

5V Input 2A High Efficiency Synchronous Step-Down Converter

DESCRIPTION

The MT3101/A/B is a high efficiency 2A constant on time (COT) controlled synchronous step-down converter. It can operate with input voltage from 2.5V to 5.5V and provide output range from 0.6V to input level, thanks to its 100% duty cycle operation. The constant on-time control scheme simplifies loop compensation and offers excellent load transient response. MT3101/A/B consumes extremely low 15µA quiescent current hence achieves superior light load efficiency. The high gain error amplifier in the control loop provides excellent load and line regulation. Proprietary adaptive on-time helps MT3101/A/B to achieve nearly constant switching frequency across load range. MT3101/A/B has cycle-by-cycle current limit and hiccup mode to protect over-load or short circuit fault conditions.

MT3101/A/B is available in low profile 6 leads DFN 2mmx2mm packages.

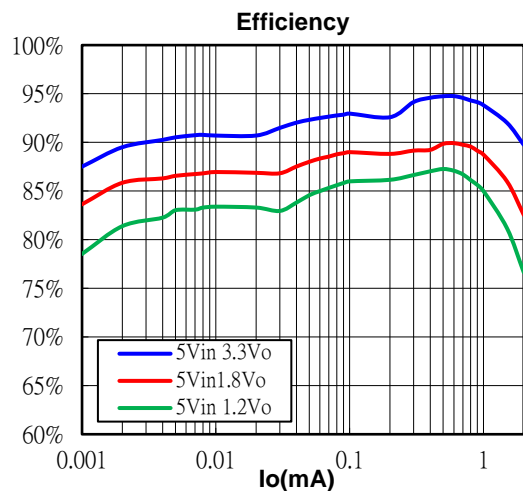
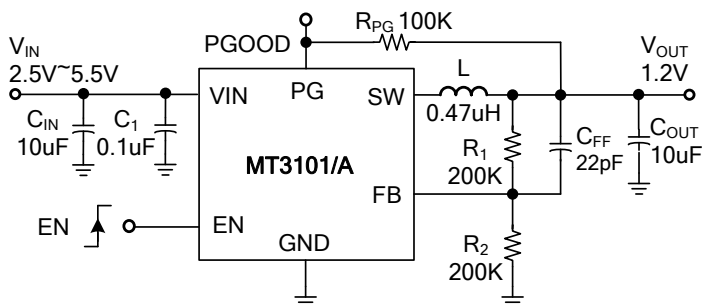
FEATURES

- Wide Input Range from 2.5V to 6V
- Proprietary Fast Transient Constant On Time Architecture Stable with low ESR Ceramic Output Capacitors
- +/- 2% 0.6V Feedback Voltage
- MT3101: 2.5MHz with Light Load Pulse Skip (PSM) Mode
MT3101A: 2.5MHz with Forced PWM (FPWM) Mode
- MT3101B: 1.5MHz with Light Load Pulse Skip (PSM) Mode
- 15µA Low Quiescent Current
- 2A Continuous Output Current
- 1.21V Accurate Enable Threshold
- Up to 95% Efficiency
- 100% Duty Cycle Operation
- Built-in 130mΩ/100mΩ Power Switches
- Internal 1msec Soft-Start
- Cycle-by-cycle Current Limit Protection
- Over-Load and Short Circuit Hiccup Mode
- Open Drain Power Good Indication
- Output Discharge
- Thermal Shutdown Protection
- Available in Small DFN2x2_6L Package
- Pb-Free RoHS Compliant

APPLICATIONS

- Solid-State and Hard Disk Drives
- WiFi RF Modules
- DC/DC Micro Modules
- Smart Phone and Tablets

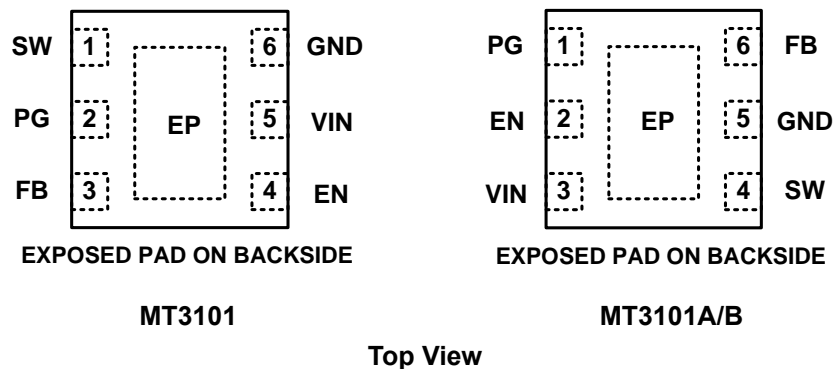
Typical Applications



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Ordering Information

Part No.	Marking	Temp. Range	Remark	Package	MOQ
MT3101NDER	3101 YWxx	-40°C ~+85°C	Adjustable Vout 2.5MHz /PSM mode	DFN2x2_6L	3000/Tape & Reel
MT3101ADER	101A YWxx	-40°C ~+85°C	Adjustable Vout 2.5MHz /FPWM mode	DFN2x2_6L	3000/Tape & Reel
MT3101BDER	101B YWxx	-40°C ~+85°C	Adjustable Vout 1.5MHz /PSM mode	DFN2x2_6L	3000/Tape & Reel

Note: Y: Year, W: Week, xx: Manufacture Code

Pin Configuration

Pin Description

MT3101 Pin No.	MT3101A/B Pin No.	Symbol	Description
1	4	SW	Power Switch Node
2	1	PG	Power Good Open-drain Output. Connect a 100kΩ pull-up resistor to V _{IN} or V _{OUT} .
3	6	FB	Voltage Feedback Input. Connect a resistor divider between output and FB to program the output voltage. VFB is regulated to 0.6V.
4	2	EN	Regulator Enable Control Input with accurate 1.21V enable threshold which can be used to build precision R-C turn-on delay and input under-voltage lockout. This pin has an pull-down resistor of typically 1MΩ to GND. <ul style="list-style-type: none"> • Drive EN above 1.21V to turn on the converter • Drive EN below 1.11V to turn off the converter and discharge output
5	3	VIN	Input Supply Voltage
6	5	GND	Ground