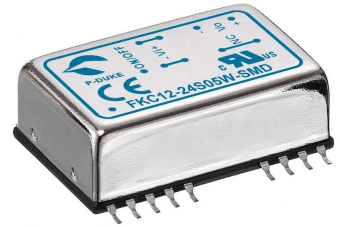
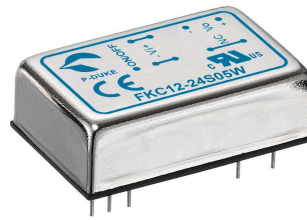


FKC12W SERIES

DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 12 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	REMOTE CONTROL	UVP	OCP	SCP
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TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C 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
FKC12-24S3P3W	9 ~ 36	3.3	3500	55	84	2000
FKC12-24S05W	9 ~ 36	5.1	2400	55	87	2000
FKC12-24S12W	9 ~ 36	12	1000	13	87	430
FKC12-24S15W	9 ~ 36	15	800	11	87	300
FKC12-24D05W	9 ~ 36	±5	±1200	15	84	±1250
FKC12-24D12W	9 ~ 36	±12	±500	12	87	±200
FKC12-24D15W	9 ~ 36	±15	±400	20	87	±120
FKC12-48S3P3W	18 ~ 75	3.3	3500	17	84	2000
FKC12-48S05W	18 ~ 75	5.1	2400	20	87	2000
FKC12-48S12W	18 ~ 75	12	1000	6	87	430
FKC12-48S15W	18 ~ 75	15	800	6	88	300
FKC12-48D05W	18 ~ 75	±5	±1200	7	85	±1250
FKC12-48D12W	18 ~ 75	±12	±500	7	87	±200
FKC12-48D15W	18 ~ 75	±15	±400	7	87	±120

PART NUMBER STRUCTURE

FKC12 -	48	S	05	W -	SMD
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Mounting Type Option
	24: 9~36 48: 18~75	S: Single	33: 3.3 05: 5.1 12: 12 15: 15	4 : 1	□: 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		24Vin(nom) 48Vin(nom)		9 18	24 48	36 75	VDC
Start up voltage		24Vin(nom) 48Vin(nom)				9 18	VDC
Shutdown voltage		24Vin(nom) 48Vin(nom)			8 16		VDC
Start up time	Constant resistive load	Power up Remote ON/OFF			450 5		ms
Input surge voltage	100 ms, max.	24Vin(nom) 48Vin(nom)				50 100	VDC
Input reflected ripple current					20		mAp-p
Input filter					Pi type		
Remote ON/OFF	Referred to -Vin pin	Positive logic DC-DC ON DC-DC OFF Input current of Ctrl pin Remote off input current		-0.5		Open or 3.0 ~ 12VDC Short or 0 ~ 1.2VDC +0.5	mA mA

OUTPUT SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Voltage accuracy				-1.2		+1.2	%
Line regulation	Low Line to High Line at Full Load			-0.2		+0.2	%
Load regulation	No Load to Full Load	DIP type SMD type	Single Dual Single Dual	-0.5 -1.0 -1.0 -1.0		+0.5 +1.0 +1.0 +1.0	%
Cross regulation	Asymmetrical load 25%/100% FL		Dual	-5.0		+5.0	%
Ripple and noise	20MHz bandwidth				85		mVp-p
Temperature coefficient				-0.02		+0.02	%/°C
Transient response recovery time	25% load step change				250		µs
Over voltage protection			3.3Vout 5.1Vout 12Vout 15Vout		3.9 6.2 15 18		VDC
Over load protection	% of Iout rated				150		%
Short circuit protection							Continuous, automatic recovery

GENERAL SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	DIP type SMD type	Input to Output Input (Output) to Case Input to Output Input (Output) to Case	1600 1600 1600 1000			VDC
Isolation resistance	500VDC			1			GΩ
Isolation capacitance						1500	pF
Switching frequency				360	400	440	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						2.087 x 10 ⁶ hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Operating ambient temperature		3.3Vout, ±5Vout Others	Without derating With derating Without derating With derating	-40 +61 -40 +69		+61 +105 +69 +105	°C
Maximum case temperature						105	°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

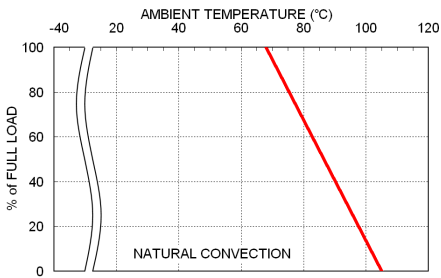
Parameter	Conditions		Level
EMI ⁽¹⁾	EN55022		Class A · Class B
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient ⁽²⁾	EN61000-4-4	± 2kV	Perf. Criteria A
Surge ⁽²⁾	EN61000-4-5	± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	100A/m continuous; 1000A/m 1 second	Perf. Criteria A

Note:

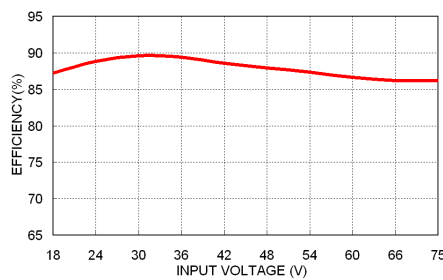
- The standard modules meet EMI Class A or Class B with external components. For further information, please contact with P-DUKE.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter Power Mate suggests: Nippon chemi-con KY series, 220µF/100V.

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

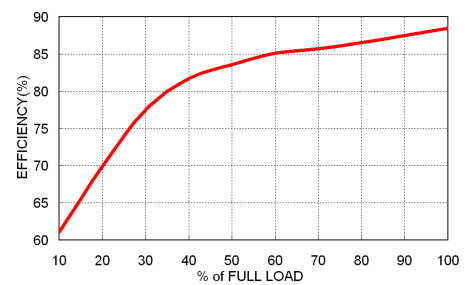
CHARACTERISTIC CURVE



FKC12-48S05W Derating Curve



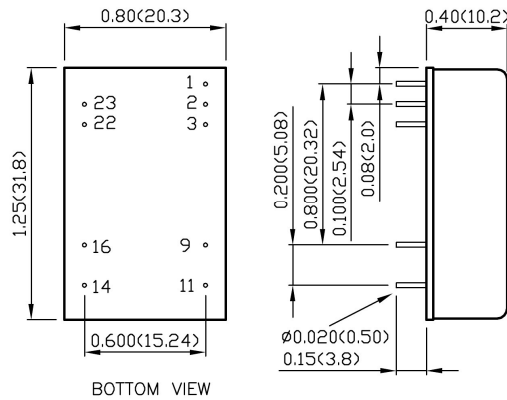
FKC12-48S05W Efficiency vs. Input Voltage



FKC12-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

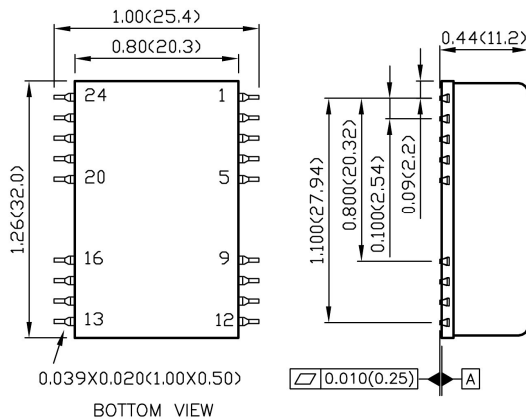
DIP type



PIN CONNECTION

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

SMD type



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
Others	NC	NC			

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