




- 30 WATTS MAXIMUM OUTPUT POWER
- 2:1 WIDE INPUT VOLTAGE RANGE
- INTERNATIONAL SAFETY STANDARD APPROVAL
- SIX-SIDED CONTINUOUS SHIELD
- HIGH EFFICIENCY UP TO 90%
- STANDARD 2" x 1.6" x 0.4" PACKAGE
- FIXED SWITCHING FREQUENCY
- OFFER 1.8V, 2.5V, 3.3V, 5V, 12V, 15VDC OUTPUT

The FEC30 offer 30 Watts of output power from a 2 x 1.6 x 0.4 inch package. The FEC30 series with 2:1 wide input voltage of 18-36VDC and 36-75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection, as well as six sided shielding. A safety approval to EN60950 and UL1950. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications.


**UL E193009**  
**TUV R50009835**  
**CB JPTUV-003843**  
**CE MARK**

## TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS			
Output power			30 Watts max
Voltage accuracy	Full load and nominal Vin		± 1%
Voltage adjustability			± 10%
Minimum load			0%
Line regulation	LL to HL at Full Load		± 0.2%
Load regulation	10% to 100% FL		± 0.5%
Ripple and noise	20MHz bandwidth	12V / 15V	75mVp-p
	(Measured with a 104pF/50V MLCC)	Others	50mVp-p
Temperature coefficient			±0.02% / °C, max
Transient response recovery time	25% load step change		300uS
Over voltage protection Zener diode clamp	1.8V output		3.9V
	2.5V output		3.9V
	3.3V output		3.9V
	5V output		6.2V
	12V output		15V
	15V output		18V
Over load protection	% of FL at nominal input		150% typ
Short circuit protection			Hiccup, automatics recovery
INPUT SPECIFICATIONS			
Input voltage range	24V nominal input		18 – 36VDC
	48V nominal input		36 – 75VDC
Under voltage lockout	24V input	DC-DC ON	17.8VDC
		DC-DC OFF	16VDC
	48V input	DC-DC ON	36VDC
		DC-DC OFF	33VDC
Input filter (Note 1)			L-C type
Input voltage variation	dv/dt		5V/ms,max (Complies with ETS300 132 part 4.4)
Input surge voltage 100mS max	24V input		50VDC
	48V input		100VDC
Input reflected ripple (Note 2)	Nominal Vin and full load		30mA <sub>p-p</sub>
Start up time	Nominal Vin and constant resistor load		25mS typ
Remote ON/OFF (Note 3) (Positive logic)	DC-DC ON	Open or 3.5V < Vr < 12V	
	DC-DC OFF	Short or 0V < Vr < 1.2V	
Remote off input current	Nominal Vin		2.5mA

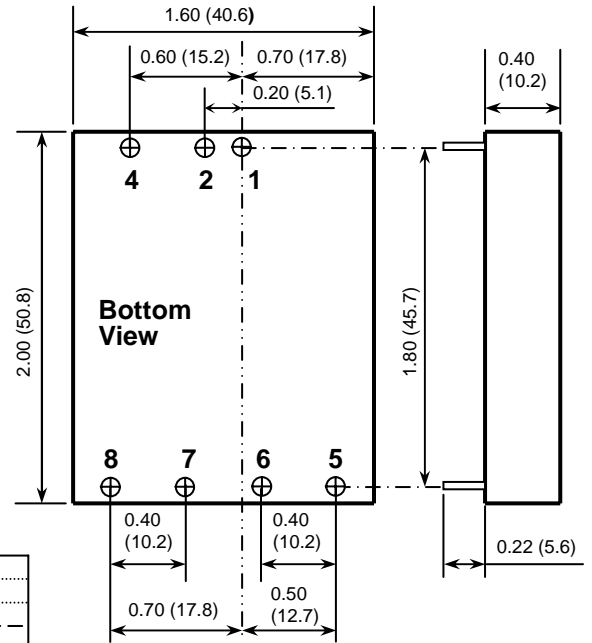
GENERAL SPECIFICATIONS		
Efficiency	See table	
Isolation voltage	1600VDC, min	
Isolation resistance	10 <sup>9</sup> ohms, min	
Isolation capacitance	1000pF, max	
Switching frequency	300KHz, typ	
Approvals and standard	IEC60950, UL1950, EN60950	
Case material	Nickel-coated copper	
Base material	Non-conductive black plastic	
Potting material	Epoxy (UL94-V0)	
Dimensions	2.00 X 1.60 X 0.40 Inch (50.8 X 40.6 X 10.2 mm)	
Weight	48g (1.69oz)	
MTBF (Note 4)	1.535 x 10 <sup>6</sup> hrs	
ENVIRONMENTAL SPECIFICATIONS		
Operating temperature range	-40°C ~ +85°C (with derating)	
Maximum case temperature	100°C	
Storage temperature range	-55°C ~ +105°C	
Over temperature protection	115°C, typ	
Thermal impedance (Note 5)	Nature convection	10°C/Watt
	Nature convection with heat-sink	8.24°C/Watt
Thermal shock	MIL-STD-810D	
Vibration	10~55Hz, 2G, 30minutes along X,Y and Z	
Relative humidity	5% to 95% RH	
EMC CHARACTERISTICS		
Conducted emissions	EN55022	Level A
Radiated emissions	EN55022	Level A
ESD	EN61000-4-2	Perf. Criteria2
Radiated immunity	EN61000-4-3	Perf. Criteria2
Fast transient	EN61000-4-4	Perf. Criteria2
Surge	EN61000-4-5	Perf. Criteria2
Conducted immunity	EN61000-4-6	Perf. Criteria2



Model Number	Input Range	Output Voltage	Output Current	Input Current <sup>(6)</sup>	Eff <sup>(7)</sup> (%)	Capacitor <sup>(8)</sup> Load max
FEC30-24S1P8	18 – 36 VDC	1.8 VDC	6000mA	580mA	82	65000uF
FEC30-24S2P5	18 – 36 VDC	2.5 VDC	6000mA	780mA	84	33000uF
FEC30-24S3P3	18 – 36 VDC	3.3 VDC	6000mA	1010mA	86	19500uF
FEC30-24S05	18 – 36 VDC	5 VDC	6000mA	1490mA	88	10200uF
FEC30-24S12	18 – 36 VDC	12 VDC	2500mA	1470mA	89	3300uF
FEC30-24S15	18 – 36 VDC	15 VDC	2000mA	1470mA	89	1100uF
FEC30-48S1P8	36 – 75 VDC	1.8 VDC	6000mA	290mA	83	65000uF
FEC30-48S2P5	36 – 75 VDC	2.5 VDC	6000mA	390mA	85	33000uF
FEC30-48S3P3	36 – 75 VDC	3.3 VDC	6000mA	500mA	87	19500uF
FEC30-48S05	36 – 75 VDC	5 VDC	6000mA	740mA	89	10200uF
FEC30-48S12	36 – 75 VDC	12 VDC	2500mA	730mA	90	3300uF
FEC30-48S15	36 – 75 VDC	15 VDC	2000mA	730mA	90	1100uF

**Note**

1. An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V/24V models. Power mate suggest: Nippon chemi-con KMF series, 220µF/100V, ESR 90mΩ.
2. Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
3. The ON/OFF control pin voltage is referenced to negative input
4. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
5. Heat sink is optional and P/N: 7G-0011A.
6. Maximum value at nominal input voltage and full load.
7. Typical value at nominal input voltage and full load.
8. Test by minimum Vin and constant resistor load.



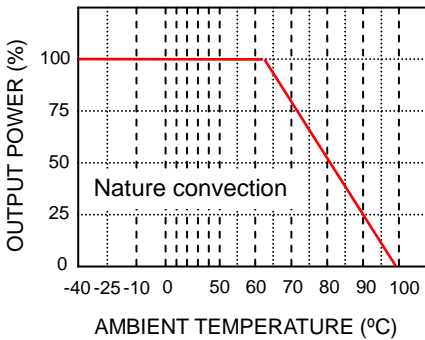
1. All dimensions in Inches (mm)
2. Pin pitch tolerance ±0.014(0.35)

PIN CONNECTION	
PIN	DEFINE
1	+ INPUT
2	- INPUT
4	CTRL
5	NO PIN
6	+ OUTPUT
7	- OUTPUT
8	TRIM

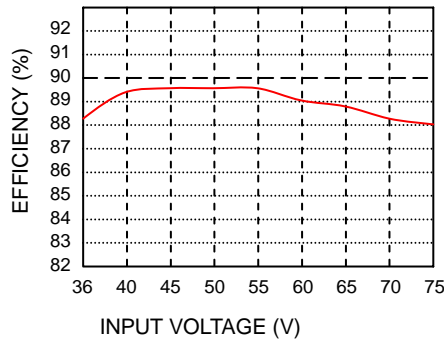
**EXTERNAL OUTPUT TRIMMING**

Output can be externally trimmed by using the method shown below.

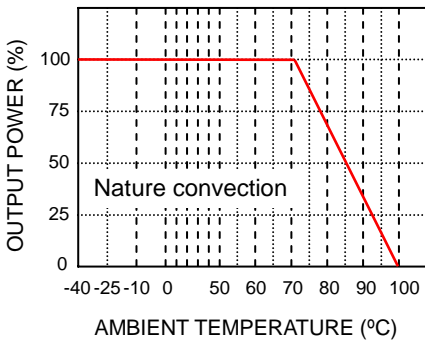
FEC30-48S05  
Derating Curve without Heat-Sink



FEC30-48S05  
Efficiency VS Input voltage



FEC30-48S05 (Note 5)  
Derating Curve with Heat-Sink



FEC30-48S05  
Efficiency VS Output load

