

FPDK05S1R003PA

3.0-6.0Vdc Input, 3A, 1.0-3.63Vdc Output

New Product Brief

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 cm² (0.3 in²), 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コンバータの**DK**シリーズは、高効率、低価格、小型・低背のSMDパッケージで完全なPOL電源ソリューションを提供します。実装面積が2cm² (0.3 in²) 以下のこのコンバータは、基板スペース、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、データ通信、コンピュータ、産業及びコンシューマ向けのアプリケーションに最適です。

The **FPDK05S1R003PA** converter of the **DK** Series operates from a 3.0Vdc to 6.0Vdc input, and delivers 3A of output current at a tightly regulated programmable output voltage of 1.0Vdc to 3.63Vdc. The thermal performance is excellent.

DKシリーズの**FPDK05S1R003PA**は3.0V~6.0V入力で動作し、高い電圧精度でプログラム可能な出力電圧1.0V~3.63Vdc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シリーズ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プ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
データ通信
 - インターネットルータ、プロセッサ
- Computing
 - Servers, Workstations
コンピュータ関係
 - 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、POSシステム、オフィス機器
 - エンターテインメント



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Features

- Delivers up to 3A (10.9W)
3A (10.9W)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プログ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 電氣的仕様

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: $T_a=25\text{degC}$, $\text{Airflow}=200\text{LFM}$ (1.0m/s), $V_{in}=5\text{Vdc}$, $V_{out}=1.0\text{-}3.63\text{Vdc}$, unless otherwise specified.

PARAMETER	NOTES	MIN	TYP	MAX	UNITS
ABSOLUTE MAXIMUM RATINGS¹					
Input Voltage (V_{in})	Continuous	-0.3		7	Vdc
Input Voltage (V_{cc})	Continuous	-0.3		6	Vdc
Operating Temperature	Ambient temperature	-40		85	°C
Storage Temperature		-55		125	°C
Output Voltage		1		3.63	Vdc
FEATURE CHARACTERISTICS					
ON/OFF Control (Positive Logic)		TBD		TBD	
Power Good	Set point for power good output high		± 10		%Vout
Power Good Output Low	$I_{out} \leq 2\text{mA}$			0.4	V
Power Good Output High	Max current from power good pin. $V_{PGOOD}=5\text{V}$			1	uA
INPUT CHARACTERISTICS					
Operating Input Voltage Range (V_{in})	$V_{out} \leq 1.98\text{Vdc}$ (1.8Vdc+10%)	3		6	Vdc
	$1.98\text{Vdc} < V_{out} \leq 2.75\text{Vdc}$ (2.5Vdc+10%)	4		6	Vdc
	$V_{out} \leq 3.63\text{Vdc}$ (3.3Vdc+10%) all	4.5		6	Vdc
Control Input Voltage Range (V_{cc})		4.5	5	5.5	Vdc
Vcc Current	Converter ON, $V_{cc}=5\text{V}$		8	12	mA
	Converter OFF, $V_{cc}=5\text{V}$		7	10	uA
Input Under Voltage Lockout					
Turn-on Threshold (V_{in})		1.4		2.8	
Turn-on Threshold (V_{cc})		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					
Peak to Peak	$V_{out}=1.0\text{Vdc}$		25	60	mVp-p
Peak to Peak	$V_{out}=3.3\text{Vdc}$		45	60	mVp-p
External Load Capacitance				TBD	uF
Output Current		0		3	A
Output Current Limit Inception (I_{out})	$V_{out}=3.3\text{Vdc}$		135		%
EFFICIENCY					
	$V_{in}=5.0\text{Vdc}$, Full load (3A)				
	$V_{out}=3.3\text{Vdc}$		90.5		%
	$V_{out}=2.5\text{Vdc}$		89.0		%
	$V_{out}=2.0\text{Vdc}$		87.5		%
	$V_{out}=1.8\text{Vdc}$		86.5		%
	$V_{out}=1.5\text{Vdc}$		85.0		%
	$V_{out}=1.2\text{Vdc}$		83.5		%
	$V_{out}=1.0\text{Vdc}$		81.0		%

¹Absolute 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.

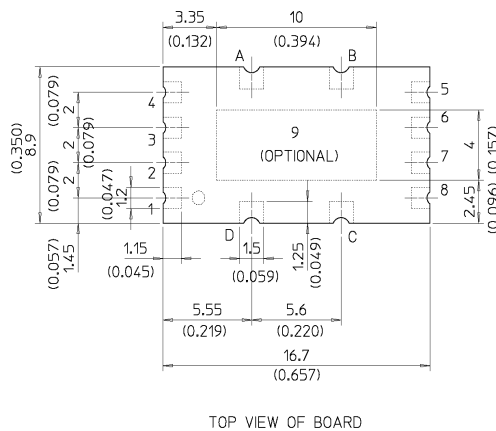
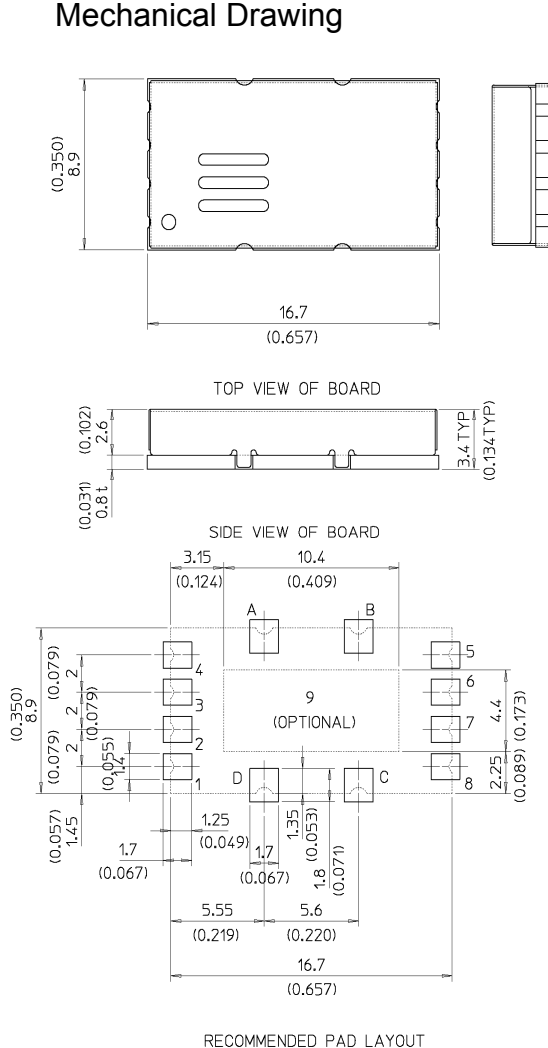
絶対最大定格を超えたストレスとデレーティングカーブにより規定された定格電流を超えた動作は、性能の低下、長期信頼性の低下、及びモジュールの破損を引き起こすことがあります。

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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	05	S	1R0	03	P	A
	Series Name	Typ=5V	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.