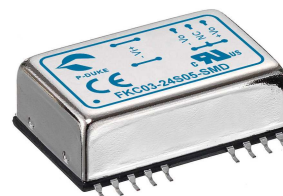
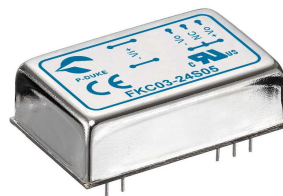


FKC03 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 3 Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- 1600VDC INPUT TO OUTPUT ISOLATION
- STANDARD 1.25 X 0.80 X 0.40 INCH 24 PIN DIP AND SMD 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	OCP	SCP
----------------------	-----	-----

TECHNICAL SPECIFICATION

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

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	mA	mA	%	μF
FKC03-12S33	9 ~ 18	3.3	500	10	75	2200
FKC03-12S05	9 ~ 18	5	500	10	76	1000
FKC03-12S12	9 ~ 18	12	250	10	80	220
FKC03-12S15	9 ~ 18	15	200	15	81	150
FKC03-12D05	9 ~ 18	±5	±250	15	78	±470
FKC03-12D12	9 ~ 18	±12	±125	15	80	±100
FKC03-12D15	9 ~ 18	±15	±100	20	82	±68
FKC03-24S33	18 ~ 36	3.3	500	10	72	2200
FKC03-24S05	18 ~ 36	5	500	10	74	1000
FKC03-24S12	18 ~ 36	12	250	15	78	220
FKC03-24S15	18 ~ 36	15	200	15	78	150
FKC03-24D05	18 ~ 36	±5	±250	15	74	±470
FKC03-24D12	18 ~ 36	±12	±125	20	77	±100
FKC03-24D15	18 ~ 36	±15	±100	20	77	±68
FKC03-48S33	36 ~ 75	3.3	500	5	74	2200
FKC03-48S05	36 ~ 75	5	500	10	74	1000
FKC03-48S12	36 ~ 75	12	250	10	79	220
FKC03-48S15	36 ~ 75	15	200	10	78	150
FKC03-48D05	36 ~ 75	±5	±250	10	73	±470
FKC03-48D12	36 ~ 75	±12	±125	10	79	±100
FKC03-48D15	36 ~ 75	±15	±100	10	77	±68

PART NUMBER STRUCTURE

FKC03	-	48	S	05	-	M1	SMD
Series Name		Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)		Operating Temp. Option	Mounting Type Option
		12: 9~18 24: 18~36 48: 36~75	S: Single	33: 3.3 05: 5 12: 12 15: 15		□: Standard type -25~+85°C With derating M1: -40~+85°C Without derating M2: -40~+85°C With derating	□: DIP type SMD: SMD type
			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 time	Constant resistive load Power up			350	ms
Input surge voltage	100 ms, max.			36	VDC
				50	
				100	
Input reflected ripple current			20		mAp-p
Input filter			Pi type		

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy		-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load	-0.2		+0.2	%
Load regulation	No Load to Full Load Single	-0.2		+0.2	%
	Dual	-1.0		+1.0	
Cross regulation	Asymmetrical load 25%/100% FL Dual	-5.0		+5.0	%
Ripple and noise	20MHz bandwidth		50		mVp-p
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		200		µs
Over load protection	% of Iout rated		180		%
Short circuit protection		Continuous, automatic recovery			

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute DIP type Input to Output	1600			VDC
	SMD type Input (Output) to Case	1600			
	Input to Output	1600			
	Input (Output) to Case	1000			
Isolation resistance	500VDC	1			GΩ
Isolation capacitance				300	pF
Switching frequency		270	300	330	kHz
Safety approvals				UL60950-1 EN60950-1 IEC60950-1	
Case material				Nickel-coated copper	
Base material				Non-conductive black plastic	
Potting material				Epoxy (UL94 V-0)	
Weight				18g (0.62oz)	
MTBF	MIL-HDBK-217F			7.289 x 10 ⁶ hrs	

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature ⁽¹⁾	Standard With derating	-25		+85	°C
	M1 Version Without derating	-40		+85	
	M2 Version With derating	-40		+85	
Maximum case temperature				100	°C
Storage temperature range		-55		+125	°C
Thermal impedance	Natural convection		20		°C/W
Thermal shock				MIL-STD-810F	
Vibration				MIL-STD-810F	
Relative humidity				5% to 95% RH	

EMC SPECIFICATIONS

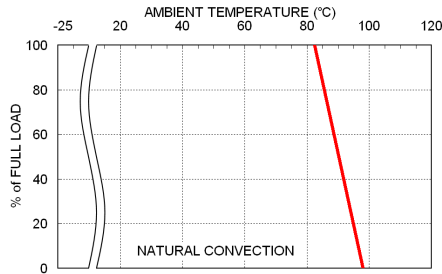
Parameter	Conditions	Level
EMI ⁽²⁾	EN55022	Class A · Class B
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10 V/m	Perf. Criteria A
Fast transient ⁽³⁾	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge ⁽³⁾	EN61000-4-5 ± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6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

Note:

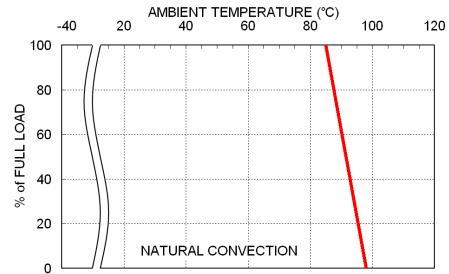
1. It's higher efficiency for M1 version. Therefore, it can be operated in a more extensive temperature range than standard and M2 version.
2. The standard modules meet EMI Class A or Class B with external components. For further information, please contact with P-DUKE.
3. An external input filter capacitor 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.

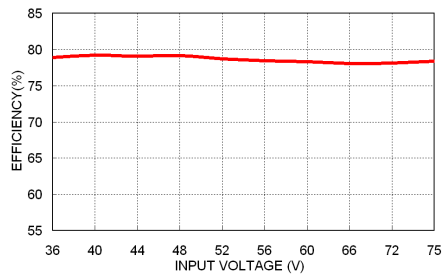
CAUTION: This power module is not internally fused. An input line fuse must always be used.

CHARACTERISTIC CURVE


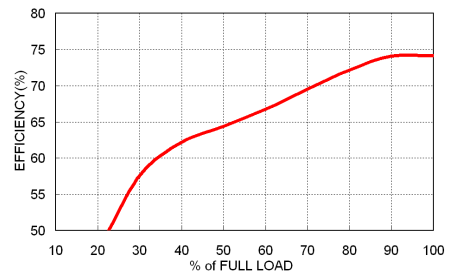
FKC03-48S05 Derating Curve



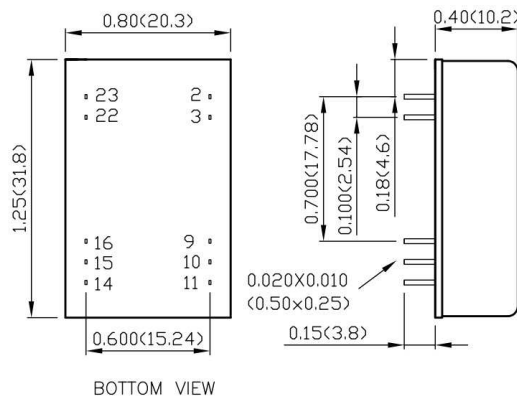
FKC03-48S05-M1 Derating Curve



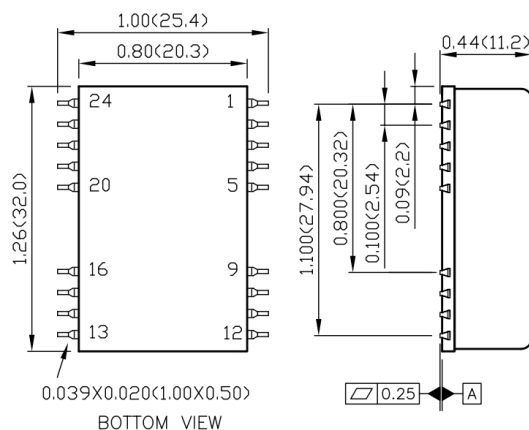
FKC03-48S05 Efficiency vs. Input Voltage



FKC03-48S05 Efficiency vs. Output Load

MECHANICAL DRAWING
DIP type

PIN CONNECTION

PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
2	-Vin	-Vin	23	+Vin	+Vin
3	-Vin	-Vin	22	+Vin	+Vin
9	NC	Common	16	-Vout	Common
10	NC	NC	15	NC	NC
11	NC	-Vout	14	+Vout	+Vout

SMD type

PIN CONNECTION

PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
2	-Vin	-Vin	23	+Vin	+Vin
3	-Vin	-Vin	22	+Vin	+Vin
9	NC	Common	16	-Vout	Common
10	NC	NC	15	NC	NC
11	NC	-Vout	14	+Vout	+Vout
Others	NC	NC			

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)