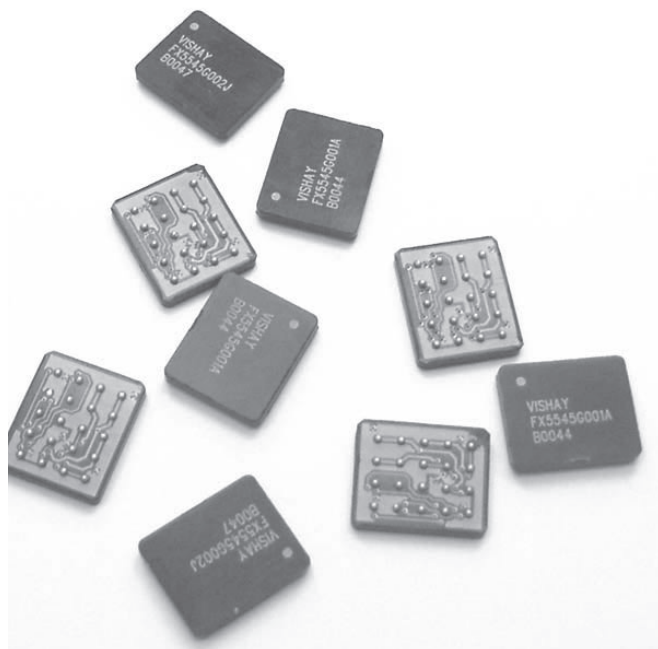


Industry Smallest and Low Profile 5W 1.5A DC/DC Buck Converter with High Output Density Power



FEATURES

- Fully integrated DC/DC converter
- High efficiency over large load range
- 100% duty cycle
- Power density - more than 100W/inch³
- 1uA shutdown current
- 2.7V to 6V input range (1Li+ and 3-cell NiCd or NiMH cells)
- 1.5V to 3.6V output voltage
- Programmable PWM/PSM controls
- Low output ripple
- BGA/LGA construction
- Temperature range: - 40°C to + 85°C
- No external components needed
- Output power 5W
- Maximum current 1.5A
- Low profile

The DC/DC converter is a programmable topology synchronized Buck converter for today's continuous changing portable electronic market. The DC/DC converter provides flexibility of utilizing various battery configurations and chemistries such as NiCd, NiMH, or Li+ with an input voltage range of 2.7V 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. 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.

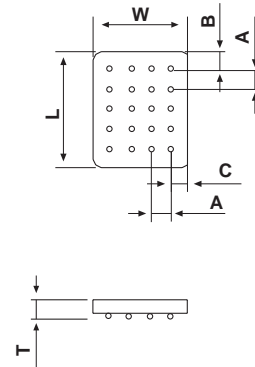
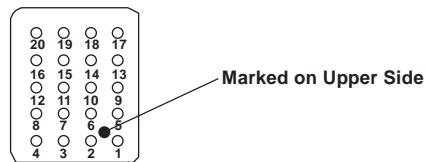
APPLICATION

- Cordless phones, PDAs and others
- Supply voltage source for low-voltage chip sets
- Portable computers
- Battery back-up supplies
- Cameras
- Routers
- Fiber optics
- LANS
- Image processing

ORDERING INFORMATION

	FX	5545	G005	□ □ □	□ □
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.					
PACKAGING-B1 = 10pcs in bulk; B5 = 50pcs in bulk; T1 = 13" reel; T2 = 7" reel.					

DIMENSIONS in inches [millimeters]	
L	0.58 ± 0.01 [14.7 ± 0.25]
W	0.48 ± 0.01 [12.2 ± 0.25]
A	0.1 ± 0.01 [2.54 ± 0.25]
B	0.09 ± 0.01 [2.29 ± 0.25]
C	0.09 ± 0.01 [2.27 ± 0.25]
T	0.12 max [3 max]

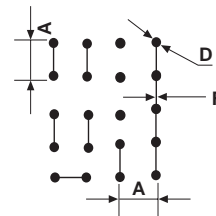

BOTTOM SIDE


PIN CONFIGURATION*	
PIN	CONNECTION
1, 2	\overline{SD}
3, 7	SYNC**
4, 8	N/C
5, 9	Vin
6, 10	PWM/PSM
11, 12	N/C
13, 17	GND
14, 18	Vout
15, 19	N/C
16, 20	GND

*Note: Pin Description application note is available on page 32.

**Note: if not used must be connected to Vin.

RECOMMENDED PAD PATTERN in inches [millimeters]		
A	D	F
0.1 ± 0.01 [2.54 ± 0.25]	0.03 ± 0.001 [0.8 ± 0.02]	0.02 ± 0.001 [0.5 ± 0.02]


TAPE AND REEL

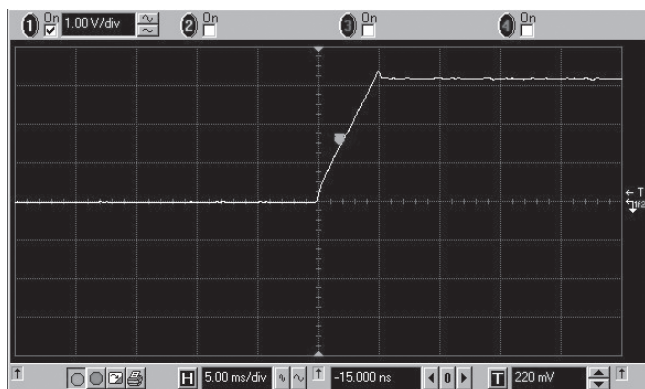
See Tape and Reel Information - Type B



STANDARD ELECTRICAL SPECIFICATIONS					
PARAMETER	UNIT	CONDITION	MIN	TYP	MAX
Input					
Voltage Range	V _{DC}		2.7		6
Quiescent Current	A	PSM mode		200	
Soft Start Time	ms	T _{SS}		5	
SD, PWM/PSM, SYNC					
Logic High	V	V _H	2.4		
Logic Low	V	V _L			0.8
Normal Mode	A	I _{DD}			750
PSM Mode	A	I _{DD}			250
Shutdown Mode	A	I _{DD}			1
Shutdown Time	ms	T _{SS}		7	
Insulation					
Test Voltage	V _{AC}	60Hz 60sec	750		
Resistance	Ω	V _{ISO} = 500V _{DC}	1 x 10 ¹¹		
Leakage Current	nA	V _{ISO} = 500V _{DC}			5
Output					
Power	W			5	
Voltage	V _{DC}			1.5 to 3.6	
Voltage Tolerance	%	at 25°C Ambient Temperature	- 3		+ 3
Temp. Coefficient	%/°C				0.03
Ripple and Noise	mVpp	DC to 20MHz		100	
General					
Package Weight	gr.				1.5
Oscillator					
Frequency	KHz			670	
SYNC Range		F _{SYNC} /F _{OSC}	1.2		1.5
Temperature					
Operation	°C		- 40		+ 85
Storage	°C		- 55		+ 125
Operating Junction Temp.	°C	T _j		150	
Thermal Impedance	°C/W _D *	θ _{JA}		82	

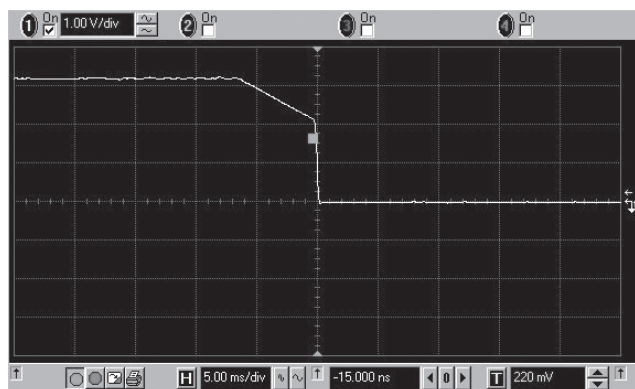
Note: W_D = Power Dissipated

Rise Time

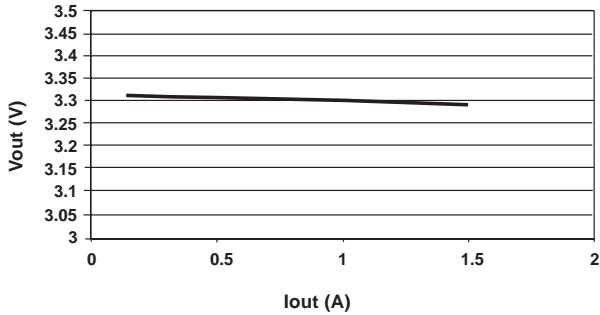
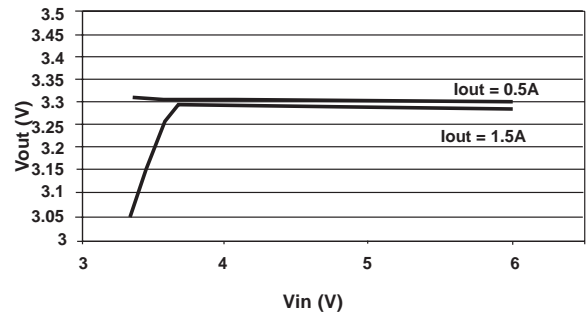


Rise Time (PWM mode): Vin = 6V; Vout = 3.3V; Iout = 1.5A

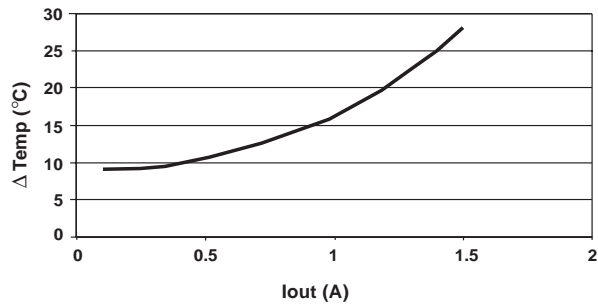
Fall Time



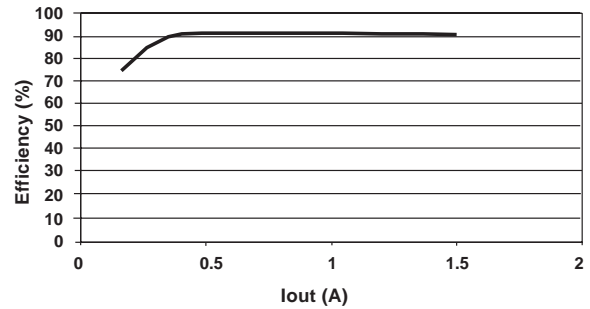
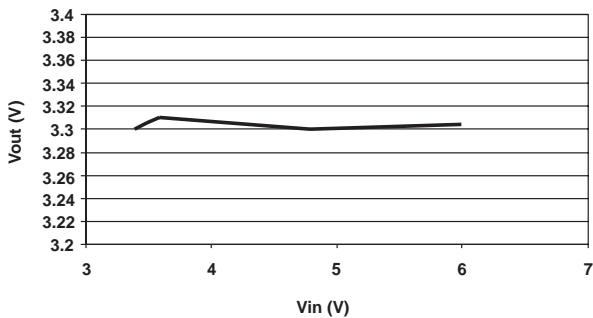
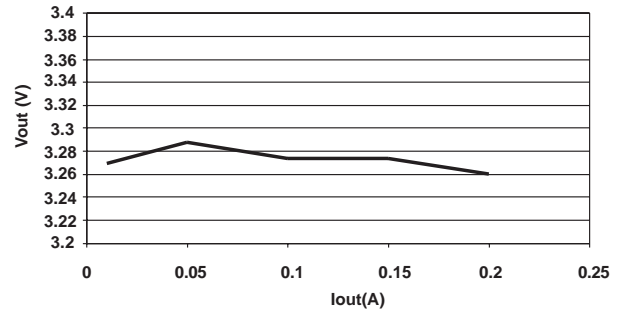
Fall Time (PWM mode): Vin = 6V; Vout = 3.3V; Iout = 1.5A

Vout Vs. Iout
Vin = 3.6V

Vout Vs. Vin

 Δ Temp. Vs. Iout

Above 25°C Ambient Temperature; For Vout = 3.3V; Vin = 6V


Efficiency Vs. Iout

Vout = 3.3V; Vin = 3.6V


Vout Vs. Vin (PSM mode)
Iout = 0.1A

Vout Vs. Iout (PSM mode)
Vin = 6V

Efficiency Vs. Iout (PSM mode)
