V: 18V
Overload Protection	Typically 150% of load
Short Circuit protection	Continuous hiccup mode

Efficiency	Model dependant 78 ~ 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	1.535 x 10 ⁶ Hrs
Operating Temp	Standard: -45°C to +85°C (with derating)
Case Temp	+100°C maximum case temperature
Thermal Impedance	10°C / watt Standard convection 8.24°C / 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

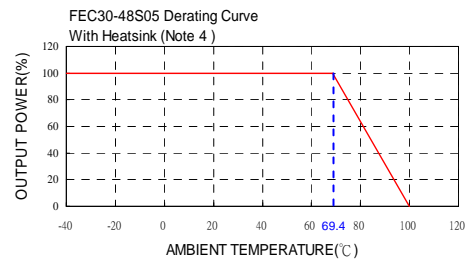
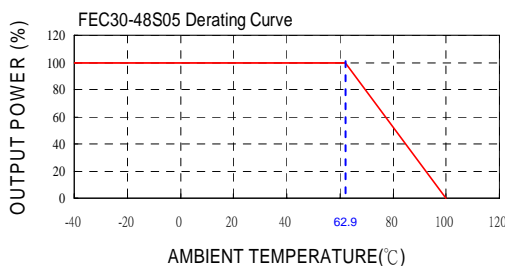
FEC30 SERIES

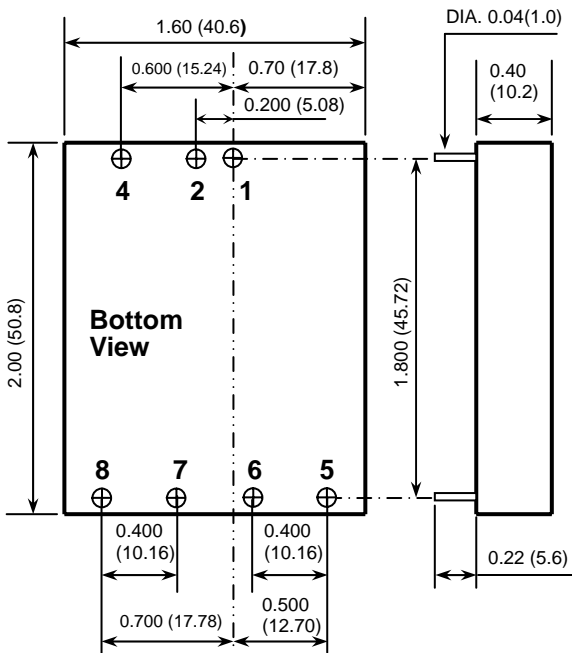
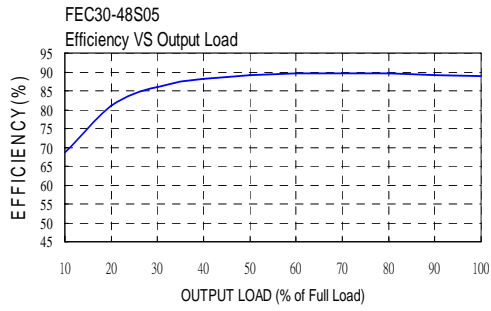
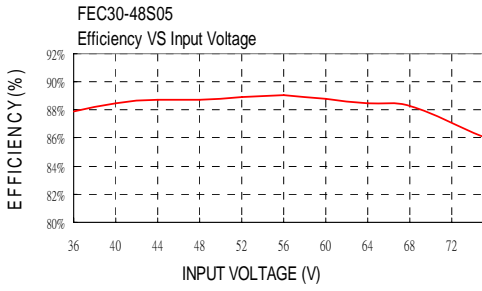
DC / DC Single & Dual Output: 30 Watts

Model V	Input V	Output V	Output Current		Output Ripple & Noise	Input Current		Eff (%)	Capacitor Load max
			Min. load	Full load		No load	Full load		
FEC30-12S1P5	9 – 18 V	1.5 V	0mA	6000mA	50mVp-p	100mA	1014mA	78	85800uF
FEC30-12S1P8	9 – 18 V	1.8 V	0mA	6000mA	50mVp-p	100mA	1169mA	81	65000uF
FEC30-12S2P5	9 – 18 V	2.5 V	0mA	6000mA	50mVp-p	110mA	1582mA	83	33000uF
FEC30-12S3P3	9 – 18 V	3.3 V	0mA	6000mA	50mVp-p	115mA	2037mA	85	19500uF
FEC30-12S05	9 – 18 V	5 V	0mA	6000mA	50mVp-p	95mA	3012mA	87	10200uF
FEC30-12S12	9 – 18 V	12 V	0mA	2500mA	75mVp-p	170mA	2976mA	88	3240uF
FEC30-12S15	9 – 18 V	15 V	0mA	2000mA	75mVp-p	210mA	2976mA	88	1100uF
FEC30-12D12	9 – 18 V	±12 V	0mA	±1250mA	100mVp-p	60mA	3012mA	87	±1020uF
FEC30-12D15	9 – 18 V	±15 V	0mA	±1000mA	100mVp-p	40mA	3012mA	87	±675uF
FEC30- 24S1P5	18 – 36 V	1.5 V	0mA	6000mA	50mVp-p	50mA	493mA	80	85800uF
FEC30- 24S1P8	18 – 36 V	1.8 V	0mA	6000mA	50mVp-p	35mA	580mA	82	65000uF
FEC30- 24S2P5	18 – 36 V	2.5 V	0mA	6000mA	50mVp-p	45mA	780mA	84	33000uF
FEC30- 24S3P3	18 – 36 V	3.3 V	0mA	6000mA	50mVp-p	50mA	1010mA	86	19500uF
FEC30- 24S05	18 – 36 V	5 V	0mA	6000mA	50mVp-p	50mA	1490mA	88	10200uF
FEC30- 24S12	18 – 36 V	12 V	0mA	2500mA	75mVp-p	80mA	1470mA	89	3300uF
FEC30- 24S15	18 – 36 V	15 V	0mA	2000mA	75mVp-p	90mA	1470mA	89	1100uF
FEC30- 24D12	18 – 36 V	±12 V	0mA	±1250mA	100mVp-p	30mA	1488mA	88	±1020uF
FEC30-24D15	18 – 36 V	±15 V	0mA	±1000mA	100mVp-p	30mA	1488mA	88	±675uF
FEC30- 48S1P5	36 – 75 V	1.5 V	0mA	6000mA	50mVp-p	20mA	244mA	81	85800uF
FEC30- 48S1P8	36 – 75 V	1.8 V	0mA	6000mA	50mVp-p	20mA	290mA	83	65000uF
FEC30- 48S2P5	36 – 75 V	2.5 V	0mA	6000mA	50mVp-p	25mA	390mA	85	33000uF
FEC30- 48S3P3	36 – 75 V	3.3 V	0mA	6000mA	50mVp-p	30mA	500mA	87	19500uF
FEC30- 48S05	36 – 75 V	5 V	0mA	6000mA	50mVp-p	35mA	740mA	89	10200uF
FEC30- 48S12	36 – 75 V	12 V	0mA	2500mA	75mVp-p	35mA	730mA	90	3300uF
FEC30- 48S15	36 – 75 V	15 V	0mA	2000mA	75mVp-p	55mA	730mA	90	1100uF
FEC30- 48D12	36 – 75 V	±12 V	0mA	±1250mA	100mVp-p	20mA	744mA	88	±1020uF
FEC30- 48D15	36 – 75 V	±15 V	0mA	±1000mA	100mVp-p	20mA	744mA	88	±675uF

Notes:

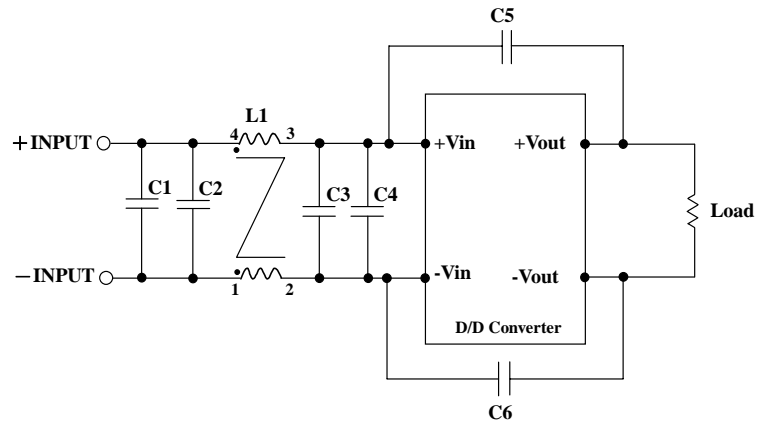
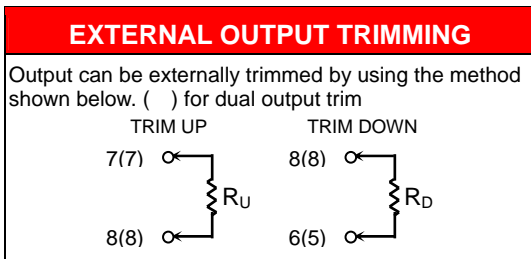
1. MTBF as per BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
2. Typical values at nominal input voltage and full resistive load.
3. The ON/OFF control pin voltage is referenced to -Vin.
4. Heat sink is optional and P/N: 7G-0011C-F
5. The FEC30 series can meet EN55022 Class A with parallel an external capacitor to the input pins.
Recommend: 12Vin : 6.8µF/50V 1812 MLCC .24Vin : 6.8µF/50V 1812 MLCC , 48Vin : 2.2µF/100V 1812 MLCC.
6. 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.





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

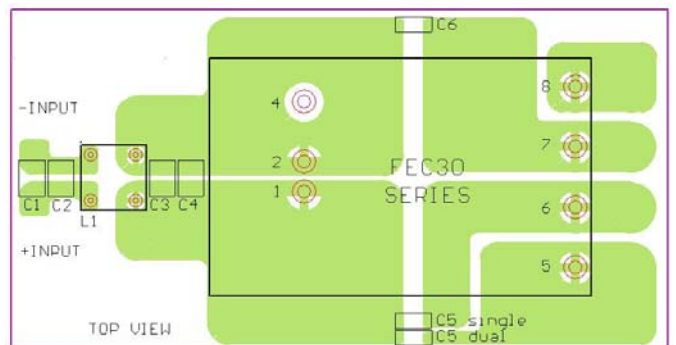
Pin Assignment		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
4	CTRL	CTRL
5	NO PIN	+ OUTPUT
6	+ OUTPUT	COMMON
7	- OUTPUT	- OUTPUT
8	TRIM	TRIM



Recommended 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
FEC30-12xxx	4.7uF/50V 1812 MLCC	N/A	4.7uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	450uH Common Choke PMT-048
FEC30-24xxx	6.8uF/50V 1812 MLCC	N/A	6.8uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	450uH Common Choke PMT-048
FEC30-48xxx	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



Recommended EN55022 Class B Filter Circuit Layout