

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

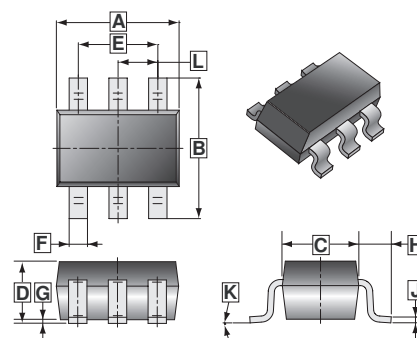
DESCRIPTION

The STMGS5470 is a high-frequency, Synchronous, Rectified, Step down, Switch-mode converter With internal power MOSFETs. It offers a very compact solution to achieve a 2A continuous output current over a wide input supply range, with excellent load and line regulator.

The STMGS5470 has synchronous-mode operation for higher efficiency over the output current-load range. Current-mode operation provides fast transient response and eases loop stabilization. Protection features include over-current protection and thermal shutdown.

The STMGS5470 requires a minimal number of readily available, standard external components and is available in space-saving SOT-26 package.

SOT-26

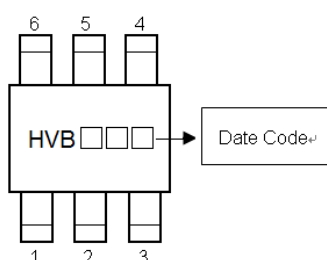


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.30	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

FEATURES

- Wide 4.7V-to-18V Operating Input Range
- 160mΩ/85mΩ Low-RDS(ON) Internal Power MOSFETs
- Power-Save Mode for High-Efficiency at Light Load
- Shutdown current 3uA typical
- Fixed 500kHz Switching Frequency and efficiency up to 95%
- Over-Current Protection and Hiccup
- Output Adjustable from 0.8V
- Output current up to 2A
- Internal soft start
- Tiny SOT-26 Package
- RoHS Compliant, 100%Pb & Halogen Free

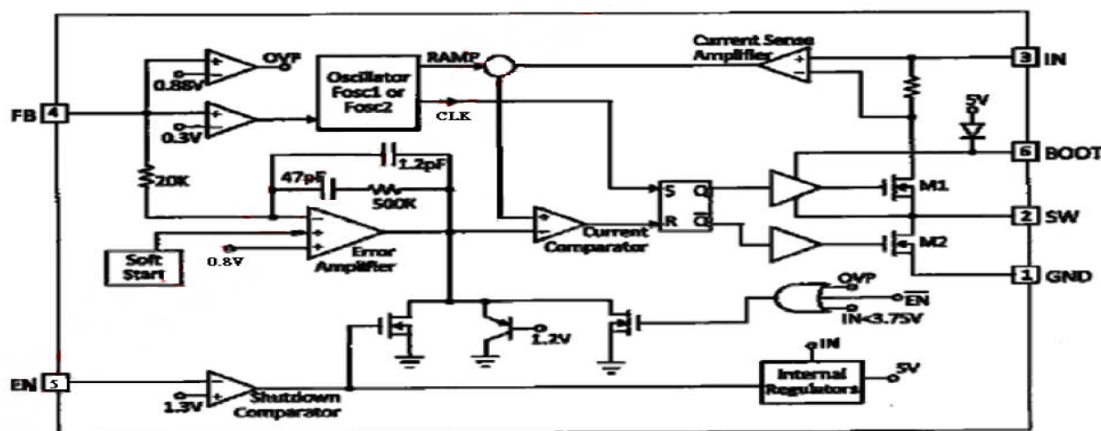
MARKING :



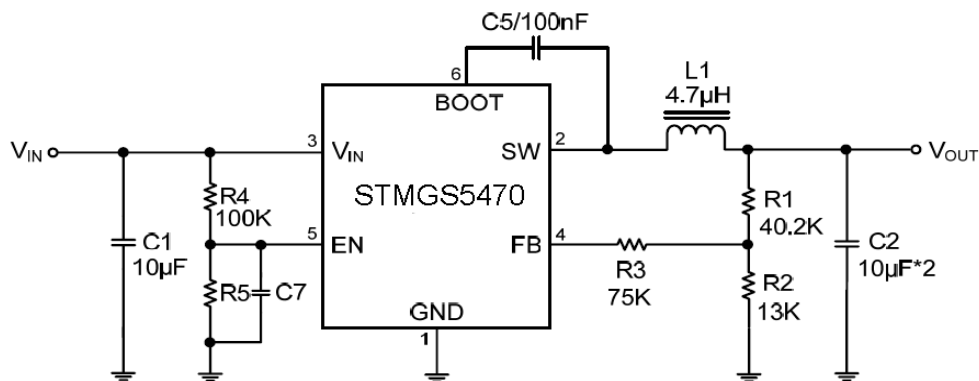
PIN DESCRIPTION

Pin No.	Name	Description
1	GND	System Ground. Reference ground of the regulated output voltage: requires extra care during PCB layout. Connect to GND with copper traces and vias.
2	SW	Switch Output. Connect using wide a PCB trace.
3	V _{IN}	Supply Voltage. The STMGS5470 operates from a 4.7V to 18V input rail.
4	FB	Feedback Voltage.
5	EN	EN=HIGH to enable the STMGS5470. For automatic start-up, connect EN to VIN using a 100kΩ resistor.
6	BOOT	Bootstrap. Connect a capacitor and a resistor between SW and Boot pins to form a floating supply across the high-side switch driver. Recommend to use 0.1uF BST capacitor.

BLOCK DIAGRAM



TYPICAL APPLICATIONS



ELECTRICAL CHARACTERISTICS (Typical values $V_{IN} = 12V$, $T_A = 25^\circ C$, unless otherwise specified)

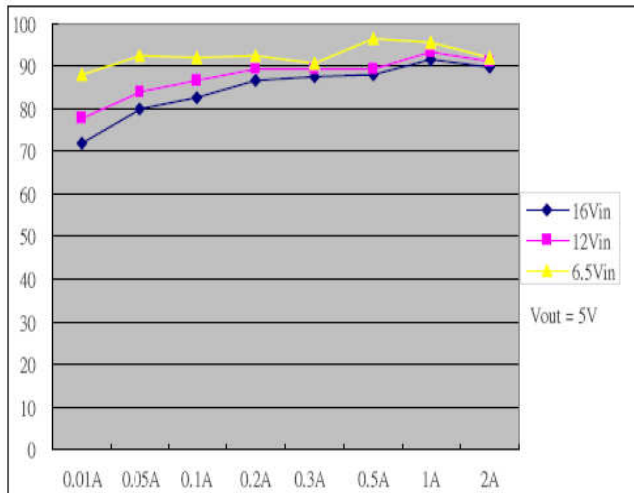
Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		4.7	-	18	V
Quiescent Current	I_Q	$V_{EN}=2V$, $V_{FB}=0.85V$	-	90	-	μA
Shutdown Current	I_{SHDN}	$V_{EN}=0V$	-	-	6	μA
Feedback Voltage	V_{FB}	$4.7V \leq V_{IN} \leq 18V$	0.776	0.8	0.824	V
Feedback Over-voltage Threshold			-	0.88	-	V
Output Voltage Range	V_{OUT}		0.8	-	15	V
High Side Switch On Resistance ¹	$R_{DS(ON)H}$		-	160	-	m Ω
Low Side Switch On Resistance ¹	$R_{DS(ON)L}$		-	85	-	m Ω
Current Limit	I_{LMT}	Minimum Duty Cycle	3	3.6	-	A
SW Leakage Current	I_{LKG}	$V_{EN}=0V$, $V_{SW}=0V$	-	-	10	μA
Error Amplifier Voltage Gain ¹	A_{EA}		-	1000	-	V/V
Oscillation Frequency	F_{OSC1}		400	500	600	KHz
Short Circuit Oscillation Frequency	F_{OSC2}	$V_{FB}=0V$	100	125	150	KHz
Maximum Duty Cycle	D_{MAX}	$V_{FB}=0.5V$	90	92	-	%
Maximum On Time	T_{ON}		-	120	-	ns
EN Rising Threshold	$V_{EN H}$	V_{EN} Rising	-	1.32	-	V
EN Falling Threshold	$V_{EN L}$	V_{EN} Falling	1.12	1.22	-	V
Input Under Voltage Lockout Threshold	V_{UVLO}		3.37	3.75	4.12	V
Input Under Voltage Lockout Hysteresis	ΔV_{UVLO}		-	200	-	mV
Soft-Start Period	T_{SS}		-	1	-	ms
Thermal Shutdown Threshold ¹			-	150	-	$^\circ C$

Note:

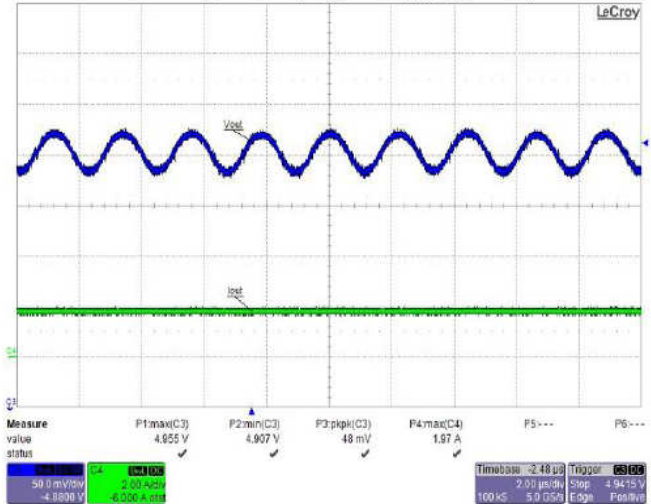
1. Guaranteed by design, not tested.

TYPICAL CHARACTERISTICS

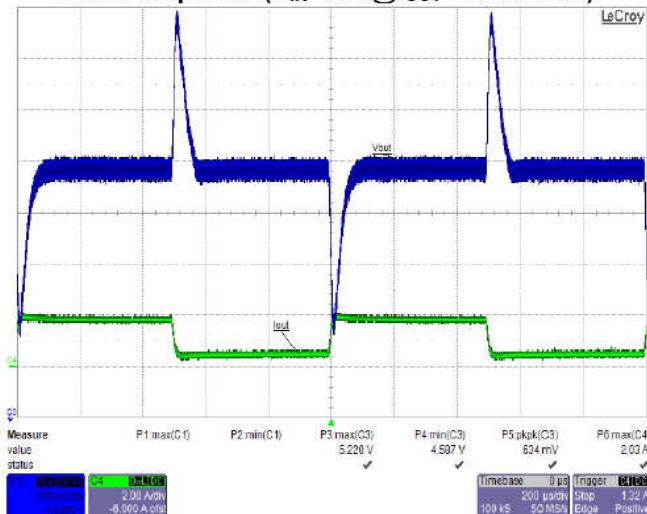
Efficiency VS I_{OUT}



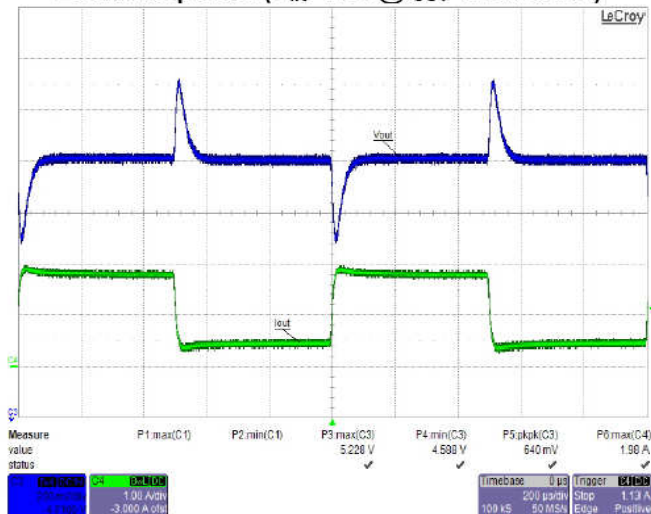
Steady State ($V_{IN}=12V@I_{OUT}=2A$)



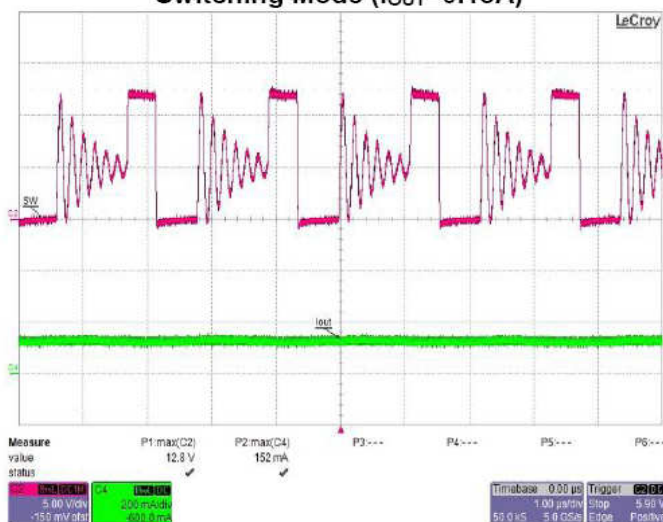
Load Response ($V_{IN}=12V@I_{OUT}=0.5A$ to $2A$)



Load Response ($V_{IN}=6.5V@I_{OUT}=0.5A$ to $2A$)



Switching Mode ($I_{OUT}=0.15A$)



Switching Mode ($I_{OUT}=2A$)

