

18V, 3A, High Efficiency Synchronous Step-Down Converter in SOT23-6

DESCRIPTION

ETA8113 is a wide input range, high-efficiency and high frequency DC-to-DC step-down switching regulator, capable of delivering up to 3A of output current. It adopts an Adaptive COT control scheme that enables very fast transient response and provides a very smooth transition when the output varies from light load to heavy load. During light load, ETA8113 goes into a PFM mode that saves switching loss achieving high efficiency. The adaptive COT control also maintains a constant switching frequency across line and load. An DVP function protects the IC itself and its downstream system against input voltage surges. With this DVP function, the IC can stand off input voltage as high as 19V, making it an ideal solution for industrial applications such as LCD TV, Set Top Box, Portable TV, etc. ETA8113 is available in SOT23-6 package.

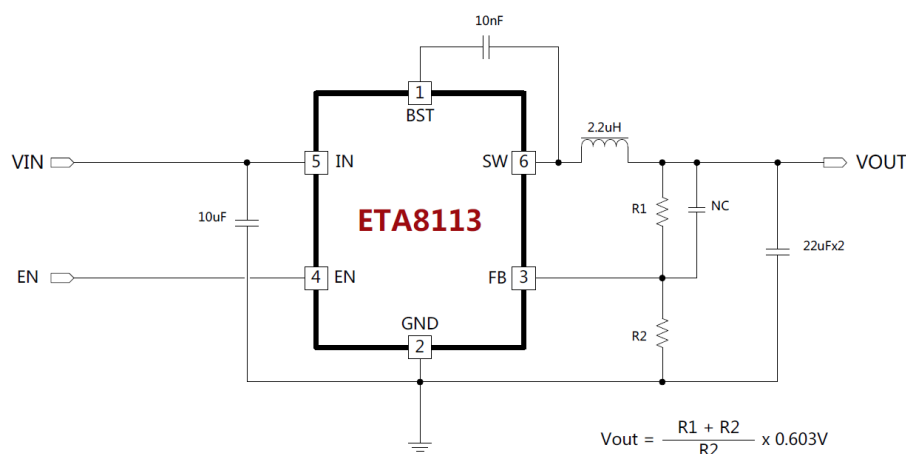
FEATURES

- ◆ Wide Input Range: 4.5V-18V
- ◆ Adaptive COT Control
- ◆ Ultra-fast load transient response
- ◆ High Efficiency PFM mode at light load
- ◆ High Efficiency Synchronous operation
- ◆ No load IQ 177uA
- ◆ Low R_{dson} Internal power FETs
- ◆ Capable of Delivering 3A
- ◆ No External Compensation Needed
- ◆ Thermal Shutdown and UVLO
- ◆ Available in SOT23-6 Package

APPLICATIONS

- ◆ LCD TV
- ◆ Set Top Box
- ◆ xDSL Modem

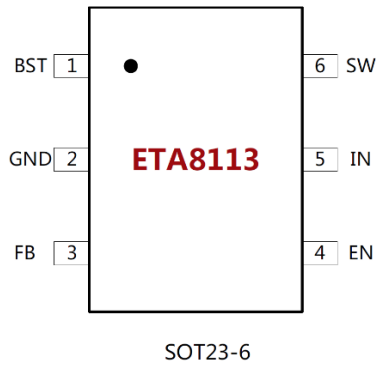
TYPICAL APPLICATION



ORDERING INFORMATION

PART No.	PACKAGE	TOP MARK	Pcs/Reel
ETA8113S2G	SOT23-6	DuYW	3000

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

IN, SW,EN Voltage	-0.3V to 19V
BST Voltage	-0.3V to SW+6V
FB Voltage	-0.3V to 6V
Operating Temperature Range	-40°C to 85°C
Storage Temperature Range	-55°C to 150°C
Thermal Resistance	θ_{JA} θ_{JC}
SOT23-6.....	180.....90..... °C/W
Lead Temperature (Soldering 10ssec)	260°C

ELECTRICAL CHARACTERISTICS

($V_{IN} = 12V$, $V_{OUT} = 3.3V$, unless otherwise specified. Typical values are at $T_A = 25^\circ C$.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage Range		4.5		18	V
Input UVLO	Rising, Hysteresis=320mV		4.05		V
Input OVP	Rising, Hysteresis=0.9V		19		V
Input Supply Current	$V_{FB}=0.65V$, no switching		177		μA
Input Shutdown Current			7	14	μA
FB Voltage		0.591	0.603	0.615	V
FB Input Current			0	1	μA
Switching Frequency			500		kHz
Maximum Duty Cycle			97		%
Short Circuit Hiccup Time	On Time		2		mS
	Off Time		6		mS
FB Hiccup Threshold			0.4		V
High Side Switch On Resistance			83		m Ω
Low Side Switch On Resistance			50		m Ω
High Side Current Limit			4.5		A
SW Leakage Current	$I_N=SW=12V$			10	μA
EN Rising Threshold	Rising	1	1.2	1.4	V
EN Falling Threshold	Falling	0.9	1.1	1.3	V
EN Input Current	$V_{EN}=2V$		2	6	μA
Thermal Shutdown	Rising, Hysteresis =36°C		150		°C

PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	BST	Bootstrap pin. Connect a 10nF capacitor from this pin to SW
2	GND	Ground
3	FB	Feedback Input. Connect an external resistor divider from the output to FB and GND to set V_{OUT}
4	EN	Enable pin for the IC. Drive this pin high to enable the part, low or floating to disable.
5	IN	Supply Voltage. Bypass with a 10 μ F ceramic capacitor to GND
6	SW	Inductor Connection. Connect an inductor Between SW and the regulator output.