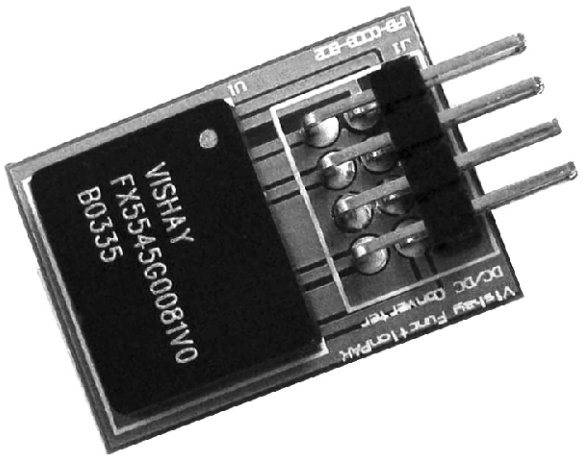
Fully Integrated DC/DC Converter 0.9V to 6V, 4A with 570W/in^3 Power Density, Efficiency up to 95%. Simplified Lab assembly configuration for all models



FEATURES

- Specially designed for prototyping in Labs with limited assembly equipment.
- Fully integrated DC/DC converter
- No external components required
- Buck or Boost configurations
- High efficiency over large load range
- 100% duty cycle
- Power density - more than 570W/inch^3
- 1μA shutdown current
- 2.5V to 6V input range (1Li+ and 3-cell NiCd or NiMH cells)
- 0.9V to 6V output voltage
- Programmable PWM/PSM controls
- Low output ripple
- Standard socket construction or plug-in for prototype (use BGA for production)
- Temperature range: - 40°C to + 85°C
- Output power 15W
- Maximum continuous current 4A

The DC/DC converter is a programmable topology synchronized Buck or Boost converter for today's continuous changing electronic market. The DC/DC converter provides flexibility of utilizing various battery configurations and chemistries such as NiCd, NiMH, or Li+ with input voltage range of 2.5V to 6V. An additional flexibility is provided with topology programmability to power multiple loads such as power amplifiers, microcontrollers, or baseband logic IC's. For ultra-high efficiency, converters are designed to operate in synchronous rectified PWM mode under full load while transforming into externally controlled pulse-skipping mode (PSM) under light load.
The DC/DC converter is available in 20-ports BGA package for production. Convenient 8-pin plug-in modules are available for prototyping. In order to satisfy the stringent ambient temperature requirements, the DC/DC converter is designed to handle the industrial temperature range of - 40°C to + 85°C, with no cooling or derating

APPLICATION

- Point of Load (POL) applications such as drivers for FPGA's, microprocessors, DSP's, amplifiers, etc.
- Cordless phones, PDAs and others
- Supply voltage source for low-voltage chip sets
- Portable computers
- Battery back-up supplies
- Cameras

ORDERING INFORMATION

FX **5545** **G** □□□ □□□ **PI***

FUNCTION

SIZE

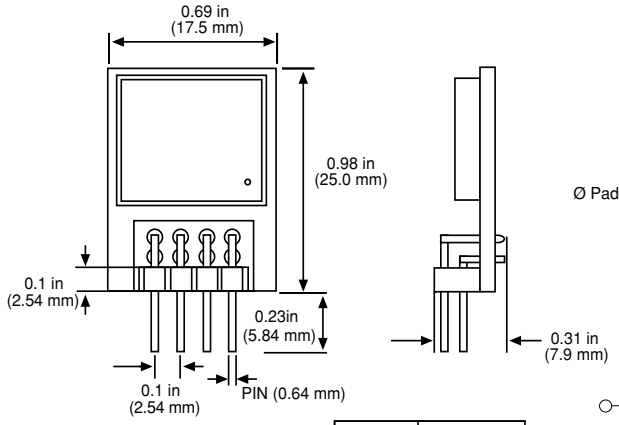
CIRCUIT IDENTIFIER

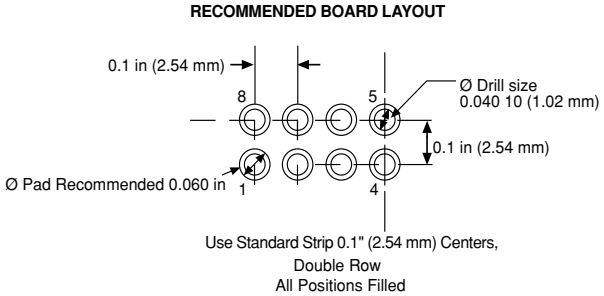
OUTPUT VOLTAGE-Example: 2.7V should be written as 2V7 as the V indicates the decimal point, or ADJ for adjustable version - self selectable output voltage.

PLUG-IN VERSION

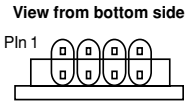
*PI is the abbreviation of Plug-In. When ordering please use an upper case i, not a lower case L.

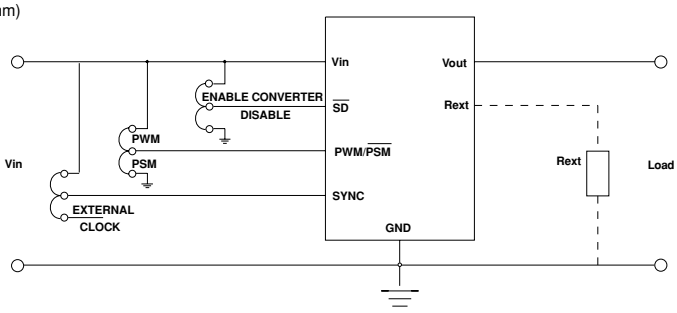
PIN DESCRIPTION AND RECOMMENDED BOARD LAYOUT





PIN No:	Description
1	Vout
2	GND
3	Vin
4	PWM
5	SD
6	SYNC
7	GND
8	Rext





PIN	DESCRIPTION
$\overline{SD}$	Logic low on SD pin shuts down the FunctionPAK completely and decreases current consumption to less than 1μA.
PWM/$\overline{PSM}$	Logic high =PWM mode, logic low =PSM mode. In PSM mode synchronous rectification is disabled.
SYNC	Externally controlled synchronization signal. Logic high to low transition forces the clock synchronization. **If not used the pin must be connected to Vin or logic high.**
Vin	Input supply voltage
Vout	Output voltage
GND	Ground
Rext.	Included inside the package for all fixed output voltage converters. To be added externally for all self-selected output voltages.

DESIGN REFERENCE GUIDE - for details see www.vishay.com/integrated-modules/

MODEL	CIRCUIT IDENTIFIER	TYPE	DESCRIPTION	INPUT VOLTS	OUTPUT VOLTS @ AMPS
FX5545G001XVXPI	G001	BUCK	1.5W, 0.6A	2.5 – 6.0	1.35 - 4.5* @ 0.6 max
FX5545G201XVXPI	G201		3W, 1.0A	2.5 – 6.0	1.35 - 4.5* @ 1.0 max
FX5545G018XVXPI	G018		3.6W, 3.0A	2.5 – 6.0	0.9 - 1.3 @ 3.0 max
FX5545G005XVXPI	G005		5W, 1.5A	2.5 – 6.0	1.35 - 4.5* @ 1.5 max
FX5545G105XVXPI	G105		6.5W, 2.0A	2.5 – 6.0	1.35 - 4.5* @ 2.0 max
FX5545G205XVXPI	G205		8W, 2.5A	2.5 – 6.0	1.35 - 4.5* @ 2.5 max
FX5545G008XVXPI**	G008		10W, 3.0A	2.5 – 6.0	0.9 - 4.5* @ 3.0 max
FX5545G305XVXPI	G305		10W, 3.0A	2.5 – 6.0	1.35 - 4.5* @ 3.0 max
FX5545G108XVXPI**	G108		15W, 4.0A	2.5 – 6.0	0.9 - 4.5* @ 4.0 max
FX5545G002XVXPI	G002	BOOST	1.5W, 0.3A	2.5 – 6.0	3.3 - 6.0 @ 0.3 max
FX5545G202XVXPI	G202		3W, 0.6A	2.5 – 6.0	3.3 - 6.0 @ 0.6 max
FX5545G402XVXPI	G402		5W, 1.0A	2.5 – 6.0	3.3 - 6.0 @ 1.0 max
FX5545G006XVXPI	G006		9W, 1.5A	2.5 – 6.0	3.3 - 6.0 @ 1.5 max
FX5545G106XVXPI	G106		12W, 2.0A	2.5 – 6.0	3.3 - 6.0 @ 2.0 max
FX5545G206XVXPI	G206		15W, 2.5A	2.5 – 6.0	3.3 - 6.0 @ 2.5 max

***Note:** For higher output voltage please consult factory at FunctionPAK@Vishay.com

****Note:** FX5545G008ADJPI and FX5545G108ADJPI are available only at 1.35V - 4.5V output voltage

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.