POWER MATE TECHNOLOGY CO., LTD.

FKC15 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 15 Watts

FEATURES

- NO MINIMUM LOAD REQUIRED
- 1600VDC INPUT TO OUTPUT ISOLATION
- STANDARD 1.25 X 0.80 X 0.40 INCH AND 24 PIN DIP PACKAGE
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- DISTRIBUTED POWER ARCHITECTURES
- SEMICONDUCTOR EQUIPMENT

1600VDC ISOLATION	REMOTE CONTROL	UVP	OCP	SCP	LOW STANDBY POWER

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25℃ otherwise noted

Model Number	Input Range VDC	Output Voltage VDC	Output Current @Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load μF
FKC15-12S3P3	9 ~ 18	3.3	4000	10	87	4700
FKC15-12S05	9 ~ 18	5.1	3000	10	90	3300
FKC15-12S12	9 ~ 18	12	1250	5	90	600
FKC15-12S15	9 ~ 18	15	1000	10	90	400
FKC15-12D05	9 ~ 18	±5	±1500	10	86	±1500
FKC15-12D12	9 ~ 18	±12	±625	6	90	±288
FKC15-12D15	9 ~ 18	±15	±500	10	90	±200
FKC15-24S3P3	18 ~ 36	3.3	4000	6	88	4700
FKC15-24S05	18 ~ 36	5.1	3000	6	90	3300
FKC15-24S12	18 ~ 36	12	1250	4	91	600
FKC15-24S15	18 ~ 36	15	1000	6	91	400
FKC15-24D05	18 ~ 36	±5	±1500	4	87	±1500
FKC15-24D12	18 ~ 36	±12	±625	6	90	±288
FKC15-24D15	18 ~ 36	±15	±500	6	90	±200
FKC15-48S3P3	36 ~ 75	3.3	4000	4	88	4700
FKC15-48S05	36 ~ 75	5.1	3000	4	90	3300
FKC15-48S12	36 ~ 75	12	1250	4	90	600
FKC15-48S15	36 ~ 75	15	1000	4	91	400
FKC15-48D05	36 ~ 75	±5	±1500	4	87	±1500
FKC15-48D12	36 ~ 75	±12	±625	4	90	±288
FKC15-48D15	36 ~ 75	±15	±500	4	90	±200

PART NUMBER STRUCTURE

FKC15 - 48 S 05

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)
	12: 9~18 **24:**18~36 **48:**36~75	**S:**Single	**3P3:** 3.3 **05:** 5.1 **12:**12 **15:**15
		D: Dual	**05:**± 5 **12:**±12 **15:**±15

INPUT SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Operating input voltage range		12Vin(nom)		9	12	18	VDC
		24Vin(nom)		18	24	36	
		48Vin(nom)		36	48	75	
Start up voltage		12Vin(nom)				9	VDC
		24Vin(nom)				18	
		48Vin(nom)				36	
Shutdown voltage		12Vin(nom)			8		VDC
		24Vin(nom)			16		
		48Vin(nom)			33		
Start up time	Constant resistive load	Power up				60	ms
		Remote ON/OFF				60	
Input surge voltage	1 second, max.	12Vin(nom)				36	VDC
		24Vin(nom)				50	
		48Vin(nom)				100	
Input reflected ripple current					20		mAp-p
Input filter					Pi type		
Remote ON/OFF	Referred to –Vin pin	Positive logic	DC-DC ON		Open or 3.0 ~ 12VDC		
			DC-DC OFF		Short or 0 ~ 1.2VDC		
		Input current of Ctrl pin		-0.5		+0.5	mA
		Remote off input current			2.5		mA

OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy			-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load	Single	-0.2		+0.2	%
		Dual	-0.5		+0.5	
Load regulation	No Load to Full Load	Single	-0.5		+0.5	%
		Dual	-1.0		+1.0	
	10% Load to 90% Load	Single	-0.3		+0.3	
		Dual	-0.8		+0.8	
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
Ripple and noise	20MHz bandwidth With a 1μF/25V X7R MLCC			60		mVp-p
Temperature coefficient			-0.02		+0.02	%/℃
Transient response recovery time	25% load step change			250		μs
Over voltage protection		3.3Vout		3.9		VDC
		5.1Vout		6.2		
		12Vout		15		
		15Vout		18		
Over load protection	% of Iout rated; Hiccup mode			150		%
Short circuit protection				Continuous, automatics recovery		

GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	1600			VDC
		Input (Output) to Case	1600			
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					2000	pF
Switching frequency			297	330	363	kHz
Safety approvals						UL60950-1 EN60950-1 IEC60950-1
Case material						Nickel-coated copper
Base material						FR4 PCB
Potting material						Silicone (UL94 V-0)
Weight						14.4g (0.51oz)
MTBF	MIL-HDBK-217F					1.797 x 10^6 hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature	3.3Vout, ±5Vout	Without derating	-40		+60	℃
		With derating	+60		+100	
	Others	Without derating	-40		+73	
		With derating	+73		+100	
Maximum case temperature					105	℃
Storage temperature range			-55		+125	℃
Thermal impedance	Natural convection			20		℃/W
Thermal shock					MIL-STD-810F	
Vibration					MIL-STD-810F	
Relative humidity					5% to 95% RH	

EMC SPECIFICATIONS

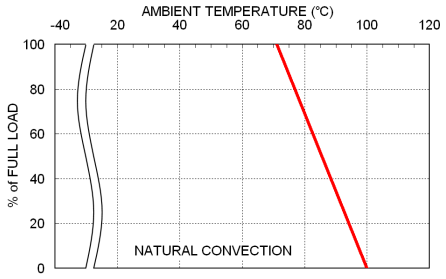
Parameter	Conditions		Level
EMI(1)	EN55022		Class A、Class B
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (2)	EN61000-4-4	± 2kV	Perf. Criteria A
Surge (2)	EN61000-4-5	± 2kV	Perf. Criteria A
Conducted immunity	EN61000-4-6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

Note:

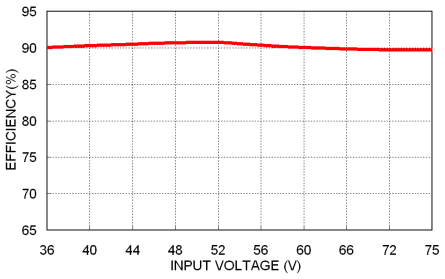
1. The standard modules meet EMI Class A or Class B with external components. For further information, please contact with P-DUKE.
2. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
   The filter Power Mate suggests: Nippon chemi-con KY series, 220μF/100V.

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

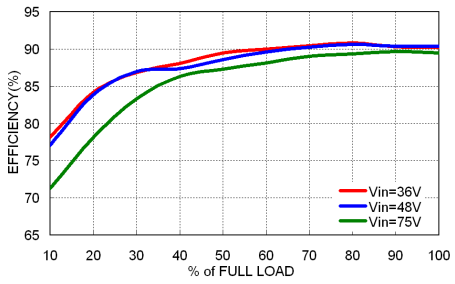
CHARACTERISTIC CURVE



FKC15-48S05 Derating Curve

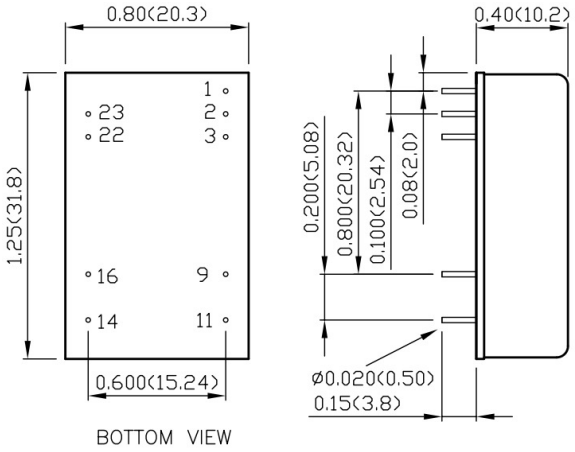


FKC15-48S05 Efficiency vs. Input Voltage



FKC15-48S05 Efficiency vs. Output Load

MECHANICAL DRAWING



PIN CONNECTION

PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
1	Ctrl	Ctrl			
2	-Vin	-Vin	23	+Vin	+Vin
3	-Vin	-Vin	22	+Vin	+Vin
9	NC	Common	16	-Vout	Common
11	NC	-Vout	14	+Vout	+Vout

1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.x±0.5)
   x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)