FPDK12S1R003PA

New Product Brief

8.0-14.0Vdc Input, 3A, 1.0-6.6Vdc Output

The DK Series of non-isolated dc-dc converters provide high efficiency, cost effective, and complete Point-of-Load power solutions in very small and low profile SMD packages. Occupying a footprint of less than 2 cm^2 (0.3 in^2), these are the converters of choice for a wide range of telecommunications, data communications, computing, industrial and consumer applications where board space, cost, height, efficiency, and reliable operation in elevated temperature environments are critical.

非絶縁型DC/DCｺﾝﾊﾞｰﾀのDK ｼﾘｰｽﾞは、高効率、低価格、小型・低背のSMDﾊﾟｯｹｰｼﾞで完全なPOL電源ｿﾘｭｰｼｮﾝを提供します。実装面積が2cm^2（0.3 in^2）以下であるこのｺﾝﾊﾞｰﾀは、基板ｽﾍﾟｰｽ、費用、高さ、効率、及び高温環境での信頼性のある動作が重要な広範囲の電気通信、ﾃﾞｰﾀ通信、ｺﾝﾋﾟｭｰﾀ、産業及びｺﾝｼｭｰﾏ向けのｱﾌﾟﾘｹｰｼｮﾝに最適です。

The **FPDK12S1R003PA** converter of the DK Series operates from a 8.0Vdc to 14.0Vdc input, and delivers 3A of output current at a tightly regulated programmable output voltage of 1.0Vdc to 6.6Vdc. The thermal performance is excellent.

DK ｼﾘｰｽﾞの**FPDK12S1R003PA**は8.0V～14.0V入力で動作し、高い電圧精度でﾌﾟﾛｸﾞﾗﾑ可能な出力電圧1.0V～6.6Vdcで、3Aの出力電流を供給します。温度特性は優れています。

The leading edge performance of the DK Series products, and their extremely high quality and reliability are achieved through advanced circuit and thermal design techniques and FDK's state of the art in-house manufacturing processes and systems.

DK ｼﾘｰｽﾞ製品の最先端の特性と非常に高い品質及び信頼性は、高度な回路設計及び温度設計技術とFDKの最先端の自社製造ﾌﾟﾛｾｽ及びｼｽﾃﾑによりもたらされます。

Applications

- Telecommunications
  - Routers, Base Stations, Wireless

  ﾃﾚｺﾑｼｽﾃﾑ
  - ルータ、基地局、無線
- Data Communications
  - Internet Routers, Processors

  ﾃﾞｰﾀ通信
  - インターネットルータ、ﾌﾟﾛｾｯｻ
- Computing
  - Servers, Workstations

  ｺﾝﾋﾟｭｰﾀ関係
  - サーバー、ワークステーション
- Industrial and Consumer
  - Navigation, POS systems, Office Equipment
  - Entertainment

  産業及びｺﾝｼｭｰﾏ向け
  - ナビゲーション、ﾎﾟｽｼｽﾃﾑ、ｵﾌｨｽ機器
  - エンターテインメント

FPDK12S1R003PA

Features

- Delivers up to 3A (19.8W)
  3A (19.8W)まで供給可能
- High efficiency, no heatsink required
  高効率-放熱器が不要
- Small size and low profile:0.657" x 0.350" x 0.134"
  小型、低背（16.7 x 8.9 x 3.4mm）
- RoHS compliant
  RoHS準拠
- Programmable output voltage via external resistor
  外部接続の抵抗によりﾌﾟﾛｸﾞﾗﾑ可能な出力電圧
- No minimum load required
  最小負荷は不要
- Remote ON/OFF
  ﾘﾓｰﾄON/OFF機能
- Auto-reset output over-current protection
  過電流保護機能: 自動復帰
- Auto-reset output over-temperature protection
  内部加熱保護機能
- Power Good Signal
  パワーグッド信号出力
- High reliability, MTBF = TBD
  高信頼性: MTBF = TBD
- UL60950 recognition in U.S. & Canada, and CB Scheme certification per IEC/EN60950 (Pending)
  UL60950とIEC/EN60950は申請中
- All materials meet UL94, V-0 flammability rating
  全ての部品は UL94 V-0に適合

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Electrical Specifications　電気的仕様

All specifications apply over specified input voltage, output load, and temperature range, unless otherwise noted.

注記が無い場合、全ての仕様は指定された入力電圧、負荷、温度範囲で適用されます。

Conditions: Ta=25degC, Airflow=200LFM (1.0m/s), Vin=12Vdc, Vout=1.0-6.6Vdc, unless otherwise specified.

PARAMETER	NOTES	MIN	TYP	MAX	UNITS
ABSOLUTE MAXIMUM RATINGS[1]					
Input Voltage (Vin)	Continuous	-0.3		15	Vdc
Input Voltage (Vcc)	Continuous	-0.3		6	Vdc
Operating Temperature	Ambient temperature	-40		85	°C
Storage Temperature		-55		125	°C
Output Voltage		1		6.6	Vdc
FEATURE CHARACTERISTICS					
ON/OFF Control (Positive Logic)		TBD		TBD	
Power Good	Set point for power good output high		±10		%Vout
Power Good	Iout≦2mA			0.4	V
Power Good	Max current from power good pin. V_{PGOOD}=5V			1	uA
INPUT CHARACTERISTICS					
Operating Input Voltage Range (Vin)		8	12	14	Vdc
Control Input Voltage Range (Vcc)		4.5	5	5.5	Vdc
Vcc Current	Converter ON, Vcc=5V		8	12	mA
	Converter OFF, Vcc=5V		7	10	uA
Input Under Voltage Lockout					
Turn-on Threshold (Vin)		3.9		7.2	
Turn-on Threshold (Vcc)		4.2		4.5	Vdc
Hysteresis			0.3		Vdc
OUTPUT CHARACTERISTICS					
Output Voltage Range (Over all operating input voltage, resistive load and temperature conditions until end of life)		-2.5		+2.5	%Vout
Output Ripple and Noise BW=20MHz	Over line, load and temperature				
Peak to Peak	Vout=1.0Vdc		25	60	mVp-p
Peak to Peak	Vout=5.0Vdc		45	60	mVp-p
External Load Capacitance	Plus full load (resistive)			TBD	uF
Output Current		0		3	A
Output Current Limit Inception (Iout)	Vout=3.3Vdc		135		%
EFFICIENCY	Vin=12Vdc, Full load (3A)				
	Vout=6.0Vdc		93.0		%
	Vout=5.0Vdc		92.0		%
	Vout=3.3Vdc		90.5		%
	Vout=2.5Vdc		89.0		%
	Vout=2.0Vdc		87.5		%
	Vout=1.8Vdc		86.5		%
	Vout=1.5Vdc		85.0		%
	Vout=1.2Vdc		82.5		%
	Vout=1.0Vdc		80.0		%

[1]Absolute Maximum Ratings　絶対最大定格

Stresses in excess of the absolute maximum ratings and operation beyond the rated current as specified by the derating curves may lead to degradation in performance and reliability of the converter and may result in permanent damage.

絶対最大定格を超えたｽﾄﾚｽとﾃﾞｨﾚｰﾃｨﾝｸﾞｶｰﾌﾞにより規定された定格電流を超えた動作は、性能の低下、長期信頼性の低下、及びﾓｼﾞｭｰﾙの破損を引き起こすことがあります。

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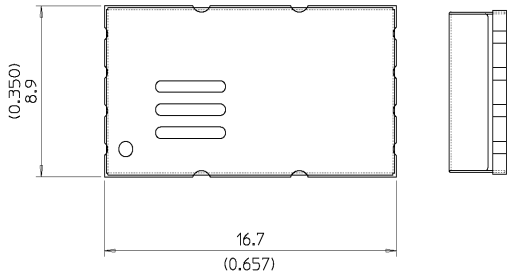
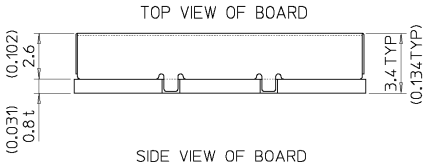
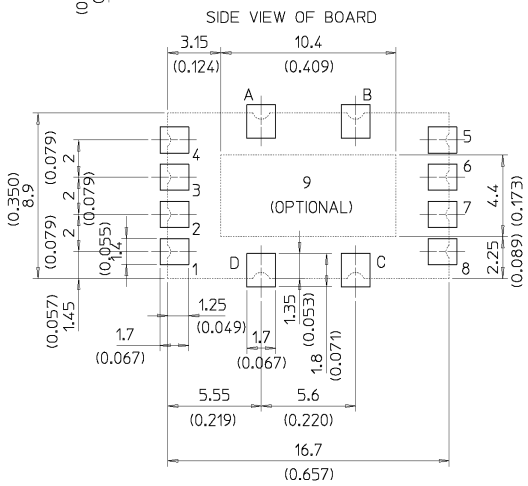
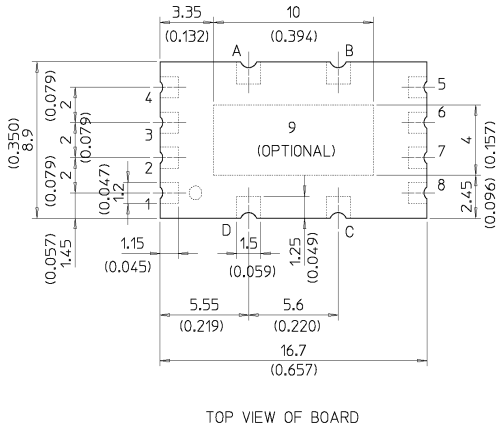
Mechanical Drawing









Notes

- All dimensions are in millimeters (inches)
- Unless otherwise specified, tolerances are +/- 0.25mm
- Connector Finish: Gold over Nickel
- Converter Weight: TBD

Terminal Connections			
Pin#	Function	Pin#	Function
1	Vin	6	POWER GOOD
2	GND	7	GND
3	REMOTE	8	Vout
4	Vcc	9	GND (Optional)
5	TRIM	A, B, C, D	NC

DK Series Part Numbering Scheme

Product Series	Sub Series	Nominal Input Voltage	Mounting Scheme	Output Voltage	Rated Current	ON/OFF Logic	Option1
FP	**DK**	**12**	**S**	**1R0**	**03**	**P**	**A**
	Series Name	Typ=12V	Surface Mount	1.0V (Programmable)	3A	Positive	Standard

Notes

NUCLEAR AND MEDICAL APPLICATIONS: FDK Corporation products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the written consent of FDK Corporation.

SPECIFICATION CHANGES AND REVISIONS: Specifications are version-controlled, but are subject to change without notice.