3.0MHZ, Adjustable 2.0A Synchronous DC-DC Buck Converter

for RF Power Amplifiers

Datasheet Brierf

■ DESCRIPTION

The FH4512 is a high-efficiency, DC-DC buck (step-down) switching regulator optimized for powering RF power amplifiers. It has a high switching frequency of 3.0MHz and is capable of delivering up to 2.5A of output current. The device operates from an input voltage range of 2.1V to 5.5 V and provide s adjustable output voltages from 0.6V to 3.4V by tracking an external reference voltage. Therefore, the FH4512 is ideal for powering RF PAs because power level s of PAs can be controlled by an external envelope signal and the system efficiency is optimized .

FH4512 is housed in tiny DFNFC1.5*1-6L and DFN2*2-8L package.

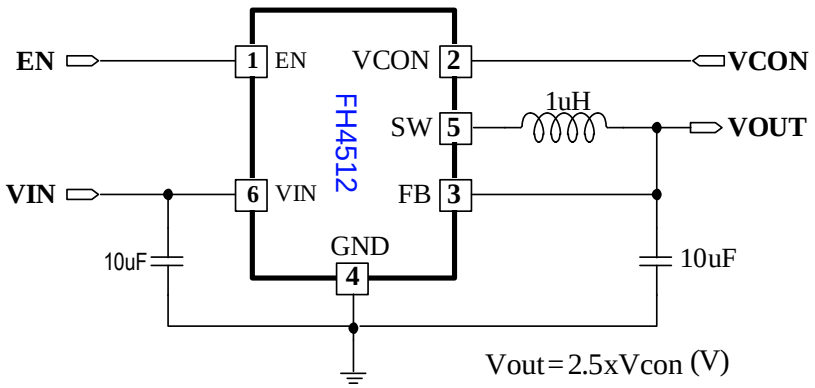
■ FEATURES

- External Reference Signal
- Standby Current 33.0uA (Vout=1.2V, Iout=0A)
- Up to 96% Efficiency
- Up to 2.5A Max Output Current
- 3.0MHz Frequency
- Light Load Operation
- Internal Compensation
- Tiny DFNFC1.5*1.0-6L and DFN2*2-8L Package
- RoHS Compliant

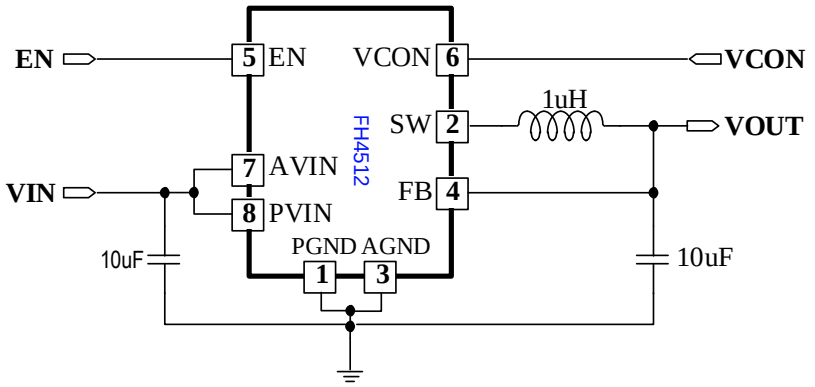
■ APPLICATIONS

- RF PA
- NB-IOT
- Cellphone

■ TYPICAL APPLICATION



DFNFC 1.5*1.0-6L

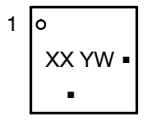


DFN 2*2-8L

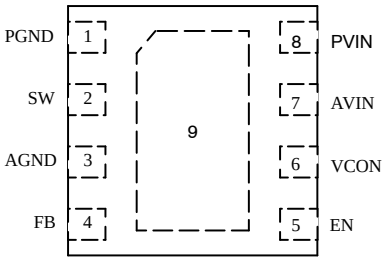
MARKING DIAGRAM

DFN8

DFNFC6

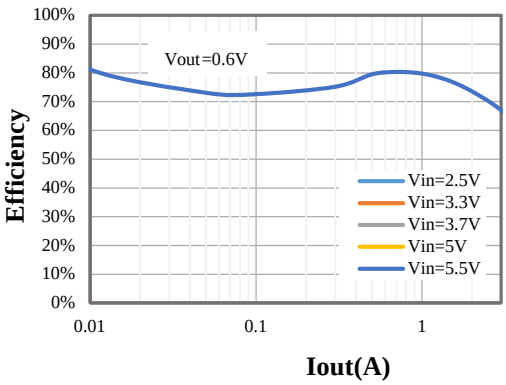


PINOUT



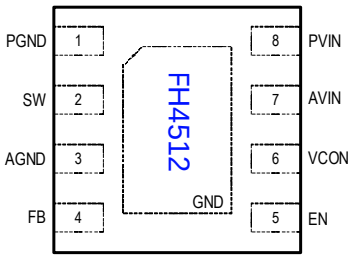
(Top View)

Eff Vs. Iout

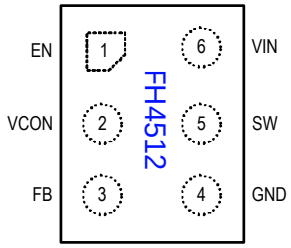


■ PIN CONFIGURATION

Top View



DFN2x2-8L



DFNFC1.5x1-6L

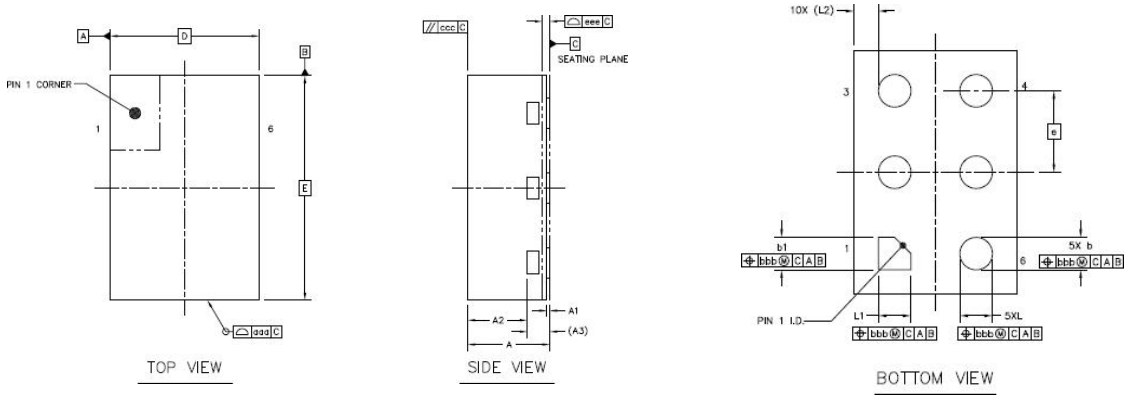
■ PIN DESCRIPTION

PIN # (DFNFC1.5*1.0-6L)	NAME	DESCRIPTION
1	EN	Enable pin for the IC. Drive this pin high to enable the part, low to disable.
2	VCON	Voltage control analog input. V_{CON} controls V_{OUT} in PWM mode. V_{OUT}=2.5 * V_{CON} (V)
3	FB	Feedback input. Connect to the output at output inductor.
4	GND	Ground
5	SW	Inductor connection. Connect an inductor between SW and the regulator output.
6	VIN	Power supply voltage. Bypass with a 10μF ceramic capacitor to GND

PIN # (DFN2*2-8L)	NAME	DESCRIPTION
1	PGND	Power ground. Bypass with a 10.0uF ceramic capacitor to PVIN
2	SW	Inductor connection. Connect an inductor between SW and the regulator output.
3	AGND	Analog ground. Connect to PGND
4	FB	Feedback input. Connect to the output at output inductor .
5	EN	Enable p in for the IC. Drive this pin high to enable the part, low to disable.
6	VCON	Voltage control analog input. V_{CON} controls V_{OUT} in PWM mode. V_{OUT}=2.5 x V_{CON} (V)
7	AVIN	Analog power. Short externally to PVIN
8	PVIN	Supply voltage. Bypass with a 10.0μF ceramic capacitor to GND

■ PACKAGE OUTLINE

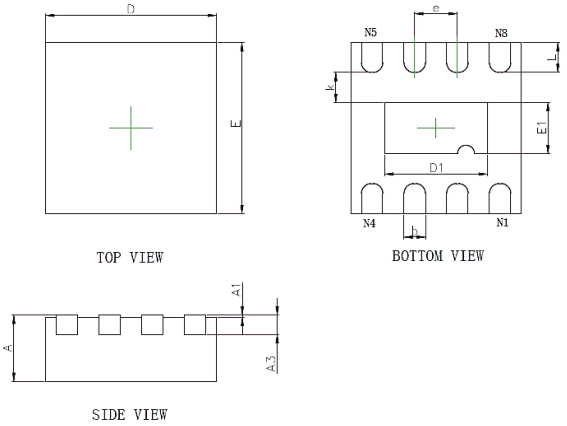
- Package: **DFNFC1.5*1.0-6L**



		SYMBOL	MIN	NOM	MAX	
TOTAL THICKNESS		A	0.5	0.55	0.6	Φ0.55±0.05
STAND OFF		A1	0	0.02	0.05	Φ0.02±0.03
MOLD THICKNESS		A2	/	0.4	/	
L/F THICKNESS		A3		0.152 REF		
LEAD WIDTH		b	0.15	0.2	0.25	Φ0.20±0.05
		b1	0.1	0.2	0.3	Φ0.20±0.10
BODY SIZE	X	D		1 BSC		Φ1.00±0.10
	Y	E		1.5 BSC		Φ1.50±0.10
LEAD PITCH		e		0.5 BSC		
LEAD LENGTH		L	0.15	0.2	0.25	Φ0.20±0.05
		L1	0.1	0.2	0.3	Φ0.20±0.10
LEAD EDGE TO PACKAGE EDGE		L2		0.15 REF		
PACKAGE EDGE TOLERANCE		aaa		0.1		
MOLD FLATNESS		ccc		0.1		
COPLANARITY		eee		0.05		
LEAD OFFSET		bbb		0.1		

■ PACKAGE OUTLINE

- Package: **DFN2*2-8L**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	1.100	1.300	0.043	0.051
E1	0.500	0.700	0.020	0.028
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.274	0.426	0.011	0.017

■ ORDERING INFORMATION

PART NUMBER	Operating Temperature Range	PACKAGE	TOP MARK	SPQ
FH4512D08	-40°C to 85°C	DFN2*2-8L	** YW **:Device Code YW: Date Code	3000PCS/Reel
FH4512DF06		DFNFC1.5*1.0-6L		

Note:

1) FH4512 devices are Pb-free and RoHS compliant.

2) The surface imprints of our chip devices may be modified during the production process and we will not apply separately without designing changes to electrical parameters.

3) If custom production is required, please contact our local business department.

ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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Update by Nov.2019