



- 12 WATTS OUTPUT POWER
- 2:1 WIDE INPUT VOLTAGE RANGE
- FIVE-SIDED CONTINUOUS SHIELD
- HIGH EFFICIENCY UP TO 88%
- STANDARD 24 PIN DIP PACKAGE
- I/O ISOLATION 1600 VDC



**UL  
TUV  
CB  
CE MARK  
(Pending)**

The FKC12 series offer 12 watts of output power from a package in an IC compatible 24pin DIP configuration. FKC12 series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. The FKC12 features 1600VDC of isolation, short circuit protection and as well as five sided shielding. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications.

## TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS			
Output power	12 Watts max		
Voltage accuracy	Full load and nominal Vin	±1.2%	
Minimum load (Note 1)	10% of FL		
Line regulation	LL to HL at Full Load	Single	± 0.2%
		Dual	± 0.5%
Load regulation	10% to 100% FL	Single	±1%
		Dual	± 1.2%
		(only 2.5Vo)	±1.5%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL		± 5%
Ripple and noise	20MHz bandwidth	85mVp-p	
Temperature coefficient	±0.02% / °C, max		
Transient response recovery time	25% load step change	250uS	
Over voltage protection	2.5V output	3.9V	
	3.3V output	3.9V	
	Zener diode clamp	5.1V output	6.2V
	(only single)	12V output	15V
		15V output	18V
Over load protection	% of FL at nominal input	150% typ	
Short circuit protection	Continuous, automatics recovery		
INPUT SPECIFICATIONS			
Input voltage range	12V nominal input	9 – 18VDC	
	24V nominal input	18 – 36VDC	
	48V nominal input	36 – 75VDC	
Under voltage lockout	12V input	DC-DC ON	9VDC
		DC-DC OFF	8VDC
	24V input	DC-DC ON	18VDC
		DC-DC OFF	16VDC
	48V input	DC-DC ON	36VDC
		DC-DC OFF	33VDC
Input filter	PI type		
Input voltage variation	dv/dt	5V/ms,max (Complies with ETS300 132 part 4.4)	
Input surge voltage	12V input	36VDC	
	24V input	50VDC	
	100mS max	48V input	100VDC
Input reflected ripple (Note 2)	Nominal Vin and full load	20mAp-p	
Start up time	Nominal Vin and constant resistive load	Power up Remote ON/OFF	450mS max 5mS max
Remote ON/OFF (Note3)	DC-DC ON DC-DC OFF	Open or 3.0V < Vr < 12V	
		Short or 0V < Vr < 1.2V	
Remote off input current	Nominal Vin	2.5mA	

GENERAL SPECIFICATIONS		
Efficiency	See table	
Isolation voltage	Input to Output	1600VDC, min
	Input(Output) to Case	1600VDC, min
Isolation resistance	10 <sup>9</sup> ohms, min	
Isolation capacitance	1200pF, max	
Switching frequency	400KHz, typ	
Design meet safety standard	IEC60950-1, UL60950-1, EN60950-1	
Case material	Nickel-coated copper	
Base material	Non-conductive black plastic	
Potting material	Epoxy (UL94-V0)	
Dimensions	1.25 X 0.80 X 0.40 Inch (31.8 X 20.3 X 10.2 mm)	
Weight	18g (0.62oz)	
MTBF (Note 4)	2.75x10 <sup>6</sup> hrs	
ENVIRONMENTAL SPECIFICATIONS		
Operating temperature range	-40°C to +85°C (with derating)	
Maximum case temperature	100°C	
Storage temperature range	-55°C to +105°C	
Thermal impedance	Nature convection	20°C/Watt
Thermal shock	MIL-STD-810D	
Vibration	10~55Hz, 10G, 30minutes along X,Y and Z	
Relative humidity	5% to 95% RH	
EMC CHARACTERISTICS		
Conducted emissions	EN55022	CLASS A
Radiated emissions	EN55022	CLASS A
ESD	EN61000-4-2	Perf. Criteria 2
Radiated immunity	EN61000-4-3	Perf. Criteria 2
Fast transient	EN61000-4-4	Perf. Criteria 2
Surge	EN61000-4-5	Perf. Criteria 2
Conducted immunity	EN61000-4-6	Perf. Criteria 2

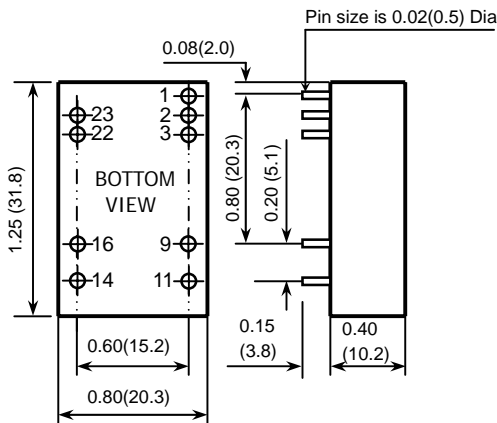
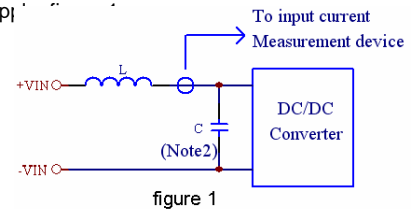


**12WATTS OUTPUT  
DC-DC CONVERTER**

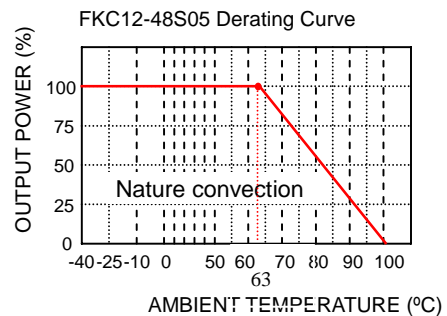
Model Number	Input Range	Output Voltage	Output Current	Input Current <sup>(5)</sup>	Eff <sup>(6)</sup> (%)	Capacitor <sup>(7)</sup> Load max
FKC12-12S2P5	9 – 18 VDC	2.5 VDC	3500mA	935mA	82	2000uF
FKC12-12S3P3	9 – 18 VDC	3.3 VDC	3500mA	1203mA	84	2000uF
FKC12-12S05	9 – 18 VDC	5.1 VDC	2400mA	1244mA	86	2000uF
FKC12-12S12	9 – 18 VDC	12 VDC	1000mA	1219mA	86	430uF
FKC12-12S15	9 – 18 VDC	15 VDC	800mA	1219mA	86	300uF
FKC12-12D05	9 – 18 VDC	± 5 VDC	± 1200mA	1282mA	82	± 1250uF
FKC12-12D12	9 – 18 VDC	± 12 VDC	± 500mA	1205mA	87	± 200uF
FKC12-12D15	9 – 18 VDC	± 15 VDC	± 400mA	1205mA	87	± 120uF
FKC12-24S2P5	18 – 36 VDC	2.5 VDC	3500mA	461mA	83	2000uF
FKC12-24S3P3	18 – 36 VDC	3.3 VDC	3500mA	594mA	85	2000uF
FKC12-24S05	18 – 36 VDC	5.1 VDC	2400mA	614mA	87	2000uF
FKC12-24S12	18 – 36 VDC	12 VDC	1000mA	602mA	87	430uF
FKC12-24S15	18 – 36 VDC	15 VDC	800mA	602mA	87	300uF
FKC12-24D05	18 – 36 VDC	± 5 VDC	± 1200mA	633mA	83	± 1250uF
FKC12-24D12	18 – 36 VDC	± 12 VDC	± 500mA	595mA	88	± 200uF
FKC12-24D15	18 – 36 VDC	± 15 VDC	± 400mA	595mA	88	± 120uF
FKC12-48S2P5	36 – 75 VDC	2.5 VDC	3500mA	231mA	83	2000uF
FKC12-48S3P3	36 – 75 VDC	3.3 VDC	3500mA	297mA	85	2000uF
FKC12-48S05	36 – 75 VDC	5.1 VDC	2400mA	307mA	87	2000uF
FKC12-48S12	36 – 75 VDC	12 VDC	1000mA	301mA	87	430uF
FKC12-48S15	36 – 75 VDC	15 VDC	800mA	301mA	87	300uF
FKC12-48D05	36 – 75 VDC	± 5 VDC	± 1200mA	316mA	83	± 1250uF
FKC12-48D12	36 – 75 VDC	± 12 VDC	± 500mA	297mA	88	± 200uF
FKC12-48D15	36 – 75 VDC	± 15 VDC	± 400mA	297mA	88	± 120uF

**NOTE:**

- The FKC12 series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- Please add an external filter at converter input terminals when measuring input reflected ripple.
  - L : Simulated source impedance of 12 uH C : Nippon chemi-con KMF series 47uF/100V
- The ON/OFF control pin voltage is referenced to negative input.
- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
- Maximum value at nominal input voltage and full load of standard type.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.



- All dimensions in inches(mm)
- Pin pitch tolerance ±0.014(0.35)



DIP PIN CONNECTION					
PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
1	CTRL	CTRL			
2	- INPUT	- INPUT	23	+ INPUT	+ INPUT
3	- INPUT	- INPUT	22	+ INPUT	+ INPUT
9	NC	COMMON	16	- OUTPUT	COMMON
11	NC	- OUTPUT	14	+ OUTPUT	+ OUTPUT