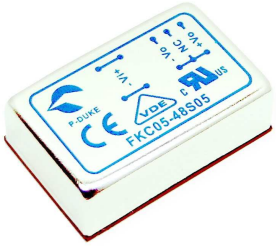
POWER MATE TECHNOLOGY CO.,LTD.

FKC05(W) SERIES



FEATURES

- 5 WATTS OUTPUT POWER
- OUTPUT CURRENT UP TO 1000mA
- STANDARD 1.25 X 0.80 X 0.40 INCH
- HIGH EFFICIENCY UP TO 84%
- 2:1 AND 4:1 WIDE INPUT VOLTAGE RANGE
- FIVE-SIDED SHIELD
- FIXED SWITCHING FREQUENCY
- STANDARD 24 PIN DIP PACKAGE & SMD TYPE PACKAGE
- CE MARK MEETS 2006/95/EC, 93/68/EEC AND 2004/108/EC
- UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

APPLICATIONS

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

OPTIONS

SMD TYPE, M1 TYPE, M2 TYPE

DESCRIPTION

The FKC05 series offer 5 watts of output power from a package in an IC compatible 24pin DIP configuration without derating to 71ºC ambient temperature and pin to pin compatible with FKC03 series. FKC05 series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. FKC05-W series have 4:1 ultra wide input voltage of 9-36 and 18-75VDC.

TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS			
Output power			5 Watts, max.
Voltage accuracy	Full load and nominal Vin		± 1%
Minimum load			0%
Line regulation	LL to HL at Full Load		± 0.2%
Load regulation	No Load to Full Load	Single Dual	± 0.5% ± 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		170%, typ.
Short circuit protection			Continuous, automatics recovery

GENERAL SPECIFICATIONS			
Efficiency			See table
Isolation voltage	Input to Output		1600VDC, min.
	Input (Output) to Case	DIP	1600VDC, min.
		SMD	1000VDC, min.
Isolation resistance			10^9ohms, min.
Isolation capacitance			300pF, max.
Switching frequency			300KHz, typ.
Approvals and 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		3.165 x 10^5 hrs
	MIL-HDBK-217F		1.631 x 10^6 hrs

INPUT SPECIFICATIONS			
Input voltage range	FKC05	12V nominal input	9 – 18VDC
		24V nominal input	18 – 36VDC
		48V nominal input	36 – 75VDC
	FKC05-W	24V nominal input	9 – 36VDC
		48V nominal input	18 – 75VDC
Input filter			Pi type
Input surge voltage 100mS max		12V input	36VDC
		24V input	50VDC
		48V input	100VDC
Input reflected ripple current	Nominal Vin and full load		20mAp-p
Start up time	Nominal Vin and constant resistive load	Power up	450mS, max.

ENVIRONMENTAL SPECIFICATIONS		
Operating ambient temperature	Standard	-25ºC~+85ºC (with derating)
	M1 (Note 6)	-40ºC~+85ºC (non-derating)
	M2 (W series)	-40ºC~+85ºC (with derating)
Maximum case temperature	Standard	+100ºC
	M1	+105ºC
Storage temperature range		-55ºC ~ +105ºC
Thermal impedance	Nature convection	20ºC/watt
Thermal shock		MIL-STD-810F
Vibration		MIL-STD-810F
Relative humidity		5% to 95% RH

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

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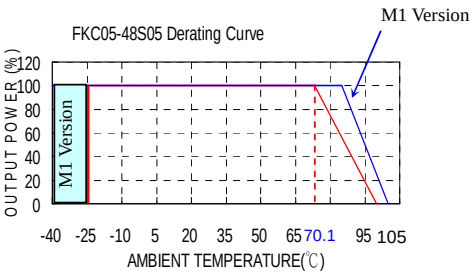
5 WATTS DC-DC CONVERTER

Model Number	Input Range	Output Voltage	Output Current		Output [4] Ripple & Noise	Input Current		Eff [4] (%)	Capacitor[5] Load max
			Min. load	Full load		No load [3]	Full load [2]		
FKC05-12S33	9 – 18 VDC	3.3 VDC	0mA	1000mA	50mVp-p	10mA	382mA	76	2200μF
FKC05-12S05	9 – 18 VDC	5 VDC	0mA	1000mA	50mVp-p	10mA	563mA	78	1000μF
FKC05-12S12	9 – 18 VDC	12 VDC	0mA	470mA	50mVp-p	10mA	603mA	82	220μF
FKC05-12S15	9 – 18 VDC	15 VDC	0mA	400mA	50mVp-p	10mA	649mA	81	150μF
FKC05-12D05	9 – 18 VDC	± 5 VDC	0mA	± 500mA	50mVp-p	15mA	563mA	78	± 680μF
FKC05-12D12	9 – 18 VDC	± 12 VDC	0mA	± 230mA	50mVp-p	20mA	597mA	81	± 100μF
FKC05-12D15	9 – 18 VDC	± 15 VDC	0mA	± 190mA	50mVp-p	15mA	594mA	84	± 68μF
FKC05-24S33 (W)	18 – 36 (9 – 36) VDC	3.3 VDC	0mA	1000mA	50mVp-p	10mA(5mA)	194mA (191mA)	75 (76)	2200μF
FKC05-24S05 (W)	18 – 36 (9 – 36) VDC	5 VDC	0mA	1000mA	50mVp-p	15mA(10mA)	285mA (278mA)	77 (79)	1000μF
FKC05-24S12 (W)	18 – 36 (9 – 36) VDC	12 VDC	0mA	470mA	50mVp-p	15mA(5mA)	305mA (305mA)	81 (81)	220μF
FKC05-24S15 (W)	18 – 36 (9 – 36) VDC	15 VDC	0mA	400mA	50mVp-p	15mA(10mA)	325mA (312mA)	81 (84)	150μF
FKC05-24D05 (W)	18 – 36 (9 – 36) VDC	± 5 VDC	0mA	± 500mA	50mVp-p	15mA(10mA)	274mA (282mA)	80 (78)	± 680μF
FKC05-24D12 (W)	18 – 36 (9 – 36) VDC	± 12 VDC	0mA	± 230mA	50mVp-p	20mA(10mA)	288mA (295mA)	84 (82)	± 100μF
FKC05-24D15 (W)	18 – 36 (9 – 36) VDC	± 15 VDC	0mA	± 190mA	50mVp-p	20mA(10mA)	308mA (297mA)	81 (84)	± 68μF
FKC05-48S33 (W)	36 – 75 (18 – 75) VDC	3.3 VDC	0mA	1000mA	50mVp-p	10mA(5mA)	98mA (100mA)	74 (73)	2200μF
FKC05-48S05 (W)	36 – 75 (18 – 75) VDC	5 VDC	0mA	1000mA	50mVp-p	10mA(10mA)	143mA (138mA)	77 (79)	1000μF
FKC05-48S12 (W)	36 – 75 (18 – 75) VDC	12 VDC	0mA	470mA	50mVp-p	10mA(10mA)	151mA (155mA)	82 (80)	220μF
FKC05-48S15 (W)	36 – 75 (18 – 75) VDC	15 VDC	0mA	400mA	50mVp-p	10mA(10mA)	162mA (160mA)	81 (82)	150μF
FKC05-48D05 (W)	36 – 75 (18 – 75) VDC	± 5 VDC	0mA	± 500mA	50mVp-p	10mA(10mA)	141mA (145mA)	78 (76)	± 680μF
FKC05-48D12 (W)	36 – 75 (18 – 75) VDC	± 12 VDC	0mA	± 230mA	50mVp-p	5mA(10mA)	147mA (151mA)	82 (80)	± 100μF
FKC05-48D15 (W)	36 – 75 (18 – 75) VDC	± 15 VDC	0mA	± 190mA	50mVp-p	10mA(10mA)	150mA (156mA)	83 (80)	± 68μF

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. Maximum value at nominal input voltage and full load of standard type.
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Test by minimum Vin and constant resistive load.
6. M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard and M2 version.
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, ESR 48mΩ
8. There is no pin at PIN10 & PIN15 for FKC05-W series.



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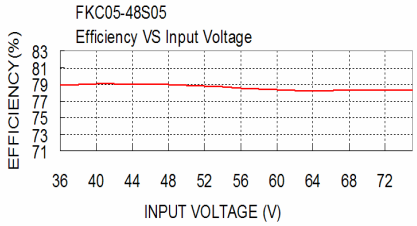
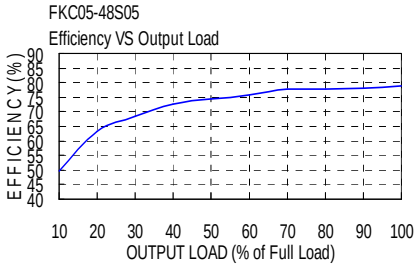
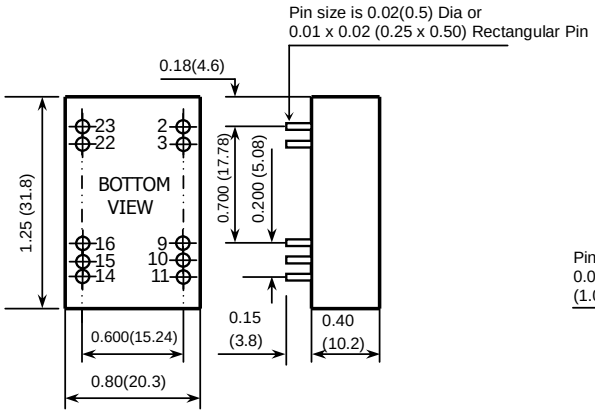
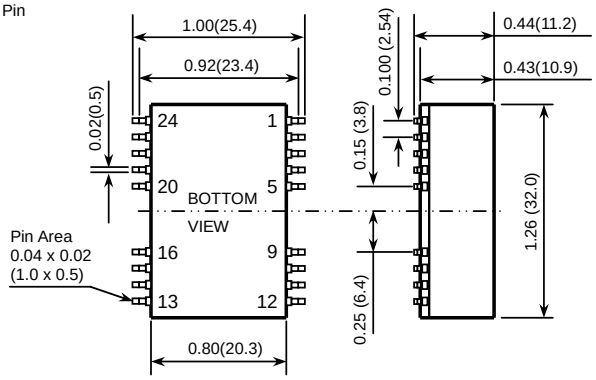






Suffix-SMD



1. All dimensions in Inches (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
2	- INPUT	- INPUT	23	+ INPUT	+ INPUT
3	- INPUT	- INPUT	22	+ INPUT	+ INPUT
9	NC	COMMON	16	- OUTPUT	COMMON
10	NC(Note 8)	NC(Note 8)	15	NC(Note 8)	NC(Note 8)
11	NC	- OUTPUT	14	+ OUTPUT	+ OUTPUT

SMD PIN CONNECTION

PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
2	- INPUT	- INPUT	23	+ INPUT	+ INPUT
3	- INPUT	- INPUT	22	+ INPUT	+ INPUT
9	NC	COMMON	16	- OUTPUT	COMMON
10	NC	NC	15	NC	NC
11	NC	- OUTPUT	14	+ OUTPUT	+ OUTPUT
Others	NC	NC	Others	NC	NC

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