POWER MATE TECHNOLOGY CO., LTD.

FKC08 SERIES

8 WATTS DC-DC CONVERTER

FEATURES

- **8 WATTS OUTPUT POWER**
- **OUTPUT CURRENT UP TO 2A**
- **STANDARD 1.25 X 0.80 X 0.40 INCH**
- **HIGH EFFICIENCY UP TO 88%**
- **2:1 WIDE INPUT VOLTAGE RANGE**
- **FIVE-SIDED CONTINUOUS SHIELD**
- **FIXED SWITCHING FREQUENCY (300kHz)**
- **STANDARD 24 PIN DIP PACKAGE & SMD TYPE PACKAGE**
- **CE MARK MEETS 2006/95/EC, 2011/95/EC AND 2004/108/EC**
- **SAFETY MEETS UL60950-1, EN60950-1 AND IEC60950-1**
- **ISO9001 CERTIFIED MANUFACTURING FACILITIES**
- **COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU**

OPTIONS

SMD TYPE

APPLICATIONS

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

DESCRIPTION

The FKC08 series offer 8 watts of output power from a package in an IC compatible 24pin DIP configuration. FKC08 series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. The FKC08 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 25ºC 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%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL		± 5%
Ripple and noise	20MHz bandwidth		See table
Temperature coefficient			±0.02% / ºC, max.
Transient response recovery time	25% load step change		200µs
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			300pF, max.
Switching frequency			300kHz±10%.
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	DIP		16g (0.55oz)
	SMD		18g (0.62oz)
MTBF (Note 1)	BELLCORE TR-NWT-000332		3.053 x 10^6 hrs
	MIL-HDBK-217F		1.213 x 10^6 hrs

INPUT SPECIFICATIONS

Input voltage range	12VDC nominal input	9 ~ 18VDC
	24VDC nominal input	18 ~ 36VDC
	48VDC nominal input	36 ~ 75VDC
Input filter		Pi type
Input surge voltage	12VDC input	36VDC 100ms,max.
	24VDC input	50VDC 100ms,max.
	48VDC input	100VDC 100ms,max.
Input reflected ripple current		20mAp-p
Start up time	Nominal input and constant resistive load, Power up	700ms
Remote ON/OFF (Note 5) (Positive logic)	DC-DC ON	Open or 3.5V < 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	-40ºC ~ +85ºC (with derating)
Maximum case temperature	+100ºC
Storage temperature range	-55ºC ~ +125ºC
Thermal impedance (Nature convection)	20ºC/Watt
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity	5% to 95% RH

EMC CHARACTERISTICS

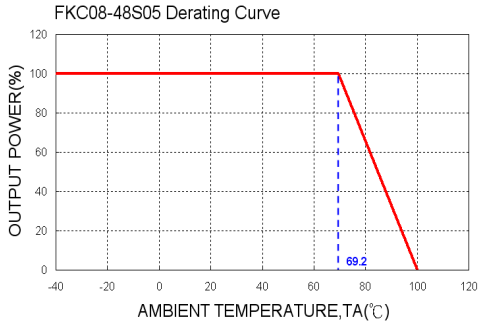
EMI (Note 6)	EN55022			Class A, Class B
ESD	EN61000-4-2	Air	± 8kV	Perf. Criteria A
		Contact	± 6kV	
Radiated immunity	EN61000-4-3		10 V/m	Perf. Criteria A
Fast transient (Note 7)	EN61000-4-4		± 2kV	Perf. Criteria A
Surge (Note 7)	EN61000-4-5		± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6		10 Vr.m.s	Perf. Criteria A

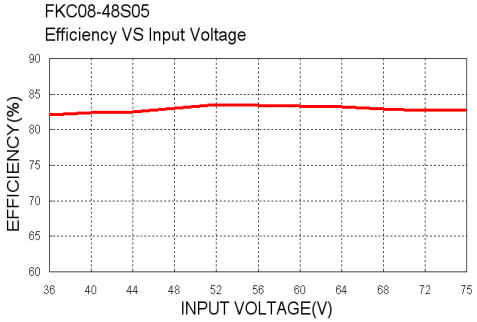
Model Number	Input Range	Output Voltage	Output Current		Output Ripple & Noise	No load [2] Input Current	Eff [3] (%)	Capacitor[4] Load max
			Min. load	Full load				
FKC08-12S33	9 ~ 18 VDC	3.3 VDC	0mA	2000mA	50mVp-p	10mA	80	3300μF
FKC08-12S05	9 ~ 18 VDC	5 VDC	0mA	1500mA	50mVp-p	15mA	83	1600μF
FKC08-12S12	9 ~ 18 VDC	12 VDC	0mA	666mA	50mVp-p	13mA	88	350μF
FKC08-12S15	9 ~ 18 VDC	15 VDC	0mA	533mA	50mVp-p	20mA	87	240μF
FKC08-12D05	9 ~ 18 VDC	± 5 VDC	0mA	± 800mA	50mVp-p	15mA	83	± 1000μF
FKC08-12D12	9 ~ 18 VDC	± 12 VDC	0mA	± 333mA	50mVp-p	20mA	87	± 160μF
FKC08-12D15	9 ~ 18 VDC	± 15 VDC	0mA	± 267mA	50mVp-p	20mA	85	± 100μF
FKC08-24S33	18 ~ 36 VDC	3.3 VDC	0mA	2000mA	50mVp-p	10mA	80	3300μF
FKC08-24S05	18 ~ 36 VDC	5 VDC	0mA	1500mA	50mVp-p	30mA	83	1600μF
FKC08-24S12	18 ~ 36 VDC	12 VDC	0mA	666mA	50mVp-p	13mA	86	350μF
FKC08-24S15	18 ~ 36 VDC	15 VDC	0mA	533mA	50mVp-p	15mA	85	240μF
FKC08-24D05	18 ~ 36 VDC	± 5 VDC	0mA	± 800mA	50mVp-p	15mA	82	± 1000μF
FKC08-24D12	18 ~ 36 VDC	± 12 VDC	0mA	± 333mA	50mVp-p	15mA	86	± 160μF
FKC08-24D15	18 ~ 36 VDC	± 15 VDC	0mA	± 267mA	50mVp-p	13mA	85	± 100μF
FKC08-48S33	36 ~ 75 VDC	3.3 VDC	0mA	2000mA	50mVp-p	7mA	80	3300μF
FKC08-48S05	36 ~ 75 VDC	5 VDC	0mA	1500mA	50mVp-p	8mA	83	1600μF
FKC08-48S12	36 ~ 75 VDC	12 VDC	0mA	666mA	50mVp-p	10mA	86	350μF
FKC08-48S15	36 ~ 75 VDC	15 VDC	0mA	533mA	50mVp-p	10mA	86	240μF
FKC08-48D05	36 ~ 75 VDC	± 5 VDC	0mA	± 800mA	50mVp-p	8mA	85	± 1000μF
FKC08-48D12	36 ~ 75 VDC	± 12 VDC	0mA	± 333mA	50mVp-p	8mA	87	± 160μF
FKC08-48D15	36 ~ 75 VDC	± 15 VDC	0mA	± 267mA	50mVp-p	7mA	87	± 100μF

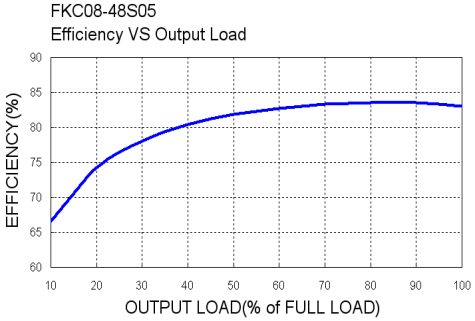
Note

1. BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40ºC.
   MIL-HDBK-217F Notice2 @Ta=25 ºC, Full load(Ground, Benign, controlled environment).
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. The FKC08 series standard module meets EN55022 Class A and Class B with external components.
   For more detail information, please contact with P-DUKE.
7. 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: Nippon chemi-con KY series, 220μF/100V.

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







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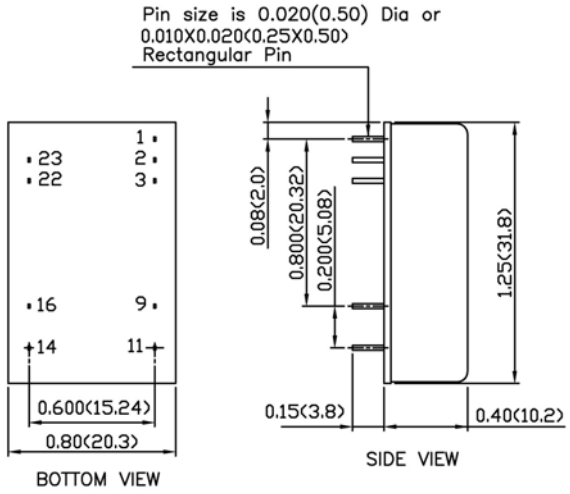
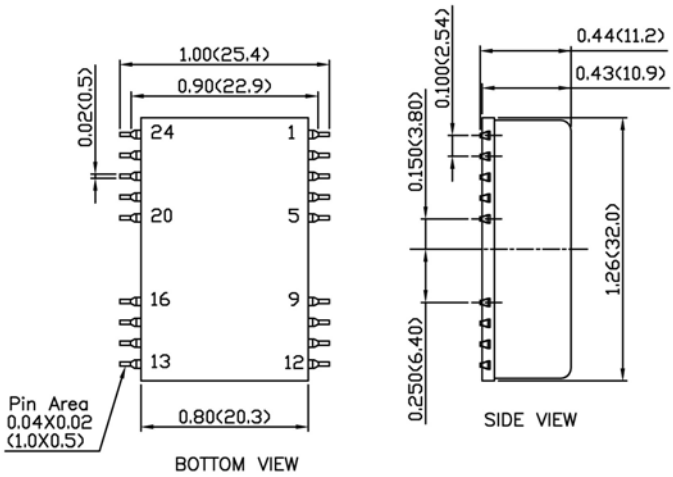
MECHANICAL DRAWING :

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			