

600kHz 18V 3A Synchronous COT Step-Down Converter

Description

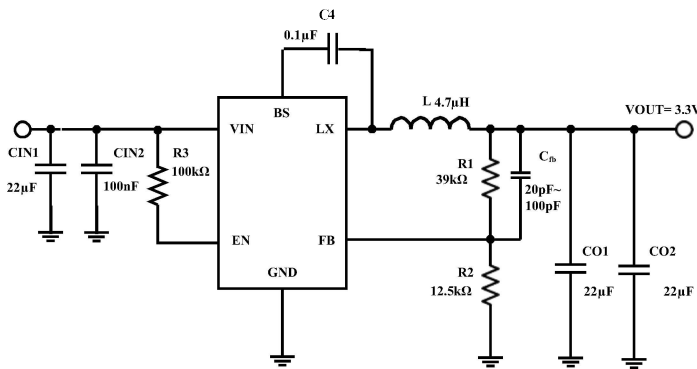
The FH4635/FH4635S is a high efficiency 600kHz, Constant on-Time (COT) control mode synchronous buck DC-DC converter capable of delivering up to 3A current. FH4635/S integrates main switch and synchronous switch with very low $R_{DS(ON)}$ to minimize the conduction loss. Low output voltage ripple and small external inductor and capacitor size are achieved with 600kHz switching frequency. It adopts the COT architecture to achieve fast transient responses for high voltage step down applications.

The FH4635/S requires a minimum number of readily available standard external components and is available in a 6-pin SOT23-6 ROHS compliant package.

Application

- Digital Set Top Boxes
- Flat Panel Television and Monitors
- Notebook computer
- Wireless and DSL Modems

Typical Application

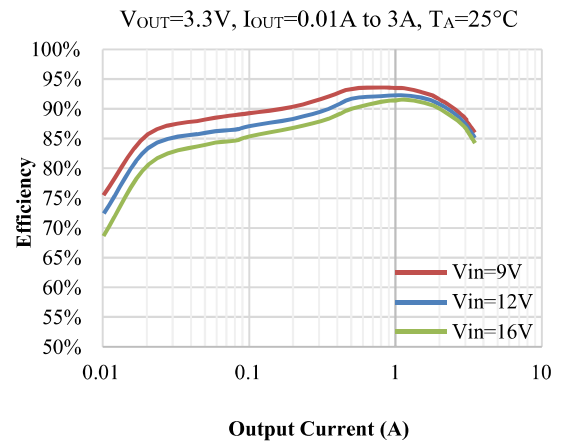


FH4635 Typical Application Circuits ($V_{REF}=0.8V$)

Features

- 70mΩ/35mΩ Low $R_{DS(ON)}$ internal FETs
- High Efficiency Synchronous-Mode Operation
- Wide Input Range: 4.5V to 18V
- Output Voltage from 0.8V(FH4635) 0.6V(FH4635S)
- 600kHz Switch Frequency
- Up to 3A, 3.5A@1.2V Output Current
- COT control to achieve fast transient responses
- Power Save Mode at Light Load
- Integrated internal compensation
- Stable with Low ESR Ceramic Output Capacitors
- Over Current Protection with Hiccup Mode
- Thermal Shutdown
- Inrush Current Limit and Soft Start
- Build in Input Over Voltage Protection
- Available in SOT23-6 Package

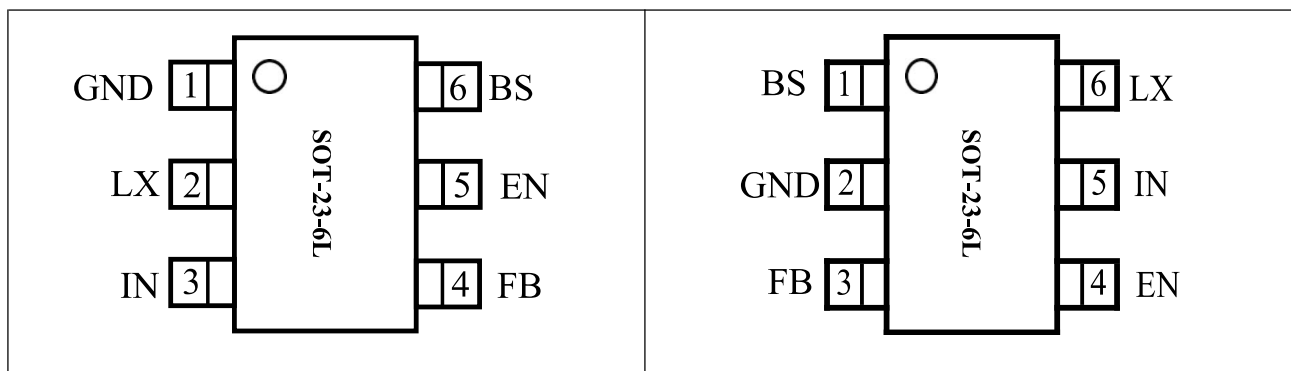
Efficiency



Absolute Maximum Ratings (Note 1)

Parameter	Min	Max	Unit
Input Supply Voltage, EN	-0.3	20	V
LX Voltages	-0.3	20	V
FB Voltage	-0.3	6	V
BS Voltage	-0.3	23	V
Storage Temperature Range	-65	150	°C
Junction Temperature (Note2)		160	°C
Power Dissipation		1000	mW
Lead Temperature (Soldering, 10s)		260	°C

Package



SOT-23-6L

Top Marking: TM3XXX

TM3: Device Code

XXX: Inside Code

SOT-23-6L

Top Marking: TS3XXX

TS3: Device Code

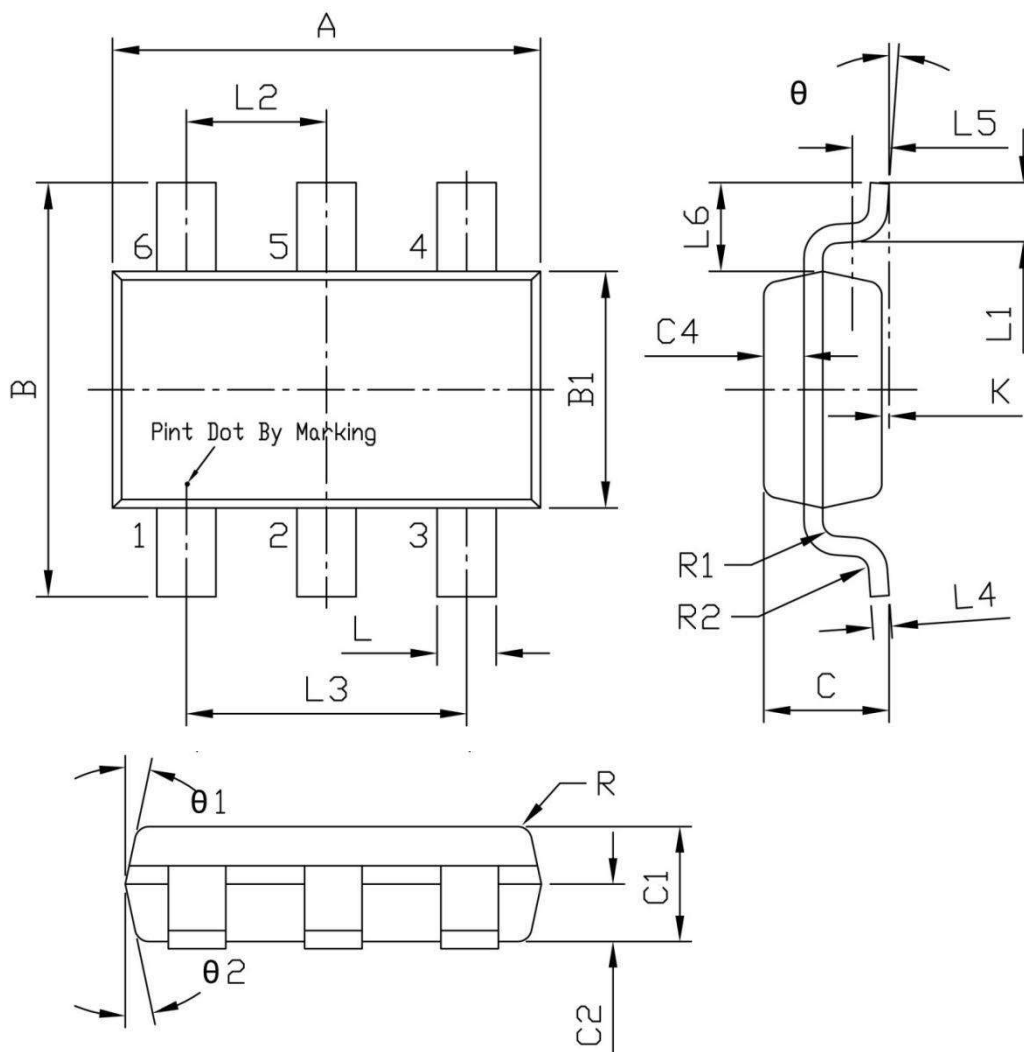
XXX: Inside Code

Pin Functions

Pin		Name	Function
FH4635	FH4635S		
1	2	GND	Ground Pin
2	6	LX	Switching Pin
3	5	IN	Power supply Pin
4	3	FB	Output Voltage feedback input. Connect FB to the center point of the external resistor divider.
5	4	EN	Drive this pin to a logic-high to enable the IC. Drive to a logic-low to disable the IC and enter micro-power shutdown mode. Don't floating EN.
6	1	BS	Bootstrap. A capacitor connected between LX and BS pins is required to form a floating supply across the high-side switch driver.

Package Information

SOT23-6L



Unit: mm

Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	Min	Typ	Max		Min	Typ	Max
A	2.80	2.90	3.00	L3	1.800	1.900	2.000
B	2.60	2.80	3.00	L4	0.077	0.127	0.177
B1	1.50	1.60	1.70	L5	-	0.250	-
C	-	-	1.05	L6	-	0.600	-
C1	0.60	0.80	1.00	θ	0°		0°
C2	0.35	0.40	0.45	θ1	10°	12°	14°
C4	0.223	0.273	0.323	θ2	10°	12°	14°
K	0.000	0.075	0.150	R	-	0.100	-
L	0.325	0.400	0.475	R1	-	0.100	-
L1	0.325	0.450	0.550	R2	-	0.100	-
L2	0.850	0.950	1.050				

Order Information

Part Number	Package	Top Marking	Quantity/Reel
FH4635M6	SOT-23-6L	TM****	3000
FH4635SM6	SOT-23-6L	TS****	3000

FH4635/S devices are Pb-free and RoHS compliant.