6V/3A, Fast Response, Adaptive COT Step-Down Converter in SOT23-6

DESCRIPTION

ETA3452 belongs to a new breed of high frequency synchronous Step-Down converters that combines the advantages of voltage mode control and Constant-On-Time control. Its adaptive Constant-On-Time control dynamically changes switch on time to achieve a constant switching frequency. It does not have the minimum on-time constrain normally a fixed-frequency current mode Step-down requires, allowing it to go down to very low duty ratio without affecting loop stability. The voltage mode nature of ETA3452 also provides more superior load transient response and a seamless transition from PFM to PWM modes. ETA3452 is capable of supplying output with current up to 3A at 1.2V output. All these features make ETA3452 an excellent choice for ARM based CPU power supply.

ETA3452 is in a SOT23-6 package.

FEATURES

- Adaptive COT control
- Up to 95% Efficiency
- Up to 91% Efficiency for low output voltage
- Up to 3A Max Output current
- Feedback voltage 0.45V
- Excellent load transient response
- SOT23-6 Package

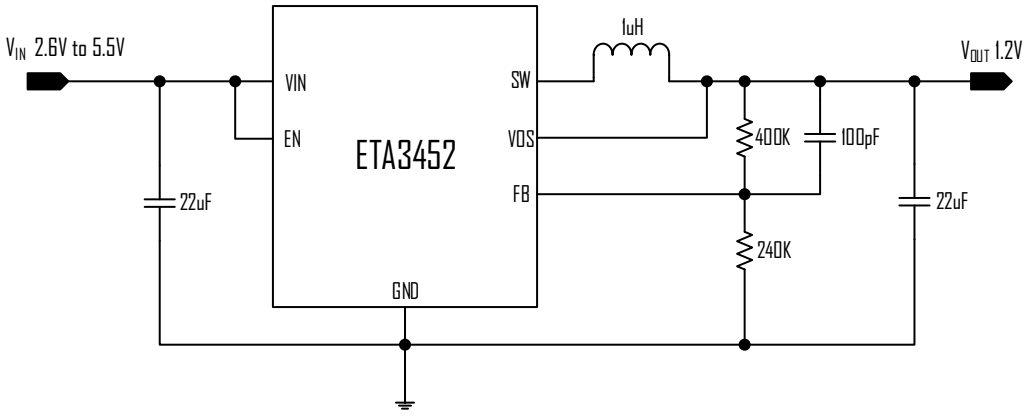
APPLICATIONS

- ARM based CPUs
- Tablet, MID
- Smart Phone
- Smart Set-Top Box, OTT

ORDERING INFORMATION

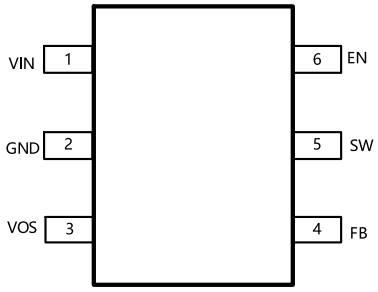
PART	PACKAGE PIN	TOP MARK
ETA3452S2G	SOT23-6	FLYW FL: Product Code YW: Date Code

TYPICAL APPLICATION



Typical Application Circuit of 1.2V Output

PIN CONFIGURATION



SOT23-6

ABSOLUTEMAXIMUM RATINGS

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

VIN Voltage .....–0.3V to 6.0V
All Other Pin Voltage .....VIN–0.3V to VIN+0.3
SW to ground current.....Internally limited
Operating Temperature Range .....–40°C to 85°C
Storage Temperature Range .....–55°C to 150°C

Thermal Resistance	θ_{JC}	θ_{JA}	
SOT23-6	100	190	°C/W

ELECTRICAL CHACRACTERISTICS

(V_{IN} = 3.6V, unless otherwise specified. Typical values are at TA = 25°C.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage Range		2.6		5.5	V
Input UVLO	Rising, Hysteresis=250mV		2.15		V
Input OVP	Rising, Hysteresis=200mV		6.25		V
Input Supply Current	V_{FB} =0.5V, Device Not Switching		50		μA
Input Shutdown Current	EN=GND		0.1	1	μA
FB Feedback Voltage		0.441	0.45	0.459	V
FB Input Current			0.01		μA
Output Voltage Range		0.45		V_{IN}	V
Load Regulation	V_{IN} =5V, I_{OUT} =0 to 3A		0.67		%/A
Line Regulation	V_{IN} =3V to 4.2V, I_{OUT} =1A		0.29		%/V
Switching Frequency		1.0	1.5	2.0	MHz
PMOS Switch On Resistance	I_{SW} =200mA		120		mΩ
NMOS Switch On Resistance	I_{SW} =200mA		60		mΩ
PMOS Switch Current Limit	Vin=5V	4	4.5		A
SW Leakage Current	V_{IN}=5.5V,V_{SW}=0 or 5.5V,EN=GND			10	μA
EN Input Current				1	μA
EN Input Low Voltage		0.4			V
EN Input High Voltage				1.5	V
Thermal Shutdown	Rising, Hysteresis =20°C		155		°C

PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	VIN	Supply Voltage. Bypass with a 22μF ceramic capacitor to GND
2	GND	Ground
3	VOS	Output voltage sense pin, to be connected to the output node of regulator.
4	FB	Feedback Input. Connect an external resistor divider from the output to FB and GND to set the output to a voltage between 0.45V and VIN
5	SW	Inductor Connection. Connect an luH inductor Between SW and the regulator output.
6	EN	Enable pin for the IC. Drive this pin to high to enable the part, low to disable.

TYPICAL CHARACTERISTICS

(Typical values are at T_A = 25°C unless otherwise specified.)