



FEATURES

- RAILWAY APPLICATION
- 4:1 ULTRA WIDE INPUT VOLTAGE RANGE :
9 ~ 36VDC, 18 ~ 75VDC AND 43 ~ 160VDC
- 8 WATTS OUTPUT POWER
- OUTPUT CURRENT UP TO 2.4A
- STANDARD 1.25 X 0.80 X 0.40 INCH AND 24 PIN DIP PACKAGE
- HIGH EFFICIENCY UP TO 88%
- FIVE-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY (300kHz)
- CE MARK MEETS 2006/95/EC, 2011/95/EC AND 2004/108/EC
- SAFETY MEETS UL60950-1, EN60950-1, IEC60950-1 AND EN50155
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU



APPLICATIONS

Railway System
Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

OPTIONS

SMD TYPE

DESCRIPTION

The FKC08W series offer 8 watts of output power from a package in an IC compatible 24pin DIP configuration. FKC08W series have 4:1 ultra wide input voltage of 9-36, 18-75VDC and 43-160VDC. The FKC08W have features 1600VDC of isolation, short circuit protection and as well as five sided shielding.

TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS			
Output power		8 Watts, max.	
Voltage accuracy		± 1%	
Minimum load		0%	
Line regulation	LL to HL at Full Load	± 0.2%	
Load regulation	No Load to Full Load	Single (DIP)	± 0.5%
		Single (SMD)	± 1%
		Dual (SMD,DIP)	± 1%
	10% Load to 90% Load	Single (DIP)	± 0.3%
		Single (SMD)	± 0.8%
		Dual (SMD,DIP)	± 0.8%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL		± 5%
Ripple and noise	20MHz bandwidth		See table
Temperature coefficient		±0.02% / °C, max.	
Transient response recovery time		25% load step change	250µs
Over voltage protection (only single)	3.3VDC output	3.9VDC	
	5.0VDC output	6.2VDC	
	12VDC output	15VDC	
	15VDC output	18VDC	
Over load protection	% of FL at nominal input		150%
Short circuit protection		Continuous, automatics recovery	
GENERAL SPECIFICATIONS			
Efficiency		See table	
Isolation voltage	Input to Output	1600VDC, min.	1minute
	Input(Output) to Case	DIP 1600VDC, min.	1minute
		SMD 1000VDC, min.	1minute
Isolation resistance	500VDC	10 ⁹ ohms, min.	
Isolation capacitance		1500pF, max.	
Switching frequency		300kHz±10%.	
Design meet safety standard		IEC60950-1, UL60950-1, EN60950-1, EN50155	
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 1)	MIL-HDBK-217F	2.832 x 10 ⁶ hrs	

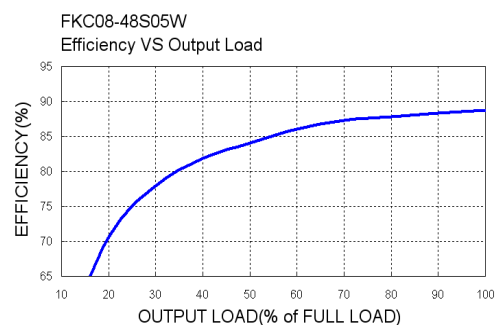
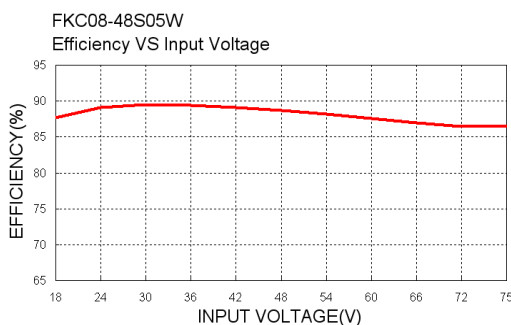
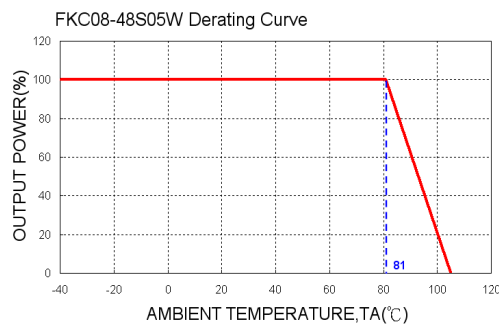
INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input	9 ~ 36VDC	
	48VDC nominal input	18 ~ 75VDC	
	110VDC nominal input	43 ~ 160VDC	
Input filter		Pi type	
Input surge voltage	24VDC input	50VDC 100ms, max.	
	48VDC input	100VDC 100ms, max.	
	110VDC input	170VDC 100ms, max.	
Input reflected ripple current		20mA _{p-p}	
Start up time	Nominal input and constant resistive load	Power up	450ms
Start-up voltage	24VDC input	9VDC	
	48VDC input	18VDC	
	110VDC input	43VDC	
Shutdown voltage	24VDC input	8VDC	
	48VDC input	16VDC	
	110VDC input	42VDC	
Remote ON/OFF (Note 5)			
	DC-DC ON	Open or 3.0V < Vr < 12V	
	DC-DC OFF	Short or 0V < Vr < 1.2V	
Input current of Remote control pin	Nominal input	-0.5mA ~ 0.5mA	
Remote off state input current	Nominal input	2.5mA	
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature (Note 6)	Vo:5V,12V,15V	-40°C ~ +78°C (without derating)	
	±12V,±15V	+78°C ~ +105°C (with derating)	
	Vo:3.3V;±5V	-40°C ~ +70°C (without derating)	
		+70°C ~ +105°C (with derating)	
Maximum case temperature		+105°C	
Storage temperature range		-55°C ~ +125°C	
Thermal impedance	Nature convection	20°C/Watt	
Thermal shock		EN61373, MIL-STD-810F	
Vibration		EN61373, MIL-STD-810F	
Relative humidity		5% to 95% RH	
EMC CHARACTERISTICS			
EMI (Note 7)	EN55022, EN55011	Class A, Class B	
ESD	EN61000-4-2	Air Contact	± 8kV ± 6kV Perf. Criteria A
Radiated immunity	EN61000-4-3	20 V/m	Perf. Criteria A
Fast transient (Note 8)	EN61000-4-4	± 2kV	Perf. Criteria A
Surge (Note 8)	EN61000-4-5	± 2kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Model Number	Input Range	Output Voltage	Output Current		Output ⁽⁴⁾ Ripple & Noise	No load ⁽²⁾ Input Current	Eff ⁽³⁾ (%)	Capacitor ⁽⁴⁾ Load max
			Min. Load	Max. Load				
FKC08-24S3P3W	9 ~ 36 VDC	3.3 VDC	0mA	2400mA	50mVp-p	40mA	85	1330μF
FKC08-24S05W	9 ~ 36 VDC	5 VDC	0mA	1600mA	50mVp-p	40mA	87	1330μF
FKC08-24S12W	9 ~ 36 VDC	12 VDC	0mA	666mA	50mVp-p	25mA	86	288μF
FKC08-24S15W	9 ~ 36 VDC	15 VDC	0mA	533mA	50mVp-p	25mA	86	200μF
FKC08-24D05W	9 ~ 36 VDC	± 5 VDC	0mA	± 800mA	50mVp-p	20mA	84	± 900μF
FKC08-24D12W	9 ~ 36 VDC	± 12 VDC	0mA	± 333mA	50mVp-p	25mA	86	± 133μF
FKC08-24D15W	9 ~ 36 VDC	± 15 VDC	0mA	± 267mA	50mVp-p	25mA	86	± 90μF
FKC08-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	2400mA	50mVp-p	20mA	85	1330μF
FKC08-48S05W	18 ~ 75 VDC	5 VDC	0mA	1600mA	50mVp-p	20mA	87	1330μF
FKC08-48S12W	18 ~ 75 VDC	12 VDC	0mA	666mA	50mVp-p	13mA	87	288μF
FKC08-48S15W	18 ~ 75 VDC	15 VDC	0mA	533mA	50mVp-p	13mA	88	200μF
FKC08-48D05W	18 ~ 75 VDC	± 5 VDC	0mA	± 800mA	50mVp-p	10mA	84	± 900μF
FKC08-48D12W	18 ~ 75 VDC	± 12 VDC	0mA	± 333mA	50mVp-p	13mA	87	± 133μF
FKC08-48D15W	18 ~ 75 VDC	± 15 VDC	0mA	± 267mA	50mVp-p	13mA	87	± 90μF
FKC08-110S3P3W	43 ~ 160 VDC	3.3 VDC	0mA	2400mA	75mVp-p	8mA	84	1330μF
FKC08-110S05W	43 ~ 160 VDC	5 VDC	0mA	1600mA	75mVp-p	8mA	85	1330μF
FKC08-110S12W	43 ~ 160 VDC	12 VDC	0mA	666mA	75mVp-p	4mA	86	288μF
FKC08-110S15W	43 ~ 160 VDC	15 VDC	0mA	533mA	75mVp-p	4mA	86	200μF
FKC08-110D05W	43 ~ 160 VDC	± 5 VDC	0mA	± 800mA	75mVp-p	5mA	82	± 900μF
FKC08-110D12W	43 ~ 160 VDC	± 12 VDC	0mA	± 333mA	75mVp-p	5mA	85	± 133μF
FKC08-110D15W	43 ~ 160 VDC	± 15 VDC	0mA	± 267mA	75mVp-p	5mA	85	± 90μF

Note

1. MIL-HDBK-217F @Ta=25 °C, Full load.
2. Typical value at nominal input voltage and no load.
3. Typical value at nominal input voltage and full load.
4. Test by minimum input and constant resistive load.
5. The ON/OFF control pin voltage is referenced to -INPUT.
6. Operating ambient temperature:
Converter can meet the railway T2 and TX temperature requirement.
T2 : -40 °C ~ +70 °C as all models, TX : -40 °C ~ +85 °C as power derating to 55% output power.
7. The FKC08W series standard module meets EN55022 Class A and Class B with external components.
For more detail information, please contact with P-DUKE.
8. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Power Mate suggest: : 24Vin/48Vin Nippon chemi-con KY series, 220μF/100V
: 110 Vin Nippon chemi-con KXJ series, 150μF/200V

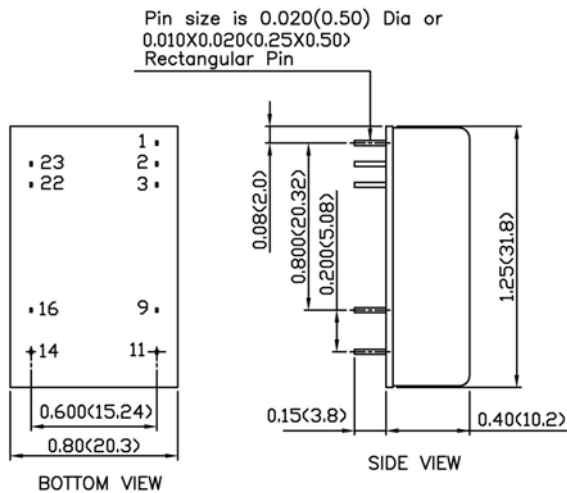
CAUTION: This power module is not internally fused. An input line fuse must always be used.



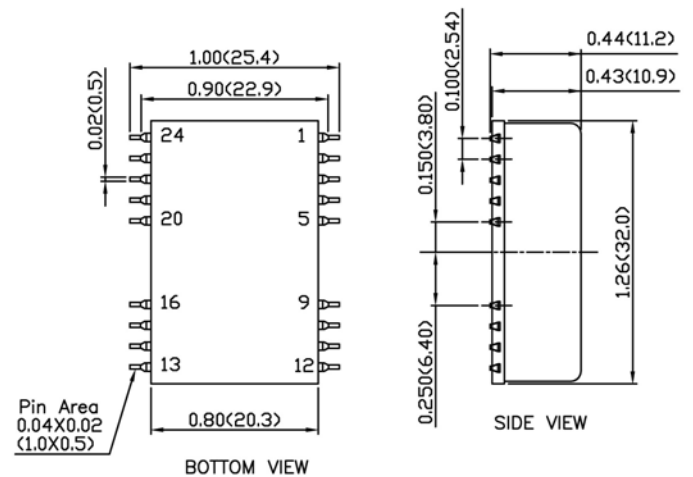


MECHANICAL DRAWING :

DIP TYPE



SMD TYPE



1. All dimensions in Inch (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)

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

SMD 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
Others	NC	NC			